RichFaces Developer Guide

RichFaces framework with a huge library of rich components and skinnability support

Introduction

RichFaces is an open source framework that adds Ajax capability into existing JSF applications without resorting to JavaScript.

RichFaces leverages JavaServer Faces framework including lifecycle, validation, conversion facilities and management of static and dynamic resources. RichFaces components with built-in Ajax support and a highly customizable look-and-feel can be easily incorporated into JSF applications.

RichFaces allows to:

- Intensify the whole set of JSF benefits while working with Ajax. RichFaces is fully integrated into the JSF lifecycle. While other frameworks only give you access to the managed bean facility, RichFaces advantages the action and value change listeners, as well as invokes server-side validators and converters during the Ajax request-response cycle.
- Add Ajax capability to the existing JSF applications. Framework provides two components libraries (Core Ajax and UI). The Core library sets Ajax functionality into existing pages, so there is no need to write any JavaScript code or to replace existing components with new Ajax ones. RichFaces enables page-wide Ajax support instead of the traditional component-wide support and it gives the opportunity to define the event on the page. An event invokes an Ajax request and areas of the page which become synchronized with the JSF Component Tree after changing the data on the server by Ajax request in accordance with events fired on the client.
- Create quickly complex View basing on out of the box components. RichFaces UI library contains components for adding rich user interface features to JSF applications. It extends the RichFaces framework to include a large (and growing) set of powerful rich Ajax-enabled components that come with extensive skins support. In addition, RichFaces components are designed to be used seamlessly with other 3d-party component libraries on the same page, so you have more options for developing your applications.
- Write your own custom rich components with built-in Ajax support. We're always working on improvement of Component Development Kit (CDK) that was used for RichFaces UI library creation. The CDK includes a code-generation facility and a templating facility using a JSP-like syntax. These capabilities help to avoid a routine process of a component creation. The component factory works like a well-oiled machine allowing the creation of first-class rich components with built-in Ajax functionality even more easily than the creation of simpler components by means of the traditional coding approach.
- Package resources with application Java classes. In addition to its core, Ajax functionality of RichFaces provides an advanced support for the different resources management: pictures, JavaScript code, and CSS stylesheets. The resource framework makes possible to pack easily these resources into Jar files along with the code of your custom components.

- Easily generate binary resources on-the-fly. Resource framework can generate images, sounds, Excel spreadsheets etc.. on-the-fly so that it becomes for example possible to create images using the familiar approach of the "Java Graphics2D" library.
- Create a modern rich user interface look-and-feel with skins-based technology. RichFaces provides a skinnability feature that allows easily define and manage different color schemes and other parameters of the UI with the help of named skin parameters. Hence, it is possible to access the skin parameters from JSP code and the Java code (e.g. to adjust generated on-the-fly images based on the text parts of the UI). RichFaces comes with a number of predefined skins to get you started, but you can also easily create your own custom skins.
- Test and create the components, actions, listeners, and pages at the same time. An automated testing facility is in our roadmap for the near future. This facility will generate test cases for your component as soon as you develop it. The testing framework will not just test the components, but also any other server-side or client-side functionality including JavaScript code. What is more, it will do all of this without deploying the test application into the Servlet container.

RichFaces UI components come ready to use out-of-the-box, so developers save their time and immediately gain the advantage of the mentioned above features in Web applications creation. As a result, usage experience can be faster and easily obtained.

Technical Requirements

RichFaces was developed with an open architecture to be compatible with the widest possible variety of environments.

This is what you need to start working with RichFaces 3.3.1:

- Java
- JavaServer Faces
- Java application server or servlet container
- Browser (on client side)
- RichFaces framework

2.1. Supported Java Versions

- JDK 1.5 and higher

2.2. Supported JavaServer Faces Implementations and Frameworks

- Sun JSF-RI - 1.2_12
- MyFaces 1.2.5
- Facelets 1.1.1 - 1.2
- Seam 1.2. - 2.1.0

2.3. Supported Servers

- Apache Tomcat 5.5 - 6.0
- BEA WebLogic 9.1 - 10.0
- Resin 3.1
- Jetty 6.1.x
- Sun Application Server 9 (J2EE 1.5)
- Glassfish (J2EE 5)

- JBoss 4.2.x - 5
- Websphere 7.0. and higher
- Geronimo 2.0 and higher

2.4. Supported Browsers

- Internet Explorer 6.0 - 8.0
- Firefox 2.0 - 3.0
- Opera 8.5 - 9.5
- Safari 3.0
- Google Chrome

This list is composed basing on reports received from our users. We assume the list can be incomplete and absence of your environment in the list doesn't mean incompatibility.

We appreciate your feedback on platforms and browsers that aren't in the list but are compatible with RichFaces. It helps us to keep the list up-to-date.

Getting Started with RichFaces

This chapter describes all necessary actions and configurations that should be done for plugging the RichFaces components into a JSF appplication. The description relies on a simple JSF with RichFaces application creation process from downloading the libraries to running the application in a browser. The process of application creation described here is common and does not depend on used IDE.

3.1. Downloading the RichFaces

The latest release of RichFaces components is available for download at *JBoss RichFaces Downloads area* [http://labs.jboss.com/jbossrichfaces/downloads] at JBoss community. Binary files (uploaded there in `*.bin.zip` or `*.bin.tar.gz` archives) contains compiled, ready-to-use version of RichFaces with set of basic skins.

To start with RichFaces in computer file system create new folder with name "RichFaces", download and unzip the archive with binaries there.

For those who want to download and compile the RichFaces by themselfs there is an article at JBoss community that describes the *RichFaces repository's structure overview* [http://www.jboss.org/community/docs/DOC-11864] and some aspects of working with it.

3.2. Simple JSF application with RichFaces

"RichFaces Greeter"—the simple application—is hello-world like application but with one difference: the world of RichFaces will say "Hello!" to user first.

Create standard JSF 1.2 project with all necessary libraries; name the project "Greeter" and follow the decription.

3.2.1. Adding RichFaces libraries into the project

Go to the folder with unzipped earlier RichFaces binary files and open `lib` folder. This folder contains three `*.jar` files with API, UI and implementation libraries. Copy that "jars" from `lib` folder to `WEB-INF/lib` folder of "Greeter" JSF application.

Important:

A JSF application with RichFaces assumes that the following JARs are available in the project: commons-beanutils-1.7.0.jar, commons-collections-3.2.jar, commons-digester-1.8.jar, commons-logging-1.0.4.jar, jhighlight-1.0.jar.

3.2.2. Registering RichFaces in web.xml

After RichFaces libraries where added into the project it is necessary to register them in project `web.xml` file. Add following lines in `web.xml`:

```
...
<!-- Plugging the "Blue Sky" skin into the project -->
<context-param>
  <param-name>org.richfaces.SKIN</param-name>
  <param-value>blueSky</param-value>
</context-param>

<!-- Making the RichFaces skin spread to standard HTML controls -->
<context-param>
    <param-name>org.richfaces.CONTROL_SKINNING</param-name>
    <param-value>enable</param-value>
</context-param>

<!-- Defining and mapping the RichFaces filter -->
<filter>
  <display-name>RichFaces Filter</display-name>
  <filter-name>richfaces</filter-name>
  <filter-class>org.ajax4jsf.Filter</filter-class>
</filter>

<filter-mapping>
  <filter-name>richfaces</filter-name>
  <servlet-name>Faces Servlet</servlet-name>
  <dispatcher>REQUEST</dispatcher>
  <dispatcher>FORWARD</dispatcher>
  <dispatcher>INCLUDE</dispatcher>
</filter-mapping>
...
```

For more information on how to work with RichFaces skins read "*Skinnabilty*" chapter.

Finally the `web.xml` should look like this:

```
<?xml version="1.0"?>
<web-app version="2.5"
         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">
<display-name>Greeter</display-name>

<context-param>
  <param-name>javax.faces.STATE_SAVING_METHOD</param-name>
  <param-value>server</param-value>
</context-param>

<context-param>
  <param-name>org.richfaces.SKIN</param-name>
  <param-value>blueSky</param-value>
</context-param>

<context-param>
    <param-name>org.richfaces.CONTROL_SKINNING</param-name>
    <param-value>enable</param-value>
</context-param>

<filter>
  <display-name>RichFaces Filter</display-name>
  <filter-name>richfaces</filter-name>
  <filter-class>org.ajax4jsf.Filter</filter-class>
</filter>

<filter-mapping>
  <filter-name>richfaces</filter-name>
  <servlet-name>Faces Servlet</servlet-name>
  <dispatcher>REQUEST</dispatcher>
  <dispatcher>FORWARD</dispatcher>
  <dispatcher>INCLUDE</dispatcher>
</filter-mapping>

<listener>
  <listener-class>com.sun.faces.config.ConfigureListener</listener-class>
</listener>

<!-- Faces Servlet -->
<servlet>
  <servlet-name>Faces Servlet</servlet-name>
  <servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
  <load-on-startup>1</load-on-startup>
</servlet>
```

```
<!-- Faces Servlet Mapping -->
<servlet-mapping>
  <servlet-name>Faces Servlet</servlet-name>
  <url-pattern>*.jsf</url-pattern>
</servlet-mapping>

<login-config>
  <auth-method>BASIC</auth-method>
  </login-config>
</web-app>
```

3.2.3. Managed bean

The "RichFaces Greeter" application needs a managed bean. In project `JavaSource` folder create a new managed bean with name `user` in `demo` package and paste there the following simple code:

```
package demo;

public class user {
  private String name="";
  public String getName() {
    return name;
  }
  public void setName(String name) {
    this.name = name;
  }
}
```

3.2.4. Registering bean in faces-cofig.xml

With the next step the `user` bean should be registered in `faces-config.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<faces-config version="1.2"
              xmlns="http://java.sun.com/xml/ns/javaee"
              xmlns:xi="http://www.w3.org/2001/XInclude"
              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-facesconfig_1_2.xsd">
  <managed-bean>
    <description>UsernName Bean</description>
    <managed-bean-name>user</managed-bean-name>
```

```
    <managed-bean-class>demo.user</managed-bean-class>
    <managed-bean-scope>request</managed-bean-scope>
    <managed-property>
      <property-name>name</property-name>
      <property-class>java.lang.String</property-class>
      <value/>
    </managed-property>
  </managed-bean>
</faces-config>
```

3.2.5. RichFaces Greeter index.jsp

The "RichFaces Greeter" application has only one JSP page. Create `index.jsp` page in root of `WEB CONTENT` folder and add there following code:

```
<!doctype html public "-//w3c//dtd html 4.0 transitional//en">
<%@ taglib uri="http://java.sun.com/jsf/core" prefix="f" %>
<%@ taglib uri="http://java.sun.com/jsf/html" prefix="h" %>
<!-- RichFaces tag library declaration -->
<%@ taglib uri="http://richfaces.org/a4j" prefix="a4j"%>
<%@ taglib uri="http://richfaces.org/rich" prefix="rich"%>

<html>
    <head>
        <title>RichFaces Greeter</title>
    </head>
    <body>
        <f:view>
            <a4j:form>
                <rich:panel header="RichFaces Greeter" style="width: 315px">
                    <h:outputText value="Your name: " />
                    <h:inputText value="#{user.name}" >
                        <f:validateLength minimum="1" maximum="30" />
                    </h:inputText>

                    <a4j:commandButton value="Get greeting" reRender="greeting" />

                    <h:panelGroup id="greeting" >
                        <h:outputText value="Hello, " rendered="#{not empty user.name}" />
                        <h:outputText value="#{user.name}" />
                        <h:outputText value="!" rendered="#{not empty user.name}" />
                    </h:panelGroup>
                </rich:panel>
```

```
            </a4j:form>
        </f:view>
    </body>
</html>
```

The application uses three RichFaces components: **<rich:panel>** is used as visual container for information; **<a4j:commandButton>** with built-in Ajax support allows rendering a greeting dynamically after a response comes back and **<a4j:form>** helps the button to perform the action.

Note, that the RichFaces tag library should be declared on each JSP page. For XHTML pages add following lines for tag library declaration:

```
<xmlns:a4j="http://richfaces.org/a4j">
<xmlns:rich="http://richfaces.org/rich">
```

That's it. Run the application on server. Point your browser to `index.jsp` page in browser: `http://localhost:8080/Greeter/index.jsf`

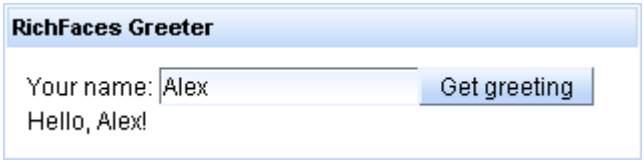


Figure 3.1. "RichFaces Greeter" application

3.3. Integration of RichFaces into Maven Project

In this section we will tell how you can create a simple JSF application with RichFaces using Maven.

In the first place you need to make sure that Maven is installed on you local machine. We will run the JSF application on Tomcat 6.0 server, so please download and install it if you haven't done already so.

Now we can move on to creating the application. To create the project structure and fill it with minimal content we will use the "maven-archetype-jsfwebapp" Maven archetype which is a part of RichFaces CDK.

The "maven-archetype-jsfwebapp" archetype and the project itself require extra repositories to be provided, namely "http://snapshots.jboss.org/maven2/" and "http://repository.jboss.com/maven2/". The easiest way to make the repositories visible for Maven is to create a profile in "maven_installation_folder/conf/settings.xml" in `<profiles>` element. This is the content of the profile:

```
<profile>
   <id>jsf-app-profile</id>
   <repositories>
      <repository>
         <releases>
            <enabled>true</enabled>
         </releases>
         <snapshots>
            <enabled>true</enabled>
            <updatePolicy>always</updatePolicy>
         </snapshots>
         <id>snapshots.jboss.org</id>
         <name>Snapshot Jboss Repository for Maven</name>
         <url>http://snapshots.jboss.org/maven2/</url>
         <layout>default</layout>
      </repository>
      <repository>
         <releases>
            <enabled>true</enabled>
         </releases>
         <snapshots>
            <enabled>true</enabled>
            <updatePolicy>always</updatePolicy>
         </snapshots>
         <id>repository.jboss.com</id>
         <name>Jboss Repository for Maven</name>
         <url>http://repository.jboss.com/maven2/</url>
         <layout>default</layout>
      </repository>
   </repositories>
</profile>
```

When the profile is added you need to activate it in the `<activeProfiles>` element. It can be done like this:

```
...
<activeProfiles>
  <activeProfile>jsf-app-profile</activeProfile>
</activeProfiles>
```

```
...
```

Now you have everything to create the project using the "maven-archetype-jsfwebapp" archetype. Create a folder that will house your project and run the this command in it:

```
...
mvn archetype:generate -DarchetypeGroupId=org.richfaces.cdk -DarchetypeArtifactId=maven-archetype-jsfwebapp -DarchetypeVersion=3.3.2-SNAPSHOT -DgroupId=org.docs.richfaces -DartifactId=jsf-app
...
```

You can adjust some parameters of the command.

Table 3.1. Title of the table

Parameter	Description
-DgroupId	Defines the package for the Managed beans
-DartifactId	Defines the name of the project

This command generates a JSF project that has the following structure:

```
jsf-app
|-- pom.xml
`-- src
    |-- main
    |   |-- java
    |   |   `-- org
    |   |       `-- docs
    |   |           `-- richfaces
    |   |               `-- Bean.java
    |   |-- resources
    |   `-- webapp
    |       |-- WEB-INF
    |       |   |-- faces-config.xml
    |       |   `-- web.xml
    |       |-- index.jsp
    |       `-- pages
    |           |-- index.jsp
    |           `-- index.xhtml
    `-- test
        `-- java
```

```
        `-- org
            `-- docs
                `-- richfaces
                    `-- BeanTest.java
```

Now go to "jsf-app" folder, it contains a project descriptor(pom.xml). Open the project descriptor to edit and add dependencies to the `<dependencies>` element. Your `<dependencies>` element content should be the following:

```
...
<dependencies>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <version>3.8.1</version>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>servlet-api</artifactId>
    <version>2.4</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>javax.servlet</groupId>
    <artifactId>jsp-api</artifactId>
    <version>2.0</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>jstl</groupId>
    <artifactId>jstl</artifactId>
    <version>1.1.2</version>
  </dependency>
  <dependency>
    <groupId>javax.servlet.jsp</groupId>
    <artifactId>jsp-api</artifactId>
    <version>2.1</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>javax.faces</groupId>
```

```
        <artifactId>jsf-api</artifactId>
        <version>1.2_12</version>
    </dependency>
    <dependency>
        <groupId>javax.faces</groupId>
        <artifactId>jsf-impl</artifactId>
        <version>1.2_12</version>
    </dependency>
    <dependency>
        <groupId>javax.el</groupId>
        <artifactId>el-api</artifactId>
        <version>1.0</version>
        <scope>provided</scope>
    </dependency>
    <dependency>
        <groupId>el-impl</groupId>
        <artifactId>el-impl</artifactId>
        <version>1.0</version>
        <scope>provided</scope>
    </dependency>
    <dependency>
        <groupId>javax.annotation</groupId>
        <artifactId>jsr250-api</artifactId>
        <version>1.0</version>
    </dependency>
    <!-- RichFaces libraries -->
    <dependency>
        <groupId>org.richfaces.framework</groupId>
        <artifactId>richfaces-api</artifactId>
        <version>3.3.2-SNAPSHOT</version>
    </dependency>
    <dependency>
        <groupId>org.richfaces.framework</groupId>
        <artifactId>richfaces-impl</artifactId>
        <version>3.3.2-SNAPSHOT</version>
    </dependency>
    <dependency>
        <groupId>org.richfaces.ui</groupId>
        <artifactId>richfaces-ui</artifactId>
        <version>3.3.2-SNAPSHOT</version>
    </dependency>
</dependencies>
...
```

The last three dependences add RichFaces libraries to the project. You can now build the project with the `mvn install` command.

When you see the "BUILD SUCCESSFUL" message, the project is assembled and can be imported to a IDE and run on the server.

The project can be built for Eclipse IDE with `mvn eclipse:eclipse -Dwtpversion=2.0` command.

Then you can import the project into Eclipse. After importing to Eclipse open the "jsf-app/src/main/webapp/WEB-INF/web.xml" to configure it according to the listing in the *Registering RichFaces in web.xml* section of the guide.

The project is configured and now you can start using RichFaces. Open "jsf-app/src/main/webapp/pages/index.jsp" file and add the tag library declaration.

```
...
<%@ taglib uri="http://richfaces.org/rich" prefix="rich"%>
...
```

Add some RichFaces component to the "index.jsp" page, for instance **<rich:calendar>**. Your "index.jsp" page will look like this:

```
...
<%@ taglib uri="http://java.sun.com/jsf/html" prefix="h" %>
<%@ taglib uri="http://java.sun.com/jsf/core" prefix="f"%>
<%@ taglib uri="http://richfaces.org/rich" prefix="rich"%>
<html>
   <head>
      <title>JSF Application with RichFaces built by Maven</title>
   </head>
   <body>
      <f:view>
      <rich:calendar />
      </f:view>
   </body>
</html>
...
```

Now run the application on Tomcat server and open it in your favourite browser by pointing it to "http://localhost:8080/jsf-app/" .

3.4. Relevant Resources Links

The Photo Album Application [http://livedemo.exadel.com/photoalbum] is designed and developed with RichFaces.

Maven Resource Dependency Plugin Reference [http://www.jboss.org/community/wiki/MavenResourceDependencyPluginReference] article discusses plugin configuration and usage.

See also the *"How to start RichFaces application with NetBeans IDE"* [http://www.jboss.org/community/wiki/HowtostartRichFacesapplicationwithNetBeansIDE] article in the RichFaces Cookbook.

JBoss Developer Studio [https://www.redhat.com/apps/store/developers/jboss_developer_studio.html] comes with a tight integration with RichFaces component framework. Following links might be useful for those who already use this IDE and RichFaces for developing applications and those who wish to improve their development process:

- "*Rich Components* [http://download.jboss.org/jbosstools/nightly-docs/en/GettingStartedGuide/html/first_seam.html#rich_components]" chapter in "Getting Started with JBoss Developer Studio Guide" describes how to add RichFaces components into a CRUD application;
- "*JBoss Tools Palette* [http://download.jboss.org/jbosstools/nightly-docs/en/jsf/html/palette.html]" chapter in "Visual Web Tools Reference Guide" describes advantages that gives Tools Pallete (comes together with JBDS) for quick and easy pages creation processs including RichFaces applications;
- "*RichFaces Toolkit for developing Web application* [http://docs.jboss.org/tools/movies/demos/rich_faces_demo/rich_faces_demo.htm]" video tutorial demonstrates some aspects of interaction with JBoss Developer Studio while working with RichFaces.
- "*How to Configure Maven for RichFaces* [http://docs.jboss.org/tools/movies/demos/rich_faces_demo/rich_faces_demo.htm]" article shortly discusses Maven configuration for RichFaces.
- " *RichFaces Release Procedure* [http://www.jboss.org/community/docs/DOC-13446]" article describes how RichFaces release builds are made.

Read also the *quick overview* [http://mkblog.exadel.com/?p=110] to "Practical RichFaces " book by Max Katz at his blog.

Settings for different environments

RichFaces comes with support for all tags (components) included in the JavaServer Faces specification. To add RichFaces capabilities to the existing JSF project you should just put the RichFaces libraries into the lib folder of the project and add filter mapping. The behavior of the existing project doesn't change just because of RichFaces.

4.1. Web Application Descriptor Parameters

RichFaces doesn't require any parameters to be defined in your web.xml. But the RichFaces parameters listed below may help with development and may increase the flexibility of RichFaces usage.

Table 4.1. Initialization Parameters

Name	Default	Description
org.richfaces.SKIN	DEFAULT	Is a name of a skin used in an application. It can be a literal string with a skin name, or the *EL* expression (`#{...}`) pointed to a *String* property (skin name) or a property of a org.richfaces.framework.skin type. Skin in last case, this instance is used as a current skin
org.richfaces.LoadScriptStrategy	DEFAULT	Defines how the RichFaces script files are loaded to application. Possible values are: ALL, DEFAULT, NONE. For more information see *"Scripts and Styles Load Strategy"*.
org.richfaces.LoadStyleStrategy	DEFAULT	Defines how the RichFaces style files are loaded to application. Possible values are: ALL, DEFAULT, NONE. For more information see *"Scripts and Styles Load Strategy"*.
org.ajax4jsf.LOGFILE	none	Is an URL to an application or a container log file (if possible). If this parameter is set, content from the given URL is shown on a *Debug* error page in the *iframe* window
org.ajax4jsf.VIEW_HANDLERS	none	Is a comma-separated list of custom *ViewHandler* instances for inserting in chain.

Name	Default	Description
		Handlers are inserted BEFORE RichFaces viewhandlers in the given order. For example, in facelets application this parameter must contain com.sun.facelets.FaceletViewHandler, instead of declaration in faces-config.xml
org.ajax4jsf.CONTROL_COMPONENTS	none	Is a comma-separated list of names for a component as a special control case, such as messages bundle loader, alias bean components, etc. Is a type of component got by a reflection from the static field *COMPONENT_TYPE* . For components with such types encode methods always are called in rendering Ajax responses, even if a component isn't in an updated part
org.ajax4jsf.ENCRYPT_RESOURCE_DATA	false	For generated resources, such as encrypt generation data, it's encoded in the resource URL. For example, URL for an image generated from the *mediaOutput* component contains a name of a generation method, since for a hacker attack, it is possible to create a request for any JSF baked beans or other attributes. To prevent such attacks, set this parameter to "true" in critical applications (works with JRE > 1.4)
org.ajax4jsf.ENCRYPT_PASSWORD	random	Is a password for encryption of resources data. If isn't set, a random password is used
org.ajax4jsf.COMPRESS_SCRIPT	true	It doesn't allow framework to reformat JavaScript files (makes it impossible to debug)
org.ajax4jsf.RESOURCE_URI_PREFIX	a4j	Defines prefix which is added to all URIs of generated resources. This prefix designed to handle RichFaces generated resources requests

Name	Default	Description
org.ajax4jsf.GLOBAL_RESOURCE_URI_PREFIX	a4j/g	Defines prefix which is added to URIs of global resources. This prefix designed to handle RichFaces generated resources requests
org.ajax4jsf.SESSION_RESOURCE_URI_PREFIX	a4j/s	Defines prefix which is used for session tracking for generated resources. This prefix designed to handle RichFaces generated resources requests
org.ajax4jsf.DEFAULT_EXPIRE	86400	Defines in seconds how long streamed back to browser resources can be cached
org.ajax4jsf.SERIALIZE_SERVER_STATE	false	If enabled the component state (not the tree) will be serialized before being stored in the session. This may be desirable for applications that may have issues with view state being sensitive to model changes. Instead of this parameter can use `com.sun.faces.serializeServerState` and `org.apache.myfaces.SERIALIZE_STATE_IN_SESSION` parameters for corresponding environments.

Note:

`org.richfaces.SKIN` is used in the same way as `org.ajax4jsf.SKIN`

Table 4.2. org.ajax4jsf.Filter Initialization Parameters

Name	Default	Description
log4j-init-file	-	Is a path (relative to web application context) to the *log4j.xml* configuration file, it can be used to setup per-application custom logging
enable-cache	true	

Name	Default	Description
		Enable caching of framework-generated resources (JavaScript, CSS, images, etc.). For debug purposes development custom JavaScript or Style prevents to use old cached data in a browser
forcenotrf	true	Force parsing by a filter *HTML* syntax checker on any JSF page. If "false", only Ajax responses are parsed to syntax check and conversion to well-formed XML. Setting to "false" improves performance, but can provide visual effects on Ajax updates

4.2. Sun JSF RI

RichFaces works with implementation of JSF (JSF 1.2_12) and with most JSF component libraries without any additional settings. For more information look at:

java.sun.com [http://java.sun.com/javaee/javaserverfaces/]

Additional information how to get `ViewExpiredExceptions` when using RichFaces with JSF 1.2_12 you can find in *RichFaces Cookbook article* [http://wiki.jboss.org/auth/wiki//RichFacesCookbook/ViewExpiredException].

4.3. Apache MyFaces

RichFaces works with Apache MyFaces 1.2.5 version including specific libraries like TOMAHAWK Sandbox and Trinidad (the previous ADF Faces). However, there are some considerations to take into account for configuring applications to work with MyFaces and RichFaces.

Note:

There are some problems with different filters defined in the web.xml file clashing. To avoid these problems, the RichFaces filter must be the first one among other filters in the web.xml configuration file.

For more information look at: *http://myfaces.apache.org* [http://myfaces.apache.org]

There's one more problem while using MyFaces + Seam . If you use this combination you should use **<a4j:page>** inside **<f:view>** (right after it in your code) wrapping another content inside your pages because of some problems in realization of **<f:view>** in myFaces.

The problem is to be overcome in the nearest future.

4.4. Facelets Support

A high-level support for Facelets is one of our main support features. When working with RichFaces, there is no difference what release of Facelets is used.

You should also take into account that some JSF frameworks such as Facelets use their own `ViewHandler` and need to have it first in the chain of ViewHandlers and the RichFaces AjaxViewHandler is not an exception. At first RichFaces installs its ViewHandler in any case, so in case of two frameworks, for example RichFaces + Facelets, no changes in settings are required. Although, when more then one framework (except RichFaces) is used, it's possible to use the `VIEW_HANDLERS` parameter defining these frameworks view handlers according to its usage order in it. For example, the declaration:

Example:

```
...
<context-param>
    <param-name>org.ajax4jsf.VIEW_HANDLERS</param-name>
    <param-value>com.sun.facelets.FaceletViewHandler</param-value>
</context-param>
...
```

says that Facelets will officially be the first, however `AjaxViewHandler` will be a little ahead temporarily to do some small, but very important job.

Note:

In this case you don't have to define `FaceletViewHandler` in the WEB-INF/faces-config.xml.

4.5. JBoss Seam Support

RichFaces now works out-of-the-box with JBoss Seam and Facelets running inside JBoss AS 4.0.4 and higher. There is no more shared JAR files needed. You just have to package the RichFaces library with your application.

Your web.xml for Seam 1.2 must be like this:

```
<?xml version="1.0" ?>
<web-app 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-app_2_4.xsd"
                version="2.4">

    <!-- richfaces -->

    <filter>
        <display-name>RichFaces Filter</display-name>
        <filter-name>richfaces</filter-name>
        <filter-class>org.ajax4jsf.Filter</filter-class>
    </filter>

    <filter-mapping>
        <filter-name>richfaces</filter-name>
        <url-pattern>*.seam</url-pattern>
    </filter-mapping>

    <!-- Seam -->

    <listener>
        <listener-class>org.jboss.seam.servlet.SeamListener</listener-class>
    </listener>

    <servlet>
        <servlet-name>Seam Resource Servlet</servlet-name>
        <servlet-class>org.jboss.seam.servlet.ResourceServlet</servlet-class>
    </servlet>

    <servlet-mapping>
        <servlet-name>Seam Resource Servlet</servlet-name>
        <url-pattern>/seam/resource/*</url-pattern>
    </servlet-mapping>

    <filter>
        <filter-name>Seam Filter</filter-name>
        <filter-class>org.jboss.seam.web.SeamFilter</filter-class>
    </filter>

    <filter-mapping>
        <filter-name>Seam Filter</filter-name>
```

```
        <url-pattern>/*</url-pattern>
    </filter-mapping>

    <!-- MyFaces -->

    <listener>
            <listener-class>org.apache.myfaces.webapp.StartupServletContextListener</listener-
class>
    </listener>

    <!-- JSF -->

    <context-param>
        <param-name>javax.faces.STATE_SAVING_METHOD</param-name>
        <param-value>client</param-value>
    </context-param>

    <context-param>
        <param-name>javax.faces.DEFAULT_SUFFIX</param-name>
       <param-value>.xhtml</param-value>
    </context-param>

    <servlet>
        <servlet-name>Faces Servlet</servlet-name>
        <servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
        <load-on-startup>1</load-on-startup>
    </servlet>

    <servlet-mapping>
        <servlet-name>Faces Servlet</servlet-name>
        <url-pattern>*.seam</url-pattern>
    </servlet-mapping>
</web-app>
```

Seam 2 supports RichFaces Filter. Thus your web.xml for Seam 2 must be like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="2.5"
                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">
```

```
<context-param>
    <param-name>org.ajax4jsf.VIEW_HANDLERS</param-name>
    <param-value>com.sun.facelets.FaceletViewHandler</param-value>
</context-param>

<!-- Seam -->

<listener>
    <listener-class>org.jboss.seam.servlet.SeamListener</listener-class>
</listener>

<servlet>
    <servlet-name>Seam Resource Servlet</servlet-name>
    <servlet-class>org.jboss.seam.servlet.SeamResourceServlet</servlet-class>
</servlet>

<servlet-mapping>
    <servlet-name>Seam Resource Servlet</servlet-name>
    <url-pattern>/seam/resource/*</url-pattern>
</servlet-mapping>

<filter>
    <filter-name>Seam Filter</filter-name>
    <filter-class>org.jboss.seam.servlet.SeamFilter</filter-class>
</filter>

<filter-mapping>
    <filter-name>Seam Filter</filter-name>
    <url-pattern>/*</url-pattern>
</filter-mapping>

<!-- JSF -->

<context-param>
    <param-name>javax.faces.DEFAULT_SUFFIX</param-name>
    <param-value>.xhtml</param-value>
</context-param>

<context-param>
    <param-name>facelets.DEVELOPMENT</param-name>
    <param-value>true</param-value>
</context-param>

<servlet>
```

```
        <servlet-name>Faces Servlet</servlet-name>
        <servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
        <load-on-startup>1</load-on-startup>
    </servlet>

    <servlet-mapping>
        <servlet-name>Faces Servlet</servlet-name>
        <url-pattern>*.seam</url-pattern>
    </servlet-mapping>
</web-app>
```

Only one issue still persists while using Seam with MyFaces. Look at myFaces part of this section.

Detailed information on how to integrate Richfaces and Trinidad and how to hide ".seam" postfix in the URL you can find in the *RichFaces Cookbook article* [http://wiki.jboss.org/auth/wiki/RichFacesWithTrinidad]

4.6. Portlet Support

JBoss Portlets have support since version Ajax4jsf 1.1.1. This support is improved from RichFaces 3.2.1. Provide your feedback on compatible with RichFaces if you face some problems.

4.7. Sybase EAServer

The load-on-startup for the Faces Servlet had to be set to 0 in web.xml.

Example:

```
...
<servlet>
    <servlet-name>Faces Servlet</servlet-name>
    <servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
    <load-on-startup>0</load-on-startup>
</servlet>
...
```

This is because, EAServer calls servlet `init()` before the `ServletContextInitializer`. Not an EAServer bug, this is in Servlet 2.3 spec.

4.8. Oracle AS/OC4J

In order to deploy your project with RichFaces components to an Oracle AS you just have to prevent the application's class loader from importing the Oracle XML parser. Use the following notation in orion-application.xml :

```
...
<imported-shared-libraries>
    <remove-inherited name="oracle.xml"/>
    <remove-inherited name="oracle.xml.security"/>
</imported-shared-libraries>
...
```

Basic concepts of the RichFaces Framework

5.1. Introduction

The framework is implemented as a component library which adds Ajax capability into existing pages, so you don't need to write any JavaScript code or to replace existing components with new Ajax widgets. RichFaces enables page-wide Ajax support instead of the traditional component-wide support. Hence, you can define the event on the page that invokes an Ajax request and the areas of the page that should be synchronized with the JSF Component Tree after the Ajax request changes the data on the server according to the events fired on the client.

Next Figure shows how it works:

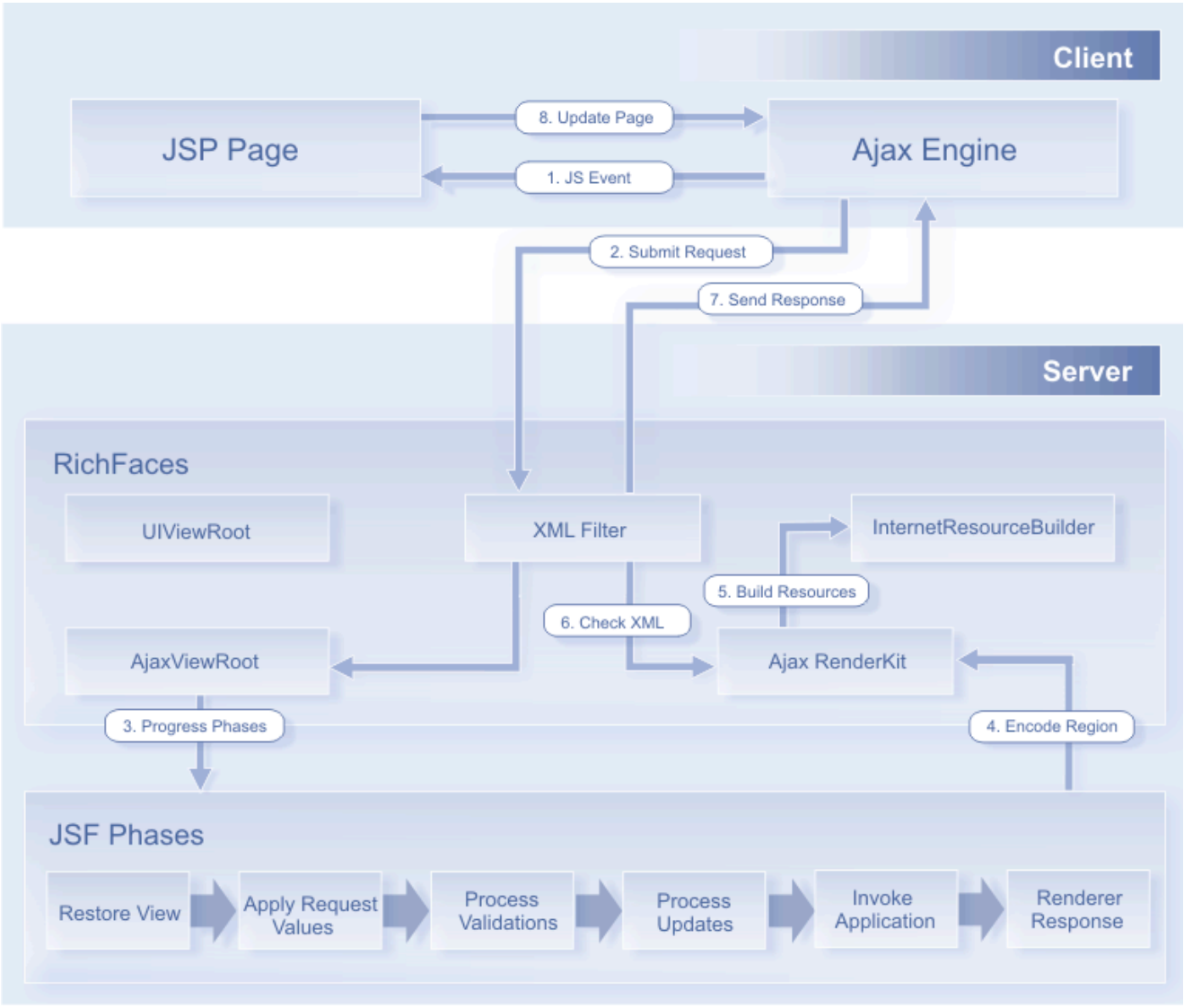


Figure 5.1. Request Processing flow

RichFaces allows to define (by means of JSF tags) different parts of a JSF page you wish to update with an Ajax request and provide a few options to send Ajax requests to the server. Also JSF page doesn't change from a "regular" JSF page and you don't need to write any JavaScript or XMLHTTPRequest objects by hands, everything is done automatically.

5.2. RichFaces Architecture Overview

Next figure lists several important elements of the RichFaces framework

Figure 5.2. Core Ajax component structure

Ajax Filter. To get all benefits of RichFaces , you should register a Filter in web.xml file of your application. The Filter recognizes multiple request types. Necessary information about Filter configuration can be found in the *"Filter configuration"* section. The sequence diagram on Figure 3 shows the difference in processing of a "regular" JSF request and an Ajax request.

In the first case the whole JSF tree will be encoded, in the second one option it depends on the "size" of the Ajax region. As you can see, in the second case the filter parses the content of an Ajax response before sending it to the client side.

Have a look at the next picture to understand these two ways:

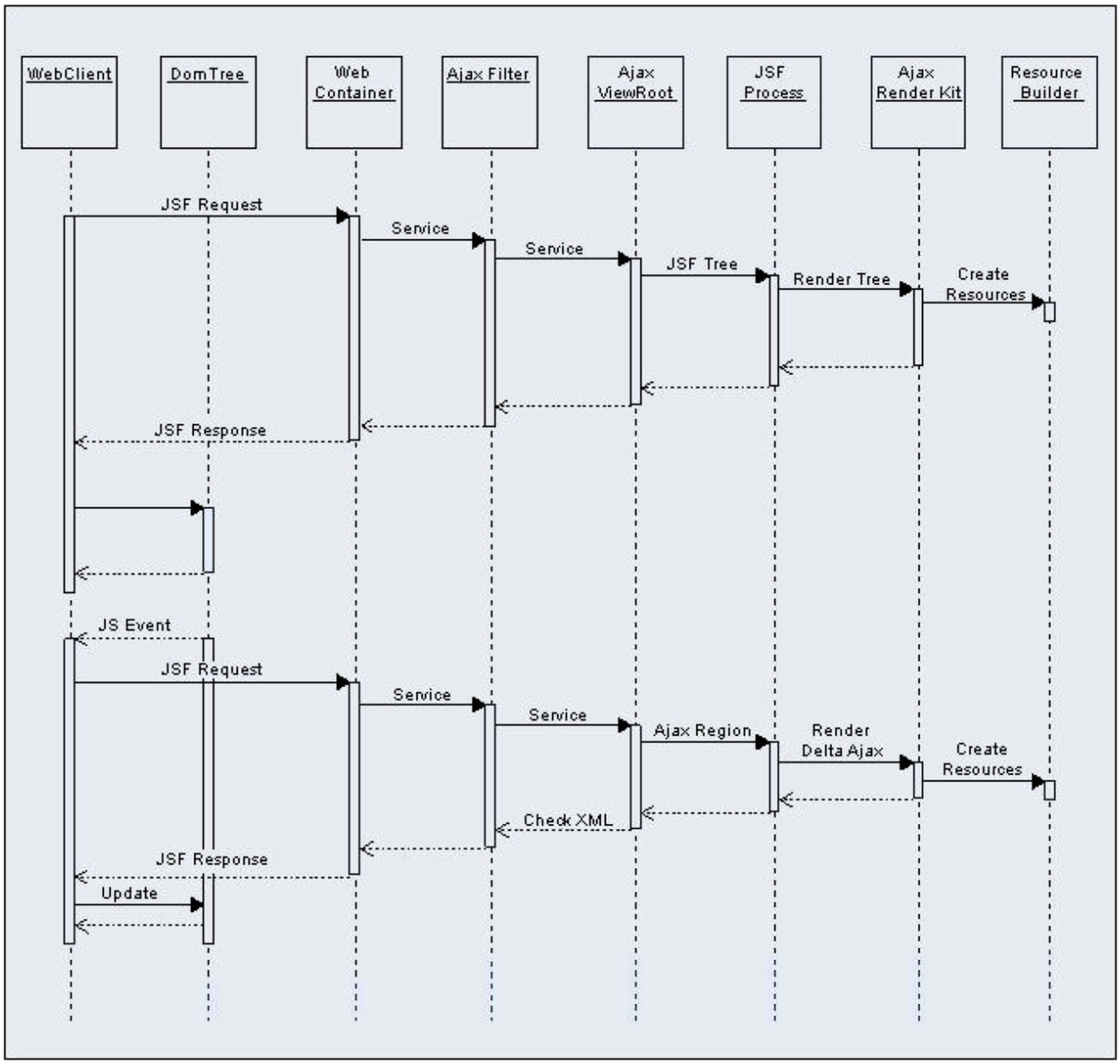


Figure 5.3. Request Processing sequence diagram

In both cases, the information about required static or dynamic resources that your application requests is registered in the ResourseBuilder class.

When a request for a resource comes (Figure 4), the RichFaces filter checks the Resource Cache for this resource and if it is there, the resource is sent to the client. Otherwise, the filter searches for the resource among those that are registered by the ResourceBuilder. If the resource is registered, the RichFaces filter will send a request to the ResourceBuilder to create (deliver) the resource.

Next Figure shows the ways of resource request processing.

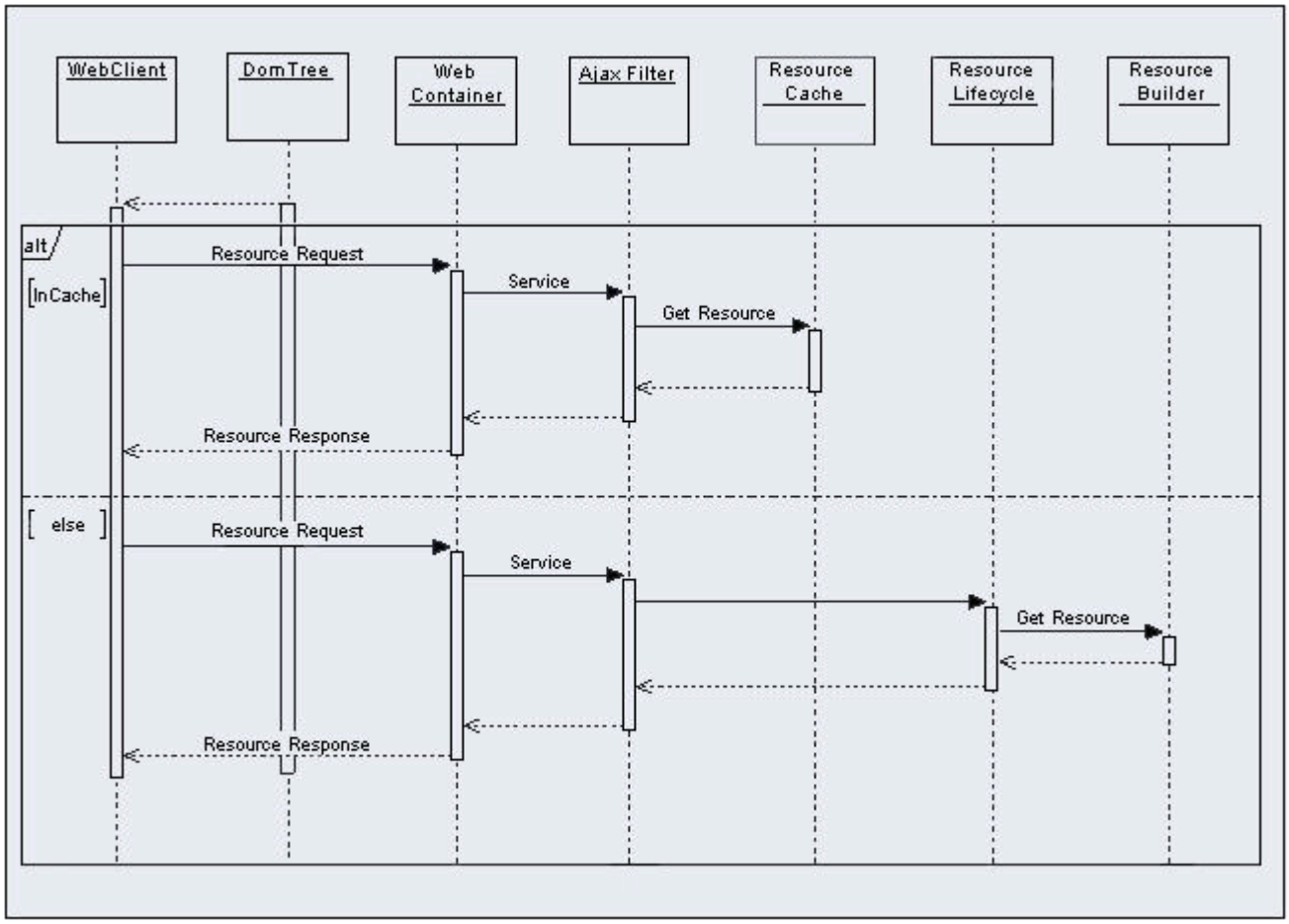


Figure 5.4. Resource request sequence diagram

AJAX Action Components. There are Ajax Action Components: **<a4j:commandButton>** , **<a4j:commandLink>** , **<a4j:poll>** and **<a4j:support>** and etc. You can use them to send Ajax requests from the client side.

AJAX Containers. AjaxContainer is an interface that describes an area on your JSF page that should be decoded during an Ajax request. `AjaxViewRoot` and `AjaxRegion` are implementations of this interface.

JavaScript Engine. RichFaces JavaScript Engine runs on the client-side. It knows how to update different areas on your JSF page based on the information from the Ajax response. Do not use this JavaScript code directly, as it is available automatically.

5.3. RichFaces Integral Parts

The RichFaces comes with a number of integral parts (framework, libraries):

- *Prototype 1.6.0.3* [http://prototypejs.org]

- *jQuery 1.3.1* [http://jquery.com]
- *Script.aculo.us 1.8.1* [http://script.aculo.us]

For more information about framework and libraries loading see the following section in the *FAQ* [http://www.jboss.org/community/wiki/Commonclientside#resourcesfromjars].

Note:

In order to prevent JavaScript versions conflict you should use only one version of the framework or library. You could find more information about libraries exclusion in the *FAQ* [http://www.jboss.org/community/wiki/Commonclientside#jsconflicts].

5.4. Limitations and Rules

In order to create RichFaces applications properly, keep the following points in mind:

- Any Ajax framework should not append or delete, but only replace elements on the page. For successful updates, an element with the same ID as in the response must exist on the page. If you'd like to append any code to a page, put in a placeholder for it (any empty element). For the same reason, it's recommended to place messages in the **"AjaxOutput"** component (as no messages is also a message).
- Don't use **<f:verbatim>** for self-rendered containers, since this component is transient and not saved in the tree.
- Ajax requests are made by XMLHTTPRequest functions in XML format, but this XML bypasses most validations and the corrections that might be made in a browser. Thus, create only a strict standards-compliant code for HTML and XHTML, without skipping any required elements or attributes. Any necessary XML corrections are automatically made by the XML filter on the server, but lot's of unexpected effects can be produced by an incorrect HTML code.
- The RichFaces ViewHandler puts itself in front of the Facelets ViewHandlers chain.
- RichFaces components uses their own renderers. On the Render Response Phase RichFaces framework makes a traversal of the component tree, calls its own renderer and put the result into the Faces Response.

5.5. Ajax Request Optimization

5.5.1. Re-Rendering

Ajax attributes are common for Ajax components such as **<a4j:support>** , **<a4j:commandButton>** , **<a4j:jsFunction>** , **<a4j:poll>** , **<a4j:push>** and so on. Also, most

RichFaces components with built-in Ajax support have these attributes for a similar purpose. Ajax components attributes help RichFaces to expose its features. Most of the attributes have default values. Thus, you can start working with RichFaces without knowing the usage of these attribute. However, their usage allows to tune the required Ajax behavior very smoothly.

"reRender" is a key attribute. The attribute allows to point to area(s) on a page that should be updated as a response on Ajax interaction. The value of the *"reRender"* attribute is an id of the JSF component or an id list.

A simple example is placed below:

```
...
<a4j:commandButton value="update" reRender="infoBlock"/>
...
<h:panelGrid id="infoBlock">
    ...
</h:panelGrid>
...
```

The value of *"reRender"* attribute of the **<a4j:commandButton>** tag defines which part(s) of your page is (are) to be updated. In this case, the only part of the page to update is the **<h:panelGrid>** tag because its ID value matches to the value of *"reRender"* attribute. As you see, it's not difficult to update multiple elements on the page, only list their IDs as the value of *"reRender"* .

"reRender" uses *UIComponent.findComponent() algorithm* [http://java.sun.com/javaee/javaserverfaces/1.2_MR1/docs/api/javax/faces/component/UIComponent.html#findComponent(java.lang.String)] (with some additional exceptions) to find the component in the component tree. As can you see, the algorithm presumes several steps. Each other step is used if the previous step is not successful. Therefore, you can define how fast the component is found mentioning it more precisely. The following example shows the difference in approaches (both buttons will work successfully):

```
...
<h:form id="form1">
    ...
    <a4j: commandButton value="Usual Way" reRender="infoBlock, infoBlock2" />
    <a4j:commandButton value="Shortcut" reRender=":infoBlockl,:sv:infoBlock2" />
    ...
</h:form>
<h:panelGrid id="infoBlock">
    ...
</h:panelGrid>
...
<f:subview id="sv">
```

```
    <h:panelGrid id="infoBlock2">
        ...
    </h:panelGrid>
    ...
</f:subview>
...
```

It's also possible to use JSF EL expression as a value of the reRender attribute. It might be a property of types Set, Collection, Array or simple String. The EL for reRender is resolved right before the Render Response phase. Hence, you can calculate what should be re-rendered on any previous phase during the Ajax request processing.

Most common problem with using reRender is pointing it to the component that has a *"rendered"* attribute. Note, that JSF does not mark the place in the browser DOM where the outcome of the component should be placed in case the *"rendered"* condition returns false. Therefore, after the component becomes rendered during the Ajax request, RichFaces delivers the rendered code to the client, but does not update a page, because the place for update is unknown. You need to point to one of the parent components that has no *"rendered"* attribute. As an alternative, you can wrap the component with **<a4j:outputPanel>** `layout="none"` .

"ajaxRendered" attribute of the **<a4j:outputPanel>** set to "true" allows to define the area of the page that will be re-rendered even if it is not pointed in the reRender attribute explicitly. It might be useful if you have an area on a page that should be updated as a response on any Ajax request. For example, the following code allows to output error messages regardless of what Ajax request causes the Validation phase failed.

```
...
<a4j:outputPanel ajaxRendered="true">
    <h:messages />
</a4j:outputPanel>
...
```

"limitToList" attribute allows to dismiss the behavior of the **<a4j:outputPanel>** *"ajaxRendered"* attribute. `limitToList = "true"` means to update only the area(s) that mentioned in the *"reRender"* attribute explicitly. All output panels with `ajaxRendered="true"` is ignored. An example is placed below:

```
...
<h:form>
    <h:inputText value="#{person.name}">
        <a4j:support event="onkeyup" reRender="test" limitToList="true"/>
    </h:inputText>
    <h:outputText value="#{person.name}" id="test"/>
```

```
</form>
...
```

5.5.2. Queue and Traffic Flood Protection

"eventsQueue" attribute defines the name of the queue that will be used to order upcoming Ajax requests. By default, RichFaces does not queue Ajax requests. If events are produced simultaneously, they will come to the server simultaneously. JSF implementations (especially, the very first ones) does not guaranty that the request that comes first will be served or passed into the JSF lifecycle first. The order how the server-side data will be modified in case of simultaneous request might be unpredictable. Usage of eventsQueue attribute allows to avoid possible mess. Define the queue name explicitly, if you expect intensive Ajax traffic in your application.

The next request posted in the same queue will wait until the previos one is not processed and Ajax Response is returned back if the *"eventsQueue"* attribute is defined. In addition, RichFaces starts to remove from the queue "similar" requests. "Similar"'requests are the requests produced by the same event. For example, according to the following code, only the newest request will be sent to the server if you type very fast and has typed the several characters already before the previous Ajax Response is back.

```
...
<h:inputText value="#{userBean.name}">
   <a4j:support event="onkeyup" eventsQueue="foo" reRender="bar" />
</h:inputText>
...
```

"requestDelay" attribute defines the time (in ms) that the request will be wait in the queue before it is ready to send. When the delay time is over, the request will be sent to the server or removed if the newest "similar" request is in a queue already .

"ignoreDupResponses" attribute orders to ignore the Ajax Response produced by the request if the newest "similar" request is in a queue already. `ignoreDupResponses"="true"` does not cancel the request while it is processed on the server, but just allows to avoid unnecessary updates on the client side if the response loses the actuality.

Defining the *"eventsQueue"* along with *"requestDelay"* allows to protect against unnecessary traffic flood and synchronizes Ajax requests order. If you have several sources of Ajax requests, you can define the same queue name there. This might be very helpful if you have Ajax components that invoke request asynchronously from the ones produced by events from users. For example, **<a4j:poll>** or **<a4j:push>** . In case the requests from such components modify the same data, the synchronization might be very helpful.

More information can be found on the *RichFaces Users Forum* [http://jboss.com/index.html?module=bb&op=viewtopic&t=105766] .

"timeout" attribute is used for setting response waiting time on a particular request. If a response is not received during this time, the request is aborted.

5.5.3. Queue Principles

Starting from 3.3.0 version RichFaces has an improved queue.

There are some reasons why the queue has been improved. In previous versions the queue had quite simple implementation: it sent to the server only the last Ajax request out of all requests coming in the queue during request delay.

The improved queue allows to

- Eliminate the possibility of collisions when several JSF requests pass the JSF lifecycle at the same time. The queue prevents sending such requests. Only one request is processed. The rest ones are waiting.
- Reduce the traffic between browser and the server. The "similar" requests came within request delay are absorbed. Only the last one is actually sent. Reducing the number of request reduces the server load.

There are 4 types of the queue:

- Global default queue, defined in the web.xml file
- View scoped default queue
- View scoped named queue
- Form-based default queue

In this section we will take a closer look at the listed above types of the queue and see in more detail how they differ. Usage details are covered in the *<a4j:queue>* chapter.

5.5.3.1. Global default queue, defined in the web.xml file

Design details

- Only one global queue will ever exist on a view

  If you define more than one with this name while attempting to set its attributes a warning will appear in server console during rendering. All the same named queues after the first instance are ignored.

- The queue class name is "org.richfaces.queue.global"

Global default queue has application scope and is defined in the web.xml

It can be done as follows:

```
...
<context-param>
  <param-name>org.richfaces.queue.global.enabled</param-name>
  <param-value>true</param-value>
</context-param>
...
```

The global default queue is disabled by default, because artificial serializing of all Ajax requests on a page can significantly affect expected behavior. The global default queue causes all Asynchronous JavaScript And XML requests becoming synchronous via the single global queue. If the global queue is turned on it can change the behavior on all views of the application without any visible or obvious setting.

5.5.3.2. View scoped default queue

Design details

- Only one default queue is ever active at one time for a given view or form.
- If ever more are detected a warning will appears in server console during rendering. All the same named queues after the first instance are ignored.
- View scoped default queue is also created for components which have the following Ajax attributes: (in this case queue has a component scope)
  - *"requestDelay"*
  - *"ignoreDupResponce"*
- View scoped default queue is created automatically if the *"eventsQueue"* attribute is defined with some name in a component but not found in the view. It has a scope the same as defined in corresponding context param.

The view scoped default, named and formed-based types of queue utilize the **<a4j:queue>** tag to override the settings of the global queue defined in the web.xml file.

You can also programmatically enable/disable the global queue on a single view using the following:

```
...
<a4j:queue name="org.richfaces.global_queue" disabled="true"... />
...
```

Hence, to enable the queue for a single view page you need to define the "disable" attribute with "false".

Now, you can override the default settings using the attributes of the **<a4j:queue>** component. The full *list of attributes* [file:///C:/Projects/RichFaces/docs/userguide/en/target/docbook/publish/en-US/html_single/index.html#d0e10019] is given in the *"6.20. <a4j:queue>"* chapter of the guide.

Example:

```
...
<a4j:queue name="org.richfaces.global_queue" requestDelay="1000" />
...
```

View scoped queue can be also added by just definition of the queue without name specified. In this case it should be placed anywhere outside the forms in order not to be recognized as a form-based queue.

```
...
<a4j:queue ... />
...
```

5.5.3.3. View scoped named queue

Design details

- Named queues must have a unique name, if a second queue with the same name is defined all the same named queues after the first instance are ignored.
- Form elements are used as naming container for the queue i.e. custom queue defined within the form cannot be used by the components outside this concrete form.

You can reference a named queue from any Ajax4JSF or RichFaces component that supports the "eventsQueue" attribute. Below there is an example of how the components can reference a named queue.

Example:

```
...
<a4j:queue name="sampleQueue"/>
<h:inputText value="#{bean.inputValue}" >
   <a4j:support id="inputSupport" event="onkeyup" eventsQueue="sampleQueue"/>
</h:inputText>
<rich:comboBox value="#{bean.state}" suggestionValues="#{bean.suggestions}"
 eventsQueue="sampleQueue" />
...
```

In this example, two components(<a4j:queue>, <rich:comboBox>,) reference the named ("sampleQueue") queue via the "eventsQueue" attribute.

5.5.3.4. Form based default queue

Design details

- Only one enabled form based default queue can be active at a time.
  - A warning appears in server console during rendering if more than one enabled form based queue exists. All queues with the same name after the first instance should be ignored.
  - Users can define more than one form queue, however all but one must be disabled.

Queues are often used within forms, but defining the *"eventsQueue"* attribute on every component within a form can be tedious work. To avoid that you can create a default queue for a form (overriding the global default queue).

You can use either a JSF <h:form> or an Ajax4JSF <a4j:form>.

Example:

```
...
<h:form ... >
   <a4j:queue ... /><!-- note no name specified -->
   ...
</h:form>
...
```

Though, using an Ajax4JSF <a4j:form> you can refrence a named queue via the *"eventsQueue"*.

Example:

```
...
<a4j:form eventsQueue="fooQueue" ...>
   ...
</a4j:form>
...
```

However the implementation of the queue allows you to reference a named queue from the form with a form-based queue.

Example:

```
...
```

```
<a4j:queue name="sampleQueue" ... /> <!-- named queue -->
...
<h:form ... >
   <a4j:queue ... /><!-- form-based queue-->
   <a4j:commandButton ... /> <!-- uses the form-based queue -->
   <a4j:commandButton eventsQueue="sampleQueue" /> <!-- uses named queue -->
</h:form>
...
```

5.5.3.5. Queue functionality

This section will cover some queue's functionality aspects.

5.5.3.5.1. Events Similarity

By default all the events raised by the same component are similar to the queue (according to client Id of event source). This means that if new requests come from the same component they are combined with the previous ones. For example: if we use a4j:support on an input field and the user types frequently all the request raised by key up during requestDelay will be combined into one.

You can also manually specify multiple components which will produce similar requests. The *"similarityGroupingId"* attribute is added to all the Ajax action components with 3.3.0 release. Hence, for example, you can add two <a4j:support/> components to the input (one for key up and the second for blur) and define that request events are similar by specifying the same *"similarityGroupingId"*.

5.5.3.5.2. Similar requests during request delay

As written above requests are collected in the queue during requestDelay and similar ones are combined. But similar requests can only be combined if they are raised sequentially. This is done in order not to block the queue and not to change the requests order.

Example:

A request with some delay comes to the queue, let it be A^1 the delay counter for this request is started. If similar request(e.g. from the same component - A^2) appears - these two requests are combined(A^1A^2 to $A^{combined}$) and the counter is reset.

But if some not similar request comes to the queue B^1 - it is placed after the first one($A^{combined}$,B^1). And if the $A^{combined}$ request doesn't exit the queue and another request similar to A (let is be A^3) appears again - these requests are not combined with the first one. The request is placed after B^1. ($A^{combined}$, B^1, A^3).

Such behavior allows

- to maximize similar requests throughput

- to send only the latest fields state for similar requests
- not to block the queue if the different types of requests comes to queue and should wait one for another

The **<a4j:poll>** component has delay time 0 by default staring from 3.3.0 version in order not to use the queue delay(its own value for this parameter redefines queue's parameter) to avoid blocking periodical update in the queue. You can redefine this on the component level if need.

5.5.3.5.3. JavaScript API

Table 5.1. JavaScript API

Function	Description
getSize()	Returns the current size to the queue
getMaximumSize()	Returns the maximum size to the queue, specified in the "size" attribute

5.5.4. Data Processing Options

RichFaces uses form based approach for Ajax request sending. This means each time, when you click an Ajax button or **<a4j:poll>** produces an asynchronous request, the data from the closest JSF form is submitted with the XMLHTTPRequest object. The form data contains the values from the form input element and auxiliary information such as state saving data.

When *"ajaxSingle"* attribute value is "true" , it orders to include only a value of the current component (along with **<f:param>** or **<a4j:actionparam>** values if any) to the request map. In case of **<a4j:support>** , it is a value of the parent component. An example is placed below:

```
...
<h:form>
   <h:inputText value="#{person.name}">
      <a4j:support event="onkeyup" reRender="test" ajaxSingle="true"/>
   </h:inputText>
   <h:inputText value="#{person.middleName}"/>
</form>
...
```

In this example the request contains only the input component causes the request generation, not all the components contained on a form, because of `ajaxSingle="true"` usage.

Note, that `ajaxSingle="true"` reduces the upcoming traffic, but does not prevent decoding other input components on the server side. Some JSF components, such as **<h:selectOneMenu>** do recognize the missing data in the request map value as a null value and try to pass the validation process with a failed result. Thus, use **<a4j:region>** to limit a part of the component tree that will be processed on the server side when it is required.

"immediate" attribute has the same purpose as any other non-JSF component. The default *"ActionListener"* should be executed immediately (i.e. during the Apply Request Values phase of a request processing lifecycle), rather than waiting until the Invoke Application phase. Using `immediate="true"` is one of the ways to have some data model values updated when other cannot be updated because of a problem with passing the Validation phase successfully. This might be important inside the **<h:dataTable>** like components where using **<a4j:region>** is impossible due to the **<h:dataTable>** component architecture.

"bypassUpdates" attribute allows to bypass the Update Model phase. It might be useful if you need to check your input against the available validator, but not to update the model with those data. Note, that an action will be invoked at the end of the Validation phase only if the Validation phase is passed successfully. The listeners of the Application phase will not be invoked in any case.

5.5.5. Action and Navigation

Ajax component is similar to any other non-Ajax JSF component like **<h:commandButton>** . It allows to submit the form. You can use *"action"* and *"actionListener"* attributes to invoke the action method and define the action event.

"action" method must return null if you want to have an Ajax Response with a partual page update. This is regular mode called `"Ajax request generates Non-Ajax Response"`. In case of action does not return null, but the action outcome that matches one of navigation rules, RichFaces starts to work in `"Ajax request generates Non-Ajax Response"` mode. This mode might be helpful in two major cases:

- RichFaces allows to organize a page flow inside the **<a4j:include>** component. This is a typical scenario for Wizard like behavior. The new content is rendered inside the **<a4j:include>** area. The content is taken from the navigation rule of the faces configuration file (usually, the faces-config.xml). Note, that the content of the "wizard" is not isolated from the rest of the page. The included page should not have own **<f:view>** (it does not matter if you use facelets). You need to have an Ajax component inside the **<a4j:include>** to navigate between the wizard pages. Otherwize, the whole page update will be performed.
- If you want to involve the server-side validators and navigate to the next page only if the Validation phase is passed successfully, you can replace **<h:commandButton>** with **<a4j:commandButton>** and point to the action method that navigates to the next page. If Validation process fails, the partial page update will occur and you will see an error message. Otherwize, the application proceeds to the next page. Make sure, you define **<redirect/>** option for the navigation rule to avoid memory leaks.

5.5.6. JavaScript Interactions

RichFaces allows writing Ajax-enabled JSF application without writing any Javascript code. However, you can still invoke the JavaScript code if you need. There are several Ajax attributes that helps to do it.

"onsubmit" attribute allows to invoke JavaScript code before an Ajax request is sent. If *"onsubmit"* returns "false" , the Ajax request is canceled. The code of *"onsubmit"* is inserted before the RichFaces Ajax call. Hence, the *"onsubmit"* should not has a "return" statement if you want the Ajax request to be sent. If you are going to invoke a JavaScript function that returns "true" or "false" , use the conditional statement to return something only when you need to cancel the request. For example:

```
...
onsubmit="if (mynosendfunct()==false){return false}"
...
```

"onclick" attribute is similar to the *"onsubmit"* , but for clickable components such as **<a4j:commandLink>** and **<a4j:commandButton>** . If it returns "false" , the Ajax request is canceled also.

The "oncomplete" attribute is used for passing JavaScript that would be invoked right after the Ajax response returns back and DOM is updated. It is not recommended to use use keyword `this` inside the EL-expression, because it will not always point to the component where Ajax request was initiated.

"onbeforedomupdate" attribute defines JavaScript code for call after Ajax response receiving and before updating DOM on a client side.

"data" attribute allows to get the additional data from the server during an Ajax call. You can use JSF EL to point the property of the managed bean and its value will be serialized in JSON format and be available on the client side. You can refer to it using the *"data"* variable. For example:

```
...
<a4j:commandButton value="Update" data="#{userBean.name}"
 oncomplete="showTheName(data.name)" />
...
```

RichFaces allows to serialize not only primitive types into JSON format, but also complex types including arrays and collections. The beans should be serializable to be refered with *"data"* .

There is a number of useful functions which can be used in JavaScript:

- `rich:clientId('id')` - returns client id by short id or null if the component with the id specified hasn't been found
- `rich:element('id')` - is a shortcut for `document.getElementById(#{rich:clientId('id')})`
- `rich:component('id')` - is a shortcut for `#{rich:clientId('id')}.component`

- `rich:findComponent('id')` - returns an instance of UIComponent taking the short ID of the component as a parameter.

```
...
<h:inputText id="myInput">
   <a4j:support event="onkeyup" reRender="outtext"/>
</h:inputText>
<h:outputText id="outtext" value="#{rich:findComponent('myInput').value}" />
...
```

5.5.7. Iteration components Ajax attributes

"ajaxKeys" attribute defines strings that are updated after an Ajax request. It provides possibility to update several child components separately without updating the whole page.

```
...
<a4j:poll intervall="1000" action="#{repeater.action}" reRender="text">
   <table>
      <tbody>
        <a4j:repeat value="#{bean.props}" var="detail" ajaxKeys="#{repeater.ajaxedRowsSet}">
            <tr>
               <td>
                  <h:outputText value="detail.someProperty" id="text"/>
               </td>
            </tr>
         </a4j:repeat>
      </tbody>
   </table>
</a4j:poll>
...
```

5.5.8. Other useful attributes

"status" attribute for Ajax components (such as **<a4j:commandButton>** , **<a4j:poll>** , etc.) points to an ID of **<a4j:status>** component. Use this attribute if you want to share **<a4j:status>** component between different Ajax components from different regions. The following example shows it.

```
...
<a4j:region id="extr">
   <h:form>
```

```
    <h:outputText value="Status:" />
    <a4j:status id="commonstatus" startText="In Progress...." stopText=""/>
    <h:panelGrid columns="2">
      <h:outputText value="Name"/>
      <h:inputText id="name" value="#{userBean.name}">
        <a4j:support event="onkeyup" reRender="out" />
      </h:inputText>
      <h:outputText value="Job"/>
      <a4j:region  id="intr">
        <h:inputText id="job" value="#{userBean.job}">
          <a4j:support event="onkeyup"  reRender="out" status="commonstatus"/>
        </h:inputText>
      </a4j:region>
    </h:panelGrid>
    <a4j:region>
      <h:outputText id="out" value="Name: #{userBean.name}, Job: #{userBean.job}" />
      <br />
       <a4j:commandButton ajaxSingle="true" value="Clean Up Form" reRender="name, job,
 out"  status="commonstatus">
        <a4j:actionparam name="n" value=""  assignTo="#{userBean.name}" />
        <a4j:actionparam name="j" value=""  assignTo="#{userBean.job}" />
      </a4j:commandButton>
    </a4j:region>
  </h:form>
</a4j:region>
...
```

In the example **<a4j:support>** and **<a4j:commandButton>** are defined in different regions. Values of *"status"* attribute for these components points to an ID of **<a4j:support>** .Thus, the **<a4j:support>** component is shared between two components from different regions.

More information could be found on the *RichFaces Live Demo* [http://livedemo.exadel.com/richfaces-demo/richfaces/status.jsf?c=status] .

Other useful attribute is *"focus"* . It points to an ID of a component where focus will be set after an Ajax request.

5.6. How To...

5.6.1. Send an Ajax request

There are different ways to send Ajax requests from your JSF page. For example you can use **<a4j:commandButton>** , **<a4j:commandLink> , <a4j:poll>** or **<a4j:support>** tags or any other.

All these tags hide the usual JavaScript activities that are required for an XMHTTPRequest object building and an Ajax request sending. Also, they allow you to decide which components of your JSF page are to be re-rendered as a result of the Ajax response (you can list the IDs of these components in the *"reRender"* attribute).

<a4j:commandButton> and **<a4j:commandLink>** tags are used to send an Ajax request on *"onclick"* JavaScript event.

<a4j:poll> tag is used to send an Ajax request periodically using a timer.

The **<a4j:support>** tag allows you to add Ajax functionality to standard JSF components and send Ajax request onto a chosen JavaScript event: *"onkeyup"* , *"onmouseover"* , etc.

5.6.2. Decide What to Send

You may describe a region on the page you wish to send to the server, in this way you can control what part of the JSF View is decoded on the server side when you send an Ajax request.

The easiest way to describe an Ajax region on your JSF page is to do nothing, because the content between the **<f:view>** and **</f:view>** tags is considered the default Ajax region.

You may define multiple Ajax regions on the JSF page (they can even be nested) by using the **<a4j:region>** tag.

If you wish to render the content of an Ajax response outside of the active region then the value of the *"renderRegionOnly"* attribute should be set to "false" ("false" is default value). Otherwise, your Ajax updates are limited to elements of the active region.

5.6.3. Decide What to Change

Using IDs in the *"reRender"* attribute to define "`AJAX zones`" for update works fine in many cases.

But you can not use this approach if your page contains, e.g. a **<f:verbatim>** tag and you wish to update its content on an Ajax response.

The problem with the **<f:verbatim/>** tag as described above is related to the value of the transientFlag of JSF components. If the value of this flag is true, the component must not participate in state saving or restoring of process.

In order to provide a solution to this kind of problems, RichFaces uses the concept of an output panel that is defined by the **<a4j:outputPanel>** tag. If you put a **<f:verbatim>** tag inside of the output panel, then the content of the **<f:verbatim/>** tag and content of other panel's child tags could be updated on Ajax response. There are two ways to control this:

- By setting the *"ajaxRendered"* attribute value to "true".
- By setting the *"reRender"* attribute value of an Action Component to the output panel ID.

5.6.4. Decide what to process

The *"process"* attribute allows to define the ids of components to be processed together with the component which is marked as ajaxSingle or wrapped to region.

You could make use of the *"process"* attribute when you need to process only two components in the different parts of view.

Imagine you need to process only two input fields but not all the view. If you wrap the first input to region or make **<a4j:support>** component with `ajaxSingle="true"` nested the second input will not be processed.

Here is a simple solution:

```
...
<h:inputText value="#{bean.name}" id="name">
   <a4j:support ajaxSingle="true" process="email" event="onblur" reRender="someOut"/>
</h:inputText>
<h:inputTextarea value="#{bean.description}" id="desc" />
<h:inputText value="#{bean.email}" id="email">
   <a4j:support ajaxSingle="true" process="name" event="onblur" reRender="someOut"/>
</h:inputText>
...
```

In the example above when the input field with the `id="name"` looses focus, an Ajax request is sent. So only two input fields (with `id="name"` and additionally with `id="email"`) are processed: decoding, conversion/validation, value applying phases are executed. The input field with the `id="email"` is handled the same way on blur event.

5.7. Filter Configuration

RichFaces uses a filter for a correction of code received on an Ajax request. In case of a "regular" JSF request a browser makes correction independently. In case of Ajax request in order to prevent layout destruction it's needed to use a filter, because a received code could differ from a code validated by a browser and a browser doesn't make any corrections.

An example of how to set a Filter in a web.xml file of your application is placed below.

Example:

```
...
<filter>
   <display-name>RichFaces Filter</display-name>
   <filter-name>richfaces</filter-name>
   <filter-class>org.ajax4jsf.Filter</filter-class>
```

```
</filter>
...
```

Note:

Fast Filter is deprecated and available only for backward compatibility with previous RichFaces versions. Fast Filter usage isn't recomended, because there is another way to use its functionality by means of *Neko filter type [48]* .

From RichFaces 3.2 filter configuration becomes more flexible. It's possible to configure different filters for different sets of pages for the same application.

The possible filter types are:

- TIDY

"TIDY" filter type based on the Tidy parser. This filter is recommended for applications with complicated or non-standard markup when all necessary code corrections are made by the filter when a response comes from the server.

- NEKO

"NEKO" filter type corresponds to the former "Fast Filter" and it's based on the Neko parser. In case of using this filter code isn't strictly verified. Use this one if you are sure that your application markup is really strict for this filter. Otherwise it could cause lot's of errors and corrupt a layout as a result. This filter considerably accelerates all Ajax requests processing.

- NONE

No correction.

An example of configuration is placed below.

Example:

```
...
<context-param>
   <param-name>org.ajax4jsf.xmlparser.ORDER</param-name>
   <param-value>NONE,NEKO,TIDY</param-value>
</context-param>
<context-param>
   <param-name>org.ajax4jsf.xmlparser.NONE</param-name>
   <param-value>/pages/performance\.xhtml,/pages/default.*\.xhtml</param-value>
</context-param>
<context-param>
```

```
    <param-name>org.ajax4jsf.xmlparser.NEKO</param-name>
    <param-value>/pages/repeat\.xhtml</param-value>
</context-param>
<filter>
    <display-name>RichFaces Filter</display-name>
    <filter-name>richfaces</filter-name>
    <filter-class>org.ajax4jsf.Filter</filter-class>
</filter>
<filter-mapping>
    <filter-name>richfaces</filter-name>
    <servlet-name>Faces Servlet</servlet-name>
    <dispatcher>FORWARD</dispatcher>
    <dispatcher>REQUEST</dispatcher>
    <dispatcher>INCLUDE</dispatcher>
</filter-mapping>
...
```

The example shows that `ORDER` parameter defines the order in which particular filter types are used for pages code correction.

First of all "NONE" type is specified for the filter. Then two different sets of pages are defined for which two filter types (NONE and NEKO) are used correspondingly. If a page relates to the first set that is defined in the following way:

```
<param-value>/pages/performance\.xhtml,/pages/default.*\.xhtml</param-value>
```

it's not corrected, because filter type for this page is defined as "NONE". If a page is not from the first set, then "NEKO" type is set.

If a page relates to the second set that is defined in the following way:

```
<param-value>/pages/repeat\.xhtml</param-value>
```

then "NEKO" filter type is used for correction. If it's not related to the second set, "TIDY" type is set for the filter ("TIDY" filter type is used for code correction).

5.8. Scripts and Styles Load Strategy

Before the version 3.1.3, RichFaces loaded styles and script on demand. I.e. files are loaded only if they are required on a particular page. Since RichFaces 3.1.3, it's possible to manage how the RichFaces script and style files are loaded to application.

org.richfaces.LoadScriptStrategy

The following declaration in your web.xml allows loading the integrated script files.

```
...
<context-param>
   <param-name>org.richfaces.LoadScriptStrategy</param-name>
   <param-value>ALL</param-value>
</context-param>
...
```

If you do not declare the `org.richfaces.LoadScriptStrategy` in the web.xml, it equals to:

```
...
<context-param>
   <param-name>org.richfaces.LoadScriptStrategy</param-name>
   <param-value>DEFAULT</param-value>
</context-param>
...
```

The third possible value is "NONE". You have no a special reason to use it unless you obtain the newest (or modified) version of the script and want to include it manually in a page header.

Note:

If you use ALL value of Scripts Load Strategy, the JavaScript files compression turns off!

org.richfaces.LoadStyleStrategy

The following declaration allows to load only one integrated style sheet file.

```
...
<context-param>
   <param-name>org.richfaces.LoadStyleStrategy</param-name>
   <param-value>ALL</param-value>
</context-param>
...
```

The integrated style sheet contains style for all shipped components. The skinnability feature still works.

The "DEFAULT" value is a classical on-demand variant.

The "NONE" stops loading the styles at all. The earlier introduced plain skin resets all color and font parameters to null. The "NONE" value for `org.richfaces.LoadStyleStrategy` means that predefined styles for RichFaces are not used.

For more information see *RichFaces User Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4114033] .

5.9. Request Errors and Session Expiration Handling

RichFaces allows to redefine standard handlers responsible for processing of different exceptional situations. It helps to define own JavaScript, which is executed when these situations occur.

Add the following code to web.xml:

```
<context-param>
   <param-name>org.ajax4jsf.handleViewExpiredOnClient</param-name>
   <param-value>true</param-value>
</context-param>
```

5.9.1. Request Errors Handling

To execute your own code on the client in case of an error during Ajax request, it's necessary to redefine the standard `"A4J.AJAX.onError"` method:

```
 A4J.AJAX.onError = function(req, status, message){
   window.alert("Custom onError handler "+message);
}
```

The function defined this way accepts as parameters:

- `req` - a params string of a request that calls an error
- `status` - the number of an error returned by the server
- `message` - a default message for the given error

Thus, it's possible to create your own handler that is called on timeouts, internal server errors, and etc.

5.9.2. Session Expired Handling

It's possible to redefine also the *"onExpired"* framework method that is called on the *"Session Expiration"* event.

Example:

```
A4J.AJAX.onExpired = function(loc, expiredMsg){
   if(window.confirm("Custom onExpired handler "+expiredMsg+" for a location: "+loc)){
     return loc;
   } else {
    return false;
   }
}
```

Here the function receives in params:

- `loc` - URL of the current page (on demand can be updated)
- `expiredMsg` - a default message on *"Session Expiration"* event.

Note:

Note that custom *"onError"*, *"onExpire"* handlers do not work under MyFaces. MyFaces handles exception by its internals generating debug page. You could use the following code to prevent such behavior:

```
...
<context-param>
   <param-name>org.apache.myfaces.ERROR_HANDLING</param-name>
   <param-value>false</param-value>
</context-param>
...
```

5.10. Skinnability

5.10.1. Why Skinnability

If you have a look at a CSS file in an enterprise application, for example, the one you're working on now, you'll see how often the same color is noted in it. Standard CSS has no way to define a particular color abstractly for defining as a panel header color, a background color of an active pop-up menu item, a separator color, etc. To define common interface styles, you have to copy the same values over and over again and the more interface elements you have the more copy-and-paste activity that needs to be performed.

Hence, if you want to change the application palette, you have to change all interrelating values, otherwise your interface can appear a bit clumsy. The chances of such an interface coming about is very high, as CSS editing usually becomes the duty of a general developer who doesn't necessarily have much knowledge of user interface design.

Moreover, if a customer wishes to have an interface look-and-feel that can be adjusted on-the-fly by an end user, your work is multiplied, as you have to deal with several CSS files variants, each of which contains the same values repeated numerous times.

These problems can be solved with the skinnability system built into the RichFaces project and implemented fully in RichFaces. Every named skin has some skin-parameters for the definition of a palette and the other parameters of the user interface. By changing just a few parameters, you can alter the appearance of dozens of components in an application in a synchronized fashion without messing up user interface consistency.

The skinnability feature can't completely replace standard CSS and certainly doesn't eliminate its usage. Skinnability is a high-level extension of standard CSS, which can be used together with regular CSS declarations. You can also refer to skin parameters in CSS via JSF Expression Language. You have the complete ability to synchronize the appearance of all the elements in your pages.

5.10.2. Using Skinnability

RichFaces skinnability is designed for mixed usage with:

- Skin parameters defined in the RichFaces framework
- Predefined CSS classes for components
- User style classes

The color scheme of the component can be applied to its elements using any of three style classes:

- A default style class inserted into the framework

  This contains style parameters linked to some constants from a skin. It is defined for every component and specifies a default representation level. Thus, an application interface could be modified by changing the values of skin parameters.

- A style class of skin extension

  This class name is defined for every component element and inserted into the framework to allow defining a class with the same name into its CSS files. Hence, the appearance of all components that use this class is extended.

- User style class

  It's possible to use one of the styleClass parameters for component elements and define your own class in it. As a result, the appearance of one particular component is changed according to a CSS style parameter specified in the class.

5.10.3. Example

Here is a simple panel component:

Example:

```
<rich:panel> ... </rich:panel>
```

The code generates a panel component on a page, which consists of two elements: a wrapper ** ** element and a ** ** element for the panel body with the particular style properties. The wrapper ** ** element looks like:

Example:

```
<div class="dr-pnl rich-panel">
    ...
</div>
```

dr-pnl is a CSS class specified in the framework via skin parameters:

- background-color is defined with generalBackgroundColor
- border-color is defined with panelBorderColor

It's possible to change all colors for all panels on all pages by changing these skin parameters.

However, if a **<rich:panel>** class is specified somewhere on the page, its parameters are also acquired by all panels on this page.

A developer may also change the style properties for a particular panel. The following definition:

Example:

```
<rich:panel styleClass="customClass" />
```

Could add some style properties from customClass to one particular panel, as a result we get three styles:

Example:

```
<div class="dr_pnl rich-panel customClass">
    ...
```

```
</div>
```

5.10.4. Skin Parameters Tables in RichFaces

RichFaces provides eight predefined skin parameters (skins) at the simplest level of common customization:

- DEFAULT
- plain
- emeraldTown
- blueSky
- wine
- japanCherry
- ruby
- classic
- deepMarine

To plug one in, it's necessary to specify a skin name in the `org.richfaces.SKIN` context-param.

Here is an example of a table with values for one of the main skins, "blueSky" .

Table 5.2. Colors

Parameter name	Default value
headerBackgroundColor	#BED6F8
headerGradientColor	#F2F7FF
headTextColor	#000000
headerWeightFont	bold
generalBackgroundColor	#FFFFFF
generalTextColor	#000000
generalSizeFont	11px
generalFamilyFont	Arial, Verdana, sans-serif
controlTextColor	#000000
controlBackgroundColor	#ffffff
additionalBackgroundColor	#ECF4FE
shadowBackgroundColor	#000000
shadowOpacity	1

Parameter name	Default value
panelBorderColor	#BED6F8
subBorderColor	#ffffff
tabBackgroundColor	#C6DEFF
tabDisabledTextColor	#8DB7F3
trimColor	#D6E6FB
tipBackgroundColor	#FAE6B0
tipBorderColor	#E5973E
selectControlColor	#E79A00
generalLinkColor	#0078D0
hoverLinkColor	#0090FF
visitedLinkColor	#0090FF

Table 5.3. Fonts

Parameter name	Default value
headerSizeFont	11px
headerFamilyFont	Arial, Verdana, sans-serif
tabSizeFont	11px
tabFamilyFont	Arial, Verdana, sans-serif
buttonSizeFont	11px
buttonFamilyFont	Arial, Verdana, sans-serif
tableBackgroundColor	#FFFFFF
tableFooterBackgroundColor	#cccccc
tableSubfooterBackgroundColor	#f1f1f1
tableBorderColor	#C0C0C0

Skin "plain" was added from 3.0.2 version. It doesn't have any parameters. It's necessary for embedding RichFaces components into existing projecst which have its own styles.

To get detailed information on particular parameter possibilities, see the *chapter* where each component has skin parameters described corresponding to its elements.

5.10.5. Creating and Using Your Own Skin File

In order to create your own skin file, do the following:

- Create a file and define in it skin constants which are used by style classes (see section *"Skin Parameters Tables in RichFaces"*). The name of skin file should correspond to the following format: `<name>.skin.properties` . As an example of such file you can see RichFaces

predefined skin parameters (skins): blueSky, classic, deepMarine, etc. These files are located in the `richfaces-impl-xxxxx.jar` inside the /META-INF/skins folder.

- Add a skin definition `<contex-param>` to the web.xml of your application. An example is placed below:

  Example:

```
...
<context-param>
    <param-name>org.richfaces.SKIN</param-name>
    <param-value>name</param-value>
</context-param>
...
```

- Put your `<name>.skin.properties` file in one of the following classpath elements: META-INF/skins/ or classpath folder (e.g. WEB-INF/classes).

5.10.6. Built-in Skinnability in RichFaces

RichFaces gives an opportunity to incorporate skinnability into UI design. With this framework you can easily use named skin parameters in properties files to control the appearance of the skins that are applied consistently to a whole set of components. You can look at examples of predefined skins at:

http://livedemo.exadel.com/richfaces-demo/ [http://livedemo.exadel.com/richfaces-demo/]

You may simply control the look-and-feel of your application by using the skinnability service of the RichFaces framework. With the means of this service you can define the same style for rendering standard JSF components and custom JSF components built with the help of RichFaces.

To find out more on skinnability possibilities, follow these steps:

- Create a custom render kit and register it in the faces-config.xml like this:

```
<render-kit>
    <render-kit-id>NEW_SKIN</render-kit-id>
      <render-kit-class>org.ajax4jsf.framework.renderer.ChameleonRenderKitImpl</render-kit-class>
</render-kit>
```

- Then you need to create and register custom renderers for the component based on the look-and-feel predefined variables:

```
<renderer>
```

```
    <component-family>javax.faces.Command</component-family>
    <renderer-type>javax.faces.Link</renderer-type>
    <renderer-class>newskin.HtmlCommandLinkRenderer</renderer-class>
  </renderer>
```

- Finally, you need to place a properties file with skin parameters into the class path root. There are two requirements for the properties file:
  - The file must be named `<skinName>.skin.properties` , in this case, it would be called `newskin.skin.properties` .
  - The first line in this file should be `render.kit=<render-kit-id>` in this case, it would be called `render.kit=NEW_SKIN` .

Extra information on custom renderers creation can be found at:

http://java.sun.com/javaee/javaserverfaces/reference/docs/index.html [http://java.sun.com/javaee/javaserverfaces/reference/docs/index.html]

5.10.7. Changing skin in runtime

It's possible to change skins in runtime. In order to do that, define the EL-expression in the web.xml. For example:

```
<context-param>
  <param-name>org.richfaces.SKIN</param-name>
  <param-value>#{skinBean.skin}</param-value>
</context-param>
```

The `skinBean` code looks as follows:

```
public class SkinBean {

  private String skin;

  public String getSkin() {
    return skin;
  }
  public void setSkin(String skin) {
    this.skin = skin;
  }
}
```

Further, it is necessary to set the skin property to the initial value in the configuration file. For example, "classic":

```
<managed-bean>
   <managed-bean-name>skinBean</managed-bean-name>
   <managed-bean-class>SkinBean</managed-bean-class>
   <managed-bean-scope>session</managed-bean-scope>
   <managed-property>
      <property-name>skin</property-name>
      <value>classic</value>
   </managed-property>
</managed-bean>
```

You can also change the default skin, for instance, change the default color. To do this, edit the file properties of the skin. Here is an example of the code for page:

```
<h:form>
    <div style="display: block; float: left">
                <h:selectOneRadio  value="#{skinBean.skin}"  border="0"  layout="pageDirection"
 title="Changing skin" style="font-size: 8; font-family: comic" onchange="submit()">
            <f:selectItem itemLabel="plain" itemValue="plain" />
      <f:selectItem itemLabel="emeraldTown" itemValue="emeraldTown" />
      <f:selectItem itemLabel="blueSky" itemValue="blueSky" />
      <f:selectItem itemLabel="wine" itemValue="wine" />
      <f:selectItem itemLabel="japanCherry" itemValue="japanCherry" />
      <f:selectItem itemLabel="ruby" itemValue="ruby" />
      <f:selectItem itemLabel="classic" itemValue="classic" />
      <f:selectItem itemLabel="laguna" itemValue="laguna" />
      <f:selectItem itemLabel="deepMarine" itemValue="deepMarine" />
      <f:selectItem itemLabel="blueSky Modified" itemValue="blueSkyModify" />
       </h:selectOneRadio>
    </div>
    <div style="display: block; float: left">
        <rich:panelBar height="100" width="200">
            <rich:panelBarItem label="Item 1" style="font-family: monospace; font-size: 12;">
      Changing skin in runtime
   </rich:panelBarItem>

   <rich:panelBarItem label="Item 2" style="font-family: monospace; font-size: 12;">
      This is a result of the modification "blueSky" skin
   </rich:panelBarItem>
```

```
        </rich:panelBar>
    </div>
</h:form>
```

This is result:

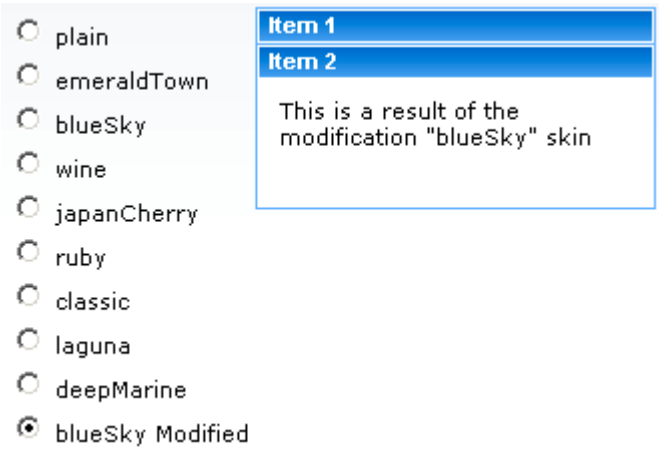


Figure 5.5. Changing skin in runtime

5.10.8. Standard Controls Skinning

The feature is designed to unify the look and feel of standard HTML element and RichFaces components. Skinning can be applied to all controls on a page basing on elements' name and attribute type (where applicable). Also this feature provides a set of CSS styles so that skinning can be applied assigning rich-* classes to particular elements or to container of elements that nests controls.

Standard controls skinning feature provides 2 levels of skinning: Standard and Extended. The level is based on detecting the browser type. If browser type is not identified, Advanced level is used. However, if you want to explicitly specify the level of skinning you want to be applied, you need to add a context parameter to your web.xml with `org.richfaces.CONTROL_SKINNING_LEVEL` as the parameter name and value set to either `basic` or `extended`.

- *Standard level* provides customization for only basic style properties.

  To the following browsers Standard level of skinning is applied:

  - Internet Explorer 6
  - Internet Explorer 7 in BackCompat mode (see *document.compatMode property in MSDN* [http://msdn2.microsoft.com/en-us/library/ms533687(VS.85).aspx])
  - Opera
  - Safari

- *Extended level* extends basic level introducing broader number of style properties and is applied to browsers with rich visual styling capability of controls

  The following browsers support Extended level of skinning:

  - Mozilla Firefox
  - Internet Explorer 7 in Standards-compliant mode (CSS1Compat mode)

These are the elements that affected by skinning:

- input
- select
- textarea
- keygen
- isindex
- legend
- fieldset
- hr
- a (together with a:hover, a:visited "pseudo"-elements)

Skinning for standard HTML controls can be initialized in two ways:

- by adding `org.richfaces.CONTROL_SKINNING` parameter to web.xml. Values: "enable" and "disable". This way implies that skinning style properties are applied to elements by element name and attribute type (where applicable). No additional steps required. Please find below the table that contains the list of elements to which skinning is applicable.
- by adding `org.richfaces.CONTROL_SKINNING_CLASSES` parameter to web.xml file. Possible values "enable" and "disable". When this option is enabled you are provided with a set of predefined CSS classes that you can use for skinning your HTML components.

By setting `org.richfaces.CONTROL_SKINNING_CLASSES` to "enable" you are provided with style classes applicable to:

- Basic elements nested inside element having rich-container class, e.g.:

  Example:

```
...
.rich-container select {
  //class content
```

```
}
...
```

- Elements that have class name corresponding to one of the basic elements name/type mapped by the following scheme `rich-<elementName>[-<elementType>]` . See the example:

  Example:

```
...
.rich-select {
  //class content
}

.rich-input-text {
  //class content
}

...
```

Note:

Elements have classes based on "link" and pseudo class name, e.g.: rich-link, rich-link-hover, rich-link-visited

Additionally, the predefined rich CSS classes that we provide can be used not only as classes for basic HTML elements but also as classes for creation of complex elements .

There is a snippet with some of them for example:

```
...
<u:selector name=".rich-box-bgcolor-header">
    <u:style name="background-color" skin="headerBackgroundColor" />
</u:selector>
<u:selector name=".rich-box-bgcolor-general">
    <u:style name="background-color" skin="generalBackgroundColor" />
</u:selector>
...
//gradient elements
...
<u:selector name=".rich-gradient-menu">
    <u:style name="background-image">
        <f:resource f:key="org.richfaces.renderkit.html.gradientimages.MenuGradientImage"/>
```

```
    </u:style>
    <u:style name="background-repeat" value="repeat-x" />
</u:selector>
<u:selector name=".rich-gradient-tab">
    <u:style name="background-image">
        <f:resource f:key="org.richfaces.renderkit.html.gradientimages.TabGradientImage"/>
    </u:style>
    <u:style name="background-repeat" value="repeat-x" />
</u:selector>
...
```

To get a better idea of standard component skinning we recommend to explore CSS files located in ui/core/src/main/resources/org/richfaces/ folder of RichFaces svn.

5.10.8.1. Standard level

Table 5.4. Html Elements Skin Bindings for input, select, textarea, button, keygen, isindex, legend

CSS Properties	Skin parameters
font-size	generalSizeFont
font-family	generalFamilyFont
color	controlTextColor

Table 5.5. Html Elements Skin Bindings for fieldset

CSS Properties	Skin parameters
border-color	panelBorderColor

Table 5.6. Html Elements Skin Bindings for hr

CSS Properties	Skin parameters
border-color	panelBorderColor

Table 5.7. Html Elements Skin Bindings for a

CSS Properties	Skin parameters
color	generalLinkColor

Table 5.8. Html Elements Skin Bindings for a:hover

CSS Properties	Skin parameters
color	hoverLinkColorgeneralLinkColor

Table 5.9. Html Elements Skin Bindings for a:visited

CSS Properties	Skin parameters
color	visitedLinkColor

Table 5.10. Rich Elements Skin Bindings for .rich-input, .rich-select, .rich-textarea, .rich-keygen, .rich-isindex, .rich-link

CSS Properties	Skin parameters
font-size	generalSizeFont
font-family	generalFamilyFont
color	controlTextColor

Table 5.11. Rich Elements Skin Bindings for .rich-fieldset

CSS Properties	Skin parameters
border-color	panelBorderColor

Table 5.12. Rich Elements Skin Bindings for .rich-hr

CSS Properties	Skin parameters/Value
border-color	panelBorderColor
border-width	1px
border-style	solid

Table 5.13. Rich Elements Skin Bindings for .rich-link

CSS Properties	Skin parameters
color	generalLinkColor

Table 5.14. Rich Elements Skin Bindings for .rich-link:hover

CSS Properties	Skin parameters
color	hoverLinkColor

Table 5.15. Rich Elements Skin Bindings for .rich-link:visited

CSS Properties	Skin parameters
color	visitedLinkColor

Table 5.16. Rich Elements Skin Bindings for .rich-field

CSS Properties	Skin parameters/Value
border-width	1px

CSS Properties	Skin parameters/Value
border-style	inset
border-color	panelBorderColor
background-color	controlBackgroundColor
background-repeat	no-repeat
background-position	1px 1px

Table 5.17. Rich Elements Skin Bindings for .rich-field-edit

CSS Properties	Skin parameters/Value
border-width	1px
border-style	inset
border-color	panelBorderColor
background-color	editBackgroundColor

Table 5.18. Rich Elements Skin Bindings for .rich-field-error

CSS Properties	Skin parameter/Value
border-width	1px
border-style	inset
border-color	panelBorderColor
background-color	warningBackgroundColor
background-repeat	no-repeat
background-position	center left
padding-left	7px

Table 5.19. Rich Elements Skin Bindings for .rich-button, .rich-button-disabled, .rich-button-over

CSS Properties	Skin parameter/Value
border-width	1px
border-style	solid
border-color	panelBorderColor
background-color	trimColor
padding	2px 10px 2px 10px
text-align	center
cursor	pointer
background-repeat	repeat-x

CSS Properties	Skin parameter/Value
background-position	top left

Table 5.20. Rich Elements Skin Bindings for .rich-button-press

CSS Properties	Skin parameter/Value
background-position	bottom left

Table 5.21. Rich Elements Skin Bindings for .rich-container fieldset, .rich-fieldset

CSS Properties	Skin parameters/Value
border-color	panelBorderColor
border-width	1px
border-style	solid
padding	10px
padding	10px

Table 5.22. Rich Elements Skin Bindings for .rich-legend

CSS Properties	Skin parameter/Value
font-size	generalSizeFont
font-family	generalFamilyFont
color	controlTextColor
font-weight	bold

Table 5.23. Rich Elements Skin Bindings for .rich-form

CSS Properties	Skin parameters/Value
padding	0px
margin	0px

5.10.8.2. Extended level

Table 5.24. Html Elements Skin Bindings for input, select, textarea, button, keygen, isindex

CSS properties	Skin parameters/Value
border-width	1px
border-color	panelBorderColor

CSS properties	Skin parameters/Value
color	controlTextColor

Table 5.25. Html Elements Skin Bindings for *|button

CSS properties	Skin parameters
border-color	panelBorderColor
font-size	generalSizeFont
font-family	generalFamilyFont
color	headerTextColor
background-color	headerBackgroundColor
background-image	org.richfaces.renderkit.html.images.ButtonBackgroundImage

Table 5.26. Html Elements Skin Bindings for button[type=button], button[type=reset], button[type=submit], input[type=reset], input[type=submit], input[type=button]

CSS properties	Skin parameters
border-color	panelBorderColor
font-size	generalSizeFont
font-family	generalFamilyFont
color	headerTextColor
background-color	headerBackgroundColor
background-image	org.richfaces.renderkit.html.images.ButtonBackgroundImage

Table 5.27. Html Elements Skin Bindings for *|button[disabled], .rich-container *|button[disabled], .rich-button-disabled

CSS properties	Skin parameters
color	tabDisabledTextColor
border-color	tableFooterBackgroundColor
background-color	tableFooterBackgroundColor
background-image	org.richfaces.renderkit.html.images.ButtonDisabledBackgroundImage

Table 5.28. Html Elements Skin Bindings for .rich-button-disabled, .rich-container button[type="button"][disabled], .rich-button-button-disabled, .rich-container button[type="reset"][disabled], .rich-button-reset-disabled, .rich-container button[type="submit"][disabled], .rich-button-submit-disabled,

.rich-container input[type="reset"][disabled], .rich-input-reset-disabled, .rich-container input[type="submit"][disabled], .rich-input-submit-disabled, .rich-container input[type="button"][disabled], .rich-input-button-disabled

CSS properties	Skin parameters
color	tabDisabledTextColor
background-color	tableFooterBackgroundColor
border-color	tableFooterBackgroundColor
background-image	org.richfaces.renderkit.html.images.ButtonDisabledBackgroundImage

Table 5.29. Html Elements Skin Bindings for *button[type="button"][disabled], button[type="reset"][disabled], button[type="submit"][disabled], input[type="reset"][disabled], input[type="submit"][disabled], input[type="button"][disabled]

CSS properties	Skin parameters
color	tabDisabledTextColor
border-color	tableFooterBackgroundColor
background-color	tableFooterBackgroundColor

Table 5.30. Html Elements Skin Bindings for *|textarea

CSS properties	Skin parameters
border-color	panelBorderColor
font-size	generalSizeFont
font-family	generalFamilyFont
color	controlTextColor
background-color	controlBackgroundColor
background-image	org.richfaces.renderkit.html.images.InputBackgroundImage

Table 5.31. Html Elements Skin Bindings for textarea[type=textarea], input[type=text], input[type=password], select

CSS properties	Skin parameters
border-color	panelBorderColor
font-size	generalSizeFont
font-family	generalFamilyFont
color	controlTextColor
background-color	controlBackgroundColor

CSS properties	Skin parameters
background-image	org.richfaces.renderkit.html.images.InputBackgroundImage

Table 5.32. Html Elements Skin Bindings for *|textarea[disabled], .rich-container *|textarea[disabled]

CSS properties	Skin parameters
color	tableBorderColor

Table 5.33. textarea[type="textarea"][disabled], input[type="text"][disabled], input[type="password"][disabled]

CSS properties	Skin parameters
color	tableBorderColor

Table 5.34. textarea[type="textarea"][disabled], input[type="text"][disabled], input[type="password"][disabled]

CSS properties	Skin parameters
color	tableBorderColor

Note:

Standard skinning level can fail if configuration of `ajaxPortlet` is as following:

```
...
<portlet>
  <portlet-name>ajaxPortlet</portlet-name>
  <header-content>
   <script src="/faces/rfRes/org/ajax4jsf/framework.pack.js" type="text/javascript"
 />
     <script src="/faces/rfRes/org/richfaces/ui.pack.js" type="text/javascript" />
          <link  rel="stylesheet"  type="text/css"  href="/faces/rfRes/org/richfaces/
skin.xcss" />
  </header-content>
</portlet>
...
```

Attention. The **<a4j:portlet>** component is DEPRECATED as far as *JSR-301* [http://jcp.org/en/jsr/detail?id=301] was defined the same functionality for a

`UIViewRoot` component. Thus, it is implicitly defined by mandatory **<f:view>** component.

5.10.9. Client-side Script for Extended Skinning Support

As it was mentioned earlier in the guide, extended skinning of standard HTML controls is applied automatically: the browser type is detected and if a browser doesn't fully support extended skinning feature, only basic skinning is applied.

However, if you don't want the RichFaces components and standard HTML controls to be skinned automatically and perform the skinnability implementation yourself, you might encounter with a problem, namely standard HTML controls in such browsers as Opera and Safari will be affected by standard controls skinning. (*In this section* you can get more details on how to disable skinnability.)

In brief, to disable the skinnability mechanism of RichFaces you need to set the "org.richfaces.LoadStyleStrategy" parameter to "NONE" in the `web.xml` file.

```
...
<context-param>
   <param-name>org.richfaces.LoadStyleStrategy</param-name>
   <param-value>NONE</param-value>
</context-param>
...
```

Additionally, you should include the style sheets that perform skinning of the RichFaces component and standard HTML controls.

In order to resolve the problem with extended skinning in Opera and Safari a client script (`skinning.js`) is added to the RichFaces library. The script detects the browser type and enables extended skinning only for those browsers that fully support it.

The script can be activated by inserting this JavaScript code to the page:

```
<script type="text/javascript">
   window.RICH_FACES_EXTENDED_SKINNING_ON = true;
</script>
```

When NO script loading strategy is used and extended skinning is turned on then corresponding warning message will appears in the console.

You also need to specify *"media"* attribute in the **<link>** tag which includes the "extended_both.xcss" style sheet with "rich-extended-skinning".

This is how you can include the style sheets to the page, in case automatic skinnability implementation is disabled.

```
<link href='/YOUR_PROJECT_NAME/a4j_3_2_2-SNAPSHOTorg/richfaces/renderkit/html/css/basic_both.xcss/DATB/eAF7sqpgb-jyGdIAFrMEaw__.jsf' type='text/css' rel='stylesheet' class='component' />
<link media='rich-extended-skinning' href='/ YOUR_PROJECT_NAME /a4j_3_2_2-SNAPSHOTorg/richfaces/renderkit/html/css/extended_both.xcss/DATB/eAF7sqpgb-jyGdIAFrMEaw__.jsf' type='text/css' rel='stylesheet' class='component' />
<link href='/ YOUR_PROJECT_NAME /a4j_3_2_2-SNAPSHOT/org/richfaces/skin.xcss/DATB/eAF7sqpgb-jyGdIAFrMEaw__.jsf' type='text/css' rel='stylesheet' class='component' />
```

Note

Now it's necessary to use `a4j/versionXXX` resources prefix instead of `a4j_versionXXX`. Base64 encoder changed to use '`!`' instead of '`.`'.

5.10.10. XCSS File Format

XCSS files are the core of RichFaces components skinnability.

XCSS is an XML formatted CSS that adds extra functionality to the skinning process. XCSS extends skinning possibilities by parsing the XCSS file that contains all look-and-feel parameters of a particular component into a standard CSS file that a web browser can recognize.

XCSS file contains CSS properties and skin parameters mappings. Mapping of a CSS selector to a skin parameter is performed using **< u:selector >** and **< u:style>** XML tags that form the mapping structure. Please study the example below.

```
...
<u:selector name=".rich-component-name">
   <u:style name="background-color" skin="additionalBackgroundColor" />
   <u:style name="border-color" skin="tableBorderColor" />
   <u:style name="border-width" skin="tableBorderWidth" />
   <u:style name="border-style" value="solid" />
</u:selector>
...
```

During processing the code in the shown example is parsed into a standard CSS format.

```
...
```

```
.rich-component-name {
   background-color: additionalBackgroundColor; /*the value of the constant defined by your skin*/
    border-color: tableBorderColor; /*the value of the constant defined by your skin*/
    border-width: tableBorderWidth; /*the value of the constant defined by your skin*/
    border-style: solid;
}
...
```

The *"name"* attribute of **<u:selector>** tag defines the CSS selector, while *"name"* attribute of the **<u:style>** tag defines what skin constant is mapped to a CSS property. The *"value"* attribute of the **<u:style>** tag can also be used to assign a value to a CSS property.

CSS selectors with identical skinning properties can be set as a comma separated list.

```
...
<u:selector name=".rich-ordering-control-disabled, .rich-ordering-control-top, .rich-ordering-control-bottom, .rich-ordering-control-up, .rich-ordering-control-down">
   <u:style name="border-color" skin="tableBorderColor" />
</u:selector>
...
```

5.10.11. Plug-n-Skin

Plug-n-Skin is a feature that gives you an opportunity to easily create, customize and plug into your project a custom skin. The skin can be created basing on parameters of some predefined RichFaces skin.

The feature also provides an option to unify the appearance of rich controls with standard HTML elements.

In order to create your own skin using Plug-n-Skin feature, you can follow these step by step instructions.

First of all, you need to create a template for the new skin. Creation of the template can be performed using Maven build and deployment tool. More information on how to configure Maven for RichFaces you can find out from *JBoss wiki article* [http://wiki.jboss.org/wiki/HowToConfigureMavenForRichFaces] . You can copy and paste these Maven instructions to command line and execute them.

```
...
mvn archetype:create -DarchetypeGroupId=org.richfaces.cdk -DarchetypeArtifactId=maven-archetype-plug-n-skin -DarchetypeVersion=RF-VERSION -DartifactId=ARTIFACT-ID -DgroupId=GROUP-ID -Dversion=VERSION
```

```
...
```

Primary keys for the command:

- `archetypeVersion` indicates the RichFaces version. For example, `"3.3.2-SNAPSHOT"`
- `artifactId` artifact id of the project
- `groupId` group id of the project
- `version` the version of the project you create, by default it is `"1.0.-SNAPSHOT"`

After this operation, a folder with the name of your `"ARTIFACT-ID"` appears. The folder contains a template of Maven project.

Next steps will guide you though creating of the skin itself.

In the root folder of Maven project (the one that contains "pom.xml" file) you should run the following command in the command line:

```
...
mvn cdk:add-skin -Dname=SKIN-NAME -Dpackage=SKIN-PACKAGE
...
```

Primary keys for the command:

- `name` defines the name of the new skin
- `package` base package of the skin. By default "groupId" of the project is used.

Additional optional keys for the command:

- `baseSkin` defines the name of the base skin.
- `createExt` if set to "true", extended CSS classes are added. For more information, please, see *"Standard controls skinning"*

As a result of the performed operations the following files and folders are created:

- BaseImage.java - the base class to store images. Location: "\src\main\java\SKIN-PACKAGE\SKIN-NAME\images\"

- BaseImageTest.java - a test version of a class that stores images. Location: "\src\test\java\SKIN-PACKAGE\SKIN-NAME\images\"
- XCSS files - XCSS files define the new look of RichFaces components affected by the new skin. Location: "\src\main\resources\SKIN-PACKAGE\SKIN-NAME\css\"
- SKIN-NAME.properties - a file that contains properties of the new skin. Location: "\src\main\resources\SKIN-PACKAGE\SKIN-NAME\css\"

  The following properties are used to configure the SKIN-NAME.properties file:

  - baseSkin – the name of the base skin to be used as basis. The look of the skin you define will be affected by new style properties.
  - generalStyleSheet - a path to the style sheet (SKIN-NAME.xcss) that imports style sheets of the components to be affected by the new skin.
  - extendedStyleSheet - a path to a style sheet that is used to unify the appearance of RichFaces components and standard HTML controls. For additional information please read *"Standard controls skinning"* chapter.
  - gradientType - a predefined property to set the type of gradient applied to the new skin. Possible values are glass, plastic, plain. More information on gradient implementation you can find further in this chapter.
- SKIN-NAME.xcss - a XCSS file that imports XCSS files of the components to be affected by the new skin. Location: "src\main\resources\META-INF\skins "
- XCSS files If the command is executed with the "DcreateExt" key set to "true", the XCSS (extended_classes.xcss and extended.xcss) files that define style for standard controls will be created. Location: "\src\main\resources\SKIN-PACKAGE\SKIN-NAME\css\".
- SKIN-NAME-ext.xcss If the command is executed with the "DcreateExt" key set to "true", the configuration SKIN-NAME-ext.xcss file that imports XCSS file defining styles for the standard controls will be created. Location: "src\main\resources\META-INF\skins ".
- SKIN-NAME-resources.xml - the file contains the description of all listed above files. Location: "src\main\config\resources ".

Now you can start editing the XCSS files located in "\src\main\resources\SKIN-PACKAGE\SKIN-NAME\css\". New style properties can be assigned to the selectors (the selectors listed in the XCSS files) in two ways, which are both valid, and it'up to you what way to choose.

- Standard CSS coding approach, i.e. you can add CSS properties to the given selectors. The only thing, you have to keep in mind is that the selectors must be inside `<f:verbatim> <![CDATA[ ...]]> </f:verbatim>` tags.

  For example

```
...
.rich-calendar-cell {
    background: #537df8;
}
...
```

- Using XCSS coding approach, the same way as XCSS files are normally formed in RichFaces. The XCSS tags have to be placed outside `<f:verbatim> <![CDATA[ ...]]> </f:verbatim>` tags.

```
...
<u:selector name=".rich-calendar-cell">
    <u:style name="border-bottom-color" skin="panelBorderColor"/>
    <u:style name="border-right-color" skin="panelBorderColor"/>
    <u:style name="background-color" skin="tableBackgroundColor"/>
    <u:style name="font-size" skin="generalSizeFont"/>
    <u:style name="font-family" skin="generalFamilyFont"/>
</u:selector>
...
```

Having performed described above steps and edited the XCSS files you can proceed to building the new skin and to plugging it into the project. Building the new skin can be done by executing the given below command in the command line in the root folder of you skin project (the one that contains pom.xml file).

```
...
mvn clean install
...
```

In addition Plug-n-Skin has a number of predefined gradients that you can also use to make your application look nicer. The given below code snippet shows how a gradient can be used

```
...
<u:selector name=".rich-combobox-item-selected">
   <u:style name="border-width" value="1px" />
   <u:style name="border-style" value="solid" />
   <u:style name="border-color" skin="newBorder" />
   <u:style name="background-position" value="0% 50%" />
   <u:style name="background-image">
```

```
      <f:resource f:key="org.richfaces.renderkit.html.CustomizeableGradient">
        <f:attribute name="valign" value="middle" />
        <f:attribute name="gradientHeight" value="17px" />
        <f:attribute name="baseColor" skin="headerBackgroundColor" />
      </f:resource>
  </u:style>
</u:selector>
...
```

So, as you can see, the background-image CSS property is defined with `<f:resource f:key="org.richfaces.renderkit.html.CustomizeableGradient">` that sets the gradient. While the gradient type can be specified in the SKIN-NAME.properties file with gradientType property. The gradientType property can be set to one of the possible values glass, plastic, plain. The gradient in it's turn can be can be adjusted using baseColor, gradientColor, gradientHeight, valign attributes. Their usage is shown in the snippet above.

Now, you can use your newly-created and customized skin in your project by adding your new skin parameters to web.xml file and placing the jar file with your skin (the jar file is located in "target" folder of your skin project) to "\WebContent\WEB-INF\lib\".

```
...
<context-param>
  <param-name>org.ajax4jsf.SKIN</param-name>
  <param-value>SKIN-NAME</param-value>
</context-param>
...
```

5.10.11.1. Details of Usage

This section will cover some practical aspects of Plug-n-Skin implementation. It's assumed that you have read the section of the guide that tells how the new skin using Plug-n-Skin prototype can be created.

Above all, we need to create a new skin, in order to do that we just have to follow the steps described in the previous section.

This command will be used to create a template of the new skin project.

```
mvn archetype:create -DarchetypeGroupId=org.richfaces.cdk -DarchetypeArtifactId=maven-archetype-plug-n-skin -DarchetypeVersion=3.3.2-SNAPSHOT -DartifactId=P-n-S -DgroupId=GROUPID -Dversion=1.0.-SNAPSHOT
```

Now you can browse the "P-n-S" folder to view what files and folders were created there.

Next, we will use Maven to add all needed files to the skin project. This will done by the following command:

```
mvn cdk:add-skin -DbaseSkin=blueSky -DcreateExt=true -Dname=PlugnSkinDemo -Dpackage=SKINPACKAGE
```

As you remember from the previous section "-DbaseSkin" key defines what RichFaces built-in skin to be used as a base one, "-DcreateExt=true" determines that the new skin will come with XCSS files that unify the look of the rich components with standard HTML controls.

So, now the files and folder with all needed resources are created and redefining/editing the new skin can be started.

Now we can start editing XCSS files of the rich components. In order to see how the Plug-n-Skin feature works we will change some style attributes of **<rich:calendar>** and some basic HTML controls to see how they are affected by standard controls skinning.

Thus, it will be demonstrated how to:

- Recolor the current day's cell background of the **<rich:calendar>** to see how the new skin created with the help of Plug-n-Skin feature affects the style of the component;
- Recolor a standard HTML submit button;

In oder to edit the style properties of **<rich:calendar>** you need to open the "calendar.xcss" file located in "P-n-S\src\main\resources\skinpackage\plugnskindemo\css\". Once, you have opened the file, please find ".rich-calendar-today" selector and amend it as follows: `background-color: #075ad1;`. The current day's background color can be considered recolored.

Now we will see how font style of a standard HTML submit button can be changed. Please, open "extended.xcss" file located in "P-n-S\src\main\resources\skinpackage\plugnskindemo\css\" and put in `font-weight: bold;` inside the curly braces of these coma separated selectors `button[type="button"], button[type="reset"], button[type="submit"], input[type="reset"], input[type="submit"], input[type="button"]`. So, the CSS code should look like this.

```
button[type=&quot;button&quot;], button[type=&quot;reset&quot;], button[type=&quot;submit&quot;], input[type=&quot;r
 input[type=&quot;submit&quot;], input[type=&quot;button&quot;] { font-weight: bold;
}
```

All the changes that were planned to be preformed are done and now you can proceed to building the new PlugnSkinDemo skin and import it into the project. As you read in the previous section, the skin should be built in the "P-n-S" folder of the skin project by executing `mvn clean install` command. This procedure results in creating a "target" folder that contains a .jar file with a compiled new skin, it our case the file is named "P-n-S-1.0.-SNAPSHOT.jar". The next step is to import the new PlugnSkinDemo skin into the project.

What you need to do, in order to have the new skin imported to the project is to

- Copy the "P-n-S-1.0.-SNAPSHOT.jar" file to the "\WebContent\WEB-INF\lib\" folder.
- Add the new skin's name to the "web.xml" file. It is done like this

```
 <context-param>
    <param-name>org.ajax4jsf.SKIN</param-name>
    <param-value>PlugnSkinDemo</param-value>
</context-param>
```

Please, do not forget that standard controls skinning has to be enabled in the "web.xml" file, which can be done by adding the following code to the "web.xml" file:

```
<context-param>
   <param-name>org.richfaces.CONTROL_SKINNING</param-name>
   <param-value>enable</param-value>
</context-param>
```

The result of both operations is displayed on the figure below.

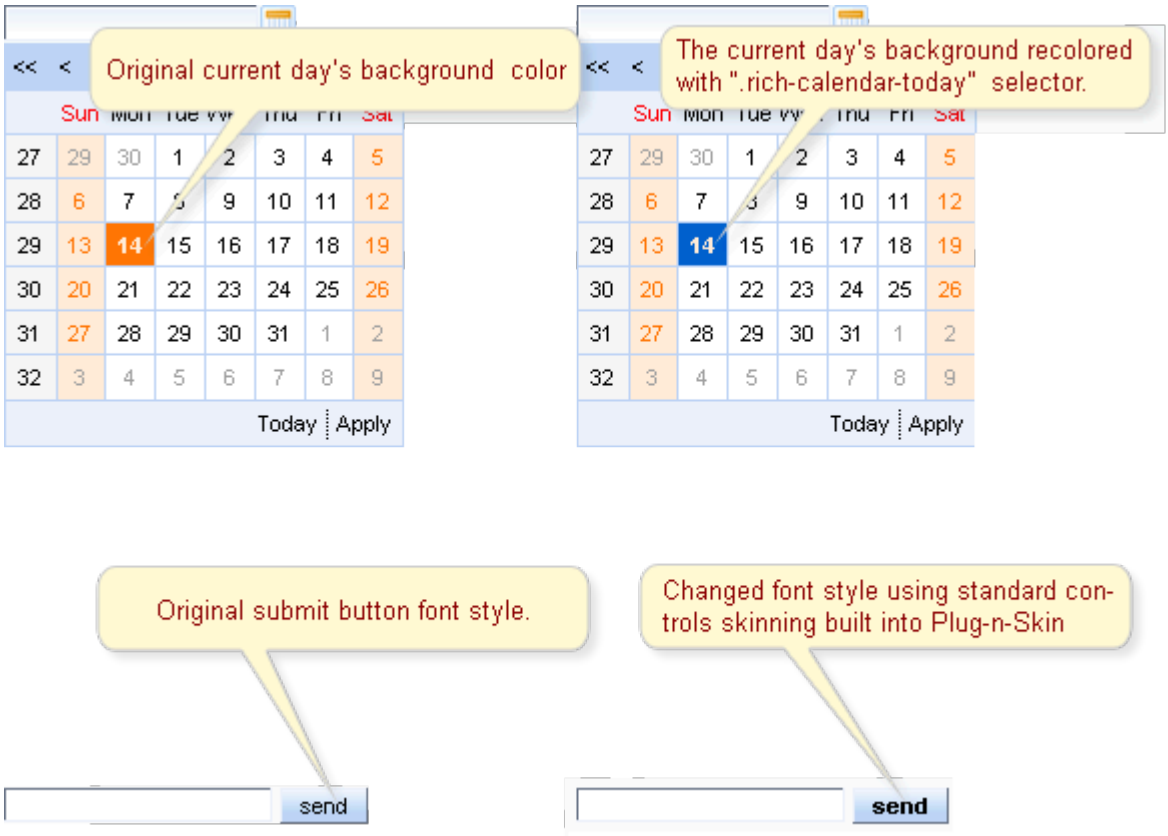


Figure 5.6. Plug-n-Skin feature in action.

5.11. Definition of Custom Style Classes

In the "Reference Data" section for most of the visual components (see "The RichFaces Components" chapter) there are the tables with `rich-*` classes definitions. These classes allow to redefine styles for a specific component by means of CSS. Actually, you should create classes with the same names and define new properties in them.

Let's consider the ***<rich:modalPanel>*** component. To change the background color for the mask, it's enough to redefine the `.rich-mpnl-mask-div` class.

Example:

```
...
.rich-mpnl-mask-div{
    background-color:#fae6b0;
}
...
```

This is a result:

Figure 5.7. Style redefinition with predefined class

If you have multiple components on the page, the redefined styles will be applied to all of them. To change styles for a particular component on the page, create your own style classes and use them in corresponding style class attributes. An example on how to change the font style for the header of a particular modal panel is placed below:

Example:

```
...
.myClass{
    font-style:italic;
}
...
```

Next specify *myClass* as the value of the *"headerClass"* attribute for **<rich:modalPanel>** :

```
<rich:modalPanel ... headerClass="myClass"/>
```

This is a result:

Figure 5.8. Style redefinition with own class

5.12. State Manager API

JSF has an advanced navigation mechanism that allows you to define navigation from view to view. Navigation happens in a Web Application when a user tries to switch from one page to another page either by clicking a button, a hyperlink, or another command component. But there is no switch mechanism between some logical states of the same view. For example in Login/ Register dialog an existing user signs in with his user name and password, but if a new user registers an additional field "Confirm" is displayed, buttons labels and methods are changed when the user clicks "To register" link:

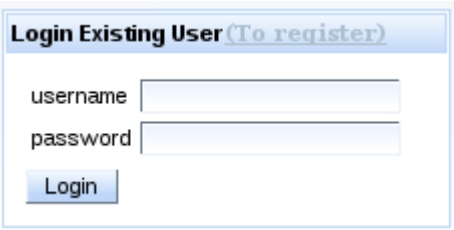


Figure 5.9. Login Dialog

Figure 5.10. Register Dialog

RichFaces State API allows easily to define some set of states for the pages and any properties for this states.

Actually States is a map where the entry key is a name of the State and the value is a State map. Particular State map has entries with some names as keys and any objects as values that are used after the state activation. Thus, in the State map you could define any values, method bindings, or just some simple state variables (constants) which have different values for every State.

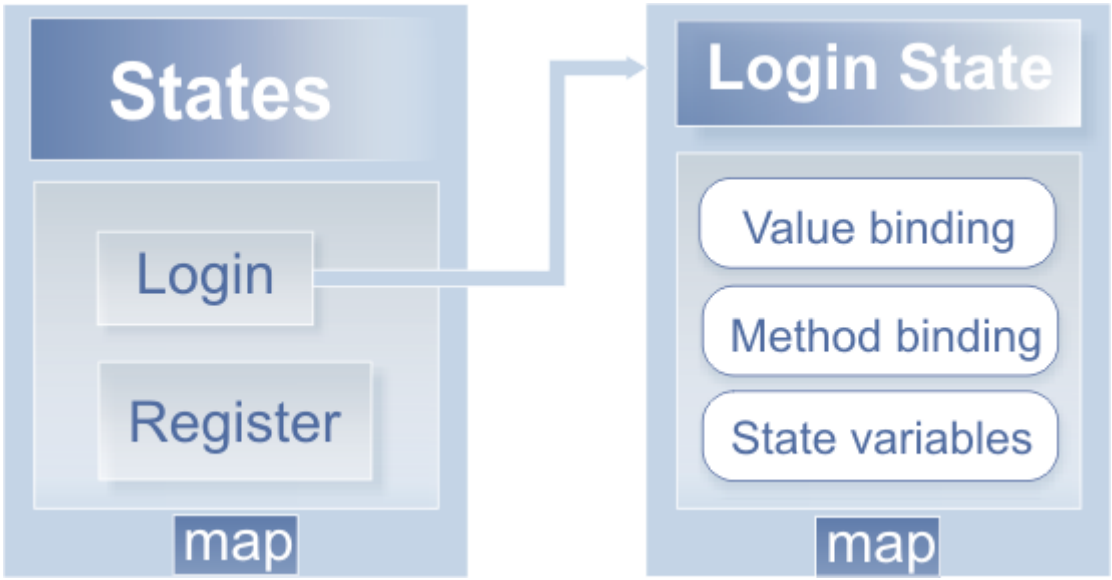


Figure 5.11. RichFaces State API

One of the most convenience features of the RichFaces State API is a navigation between states. The RichFaces State API implements states change as the standard JSF navigation. Action component just returns outcome and the RichFaces State API extension for the JSF navigation handler checks whether this outcome is registered as a state change outcome or not. If the state change outcome is found the corresponding state is activated. Otherwise the standard navigation handling is called.

In order to use RichFaces State API you should follow the next steps:

- Register State Manager EL resolver and navigation handler in the faces-config.xml:

```
...
<application>
        <navigation-handler>org.richfaces.ui.application.StateNavigationHandler</navigation-handler>
   <el-resolver>org.richfaces.el.StateELResolver</el-resolver>
</application>
...
```

- Register an additional application factory in the faces-config.xml:

```
...
<factory>
        <application-factory>org.richfaces.ui.application.StateApplicationFactory</application-factory>
</factory>
...
```

- Register two managed beans in the faces-config.xml:

```
...
<managed-bean>
   <managed-bean-name>state</managed-bean-name>
   <managed-bean-class>org.richfaces.ui.model.States</managed-bean-class>
   <managed-bean-scope>request</managed-bean-scope>
   <managed-property>
      <property-name>states</property-name>
      <property-class>org.richfaces.ui.model.States</property-class>
      <value>#{config.states}</value>
   </managed-property>
</managed-bean>
<managed-bean>
   <managed-bean-name>config</managed-bean-name>
   <managed-bean-class>org.richfaces.demo.stateApi.Config</managed-bean-class>
   <managed-bean-scope>none</managed-bean-scope>
</managed-bean>
...
```

One bean ("config") defines and stores states as it is shown in the following example:

```
...
public class Config {

   /**
    * @return States
    */
   public States getStates() {
      FacesContext facesContext = FacesContext.getCurrentInstance();
      States states = new States();

      // Registering new User State definition
      states.setCurrentState("register"); // Name of the new state

      // Text labels, properties and Labels for controls in "register" state
      states.put("showConfirm", Boolean.TRUE); // confirm field rendering
      states.put("link", "(To login)"); // Switch State link label
      states.put("okBtn", "Register"); // Login/Register button label
      states.put("stateTitle", "Register New User"); // Panel title

      ExpressionFactory expressionFactory = facesContext.getApplication()
            .getExpressionFactory();

      // Define "registerbean" available under "bean" EL binding on the page
      ValueExpression beanExpression = expressionFactory
            .createValueExpression(facesContext.getELContext(),
                  "#{registerbean}", Bean.class);
      states.put("bean", beanExpression);

      // Define "registeraction" available under "action" EL binding on the
      // page
      beanExpression = expressionFactory.createValueExpression(facesContext
            .getELContext(), "#{registeraction}", RegisterAction.class);
      states.put("action", beanExpression);

      // Define method expression inside registeraction binding for this state
      MethodExpression methodExpression = expressionFactory.createMethodExpression(
            facesContext.getELContext(), "#{registeraction.ok}",
            String.class, new Class[] {});
      states.put("ok", methodExpression);

      // Outcome for switching to login state definition
      states.setNavigation("switch", "login");
```

```
        // Login Existent User State analogous definition
        states.setCurrentState("login");
        states.put("showConfirm", Boolean.FALSE);
        states.put("link", "(To register)");
        states.put("okBtn", "Login");
        states.put("stateTitle", "Login Existing User");

        beanExpression = expressionFactory.createValueExpression(facesContext
                .getELContext(), "#{loginbean}", Bean.class);
        states.put("bean", beanExpression);

        beanExpression = expressionFactory.createValueExpression(facesContext
                .getELContext(), "#{loginaction}", LoginAction.class);
        states.put("action", beanExpression);

        methodExpression = expressionFactory.createMethodExpression(
                facesContext.getELContext(), "#{loginaction.ok}",
                String.class, new Class[] {});
        states.put("ok", methodExpression);

        states.setNavigation("switch", "register");

        return states;
    }
}
...
```

The other bean ("state") with the type `org.richfaces.ui.model.States` has the "states" managed property that is bound to the "config" bean which defines states.

- Use state bindings on the page. See the following example:

```
...
<h:panelGrid columns="3">
    <h:outputText value="username" />
    <h:inputText value="#{state.bean.name}" id="name" required="true" />
    <h:outputText value="password" />
    <h:inputSecret value="#{state.bean.password}" id="password" required="true" />
    <h:outputText value="confirm" rendered="#{state.showConfirm}" />
     <h:inputSecret value="#{state.bean.confirmPassword}" rendered="#{state.showConfirm}"
 id="confirm" required="true" />
</h:panelGrid>
```

```
<a4j:commandButton actionListener="#{state.action.listener}" action="#{state.ok}"
 value="#{state.okBtn}" id="action"/>
...
```

To get full Login/Register dialog example, please, have a look at *RichFaces Live Demo* [http://livedemo.exadel.com/richfaces-demo/richfaces/stateAPI.jsf?c=stateAPI].

5.13. Identifying User Roles

RichFaces provides a function to check whether the logged-in user belongs to a certain user role. The function is `rich:isUserInRole(Object)`, it takes a String, a comma-separated list String, Collection etc. as arguments and returns a boolean value.

For example, you need to render some controls only for administrators. To do this you need to create a role "admin" in web.xml and implement authorisation that assigns the "admin" role to the user that loggged-in as an administrator. Afterwards, you can use the `rich:isUserInRole(Object)` function with the *"rendered"* attribute of any component.

Example:

```
...
<rich:editor value="#{bean.text}"  rendered="#{rich:isUserInRole('admin')}" />
...
```

In the example above only a logged-in user with the role "admin" can see the text editor while for the user with other roles the component will not be rendered.

The RichFaces Components

The library encompasses ready-made components built based on the *Rich Faces CDK*.

6.1. Ajax Support

The component in this section lets you easily add Ajax capabilities to other components as well as manage Ajax requests.

6.1.1. < a4j:ajaxListener > available since 3.0.0

6.1.1.1. Description

The component adds an action listener to a parent component to provide possibility of Ajax update. It works like the **<f:actionListener>** or **<f:valueChangeListener>** JSF components but for the whole Ajax container.

6.1.1.2. Key Features

- The listener is invoked for Ajax requests only
- The listener is always guaranteed to be invoked

6.1.1.3. Details of Usage

The **<a4j:ajaxListener>** component adds an action listener to a parent component, which needs to be provided with Ajax support. That listener is invoked on each Ajax request during the "Render Response" JSF phase. In comparison with JSF **<f:actionListener>** and **<f:valueChangeListener>** the invocation of the **<a4j:ajaxListener>** is not skipped in case when validation of Update Model fails. The **<a4j:ajaxListener>** is guarantied to be invoked for each Ajax response.

Note

Ajax listener is not invoked for non-Ajax requests and when RichFaces works in the "Ajax Request generates Non-Ajax Response" mode.

As example of the **<a4j:ajaxListener>** component usage one can cite an updating the list of re-rendered components.

The *"type"* attribute defines the fully qualified Java class name for the listener. This Java class implements *org.ajax4jsf.event.AjaxListener* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/ajax4jsf/event/AjaxListener.html] interface, which is base interface for all listeners, capable for receiving Ajax events. The source of the

event could be accessed using the *java.util.EventObject.getSource()* [http://java.sun.com/j2se/1.4.2/docs/api/java/util/EventObject.html] call.

Example:

```
...
<a4j:commandLink id="cLink" value="Click it To Send Ajax Request">
    <a4j:ajaxListener type="demo.Bean"/>
</a4j:commandLink>
...
```

Example:

```
package demo;

import org.ajax4jsf.event.AjaxEvent;

public class Bean implements org.ajax4jsf.event.AjaxListener{
    ...
    public void processAjax(AjaxEvent arg){
        //Custom Developer Code
    }
    ...
}
```

6.1.1.4. Reference Data

Table of <a4j:ajaxListener> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/ajaxListener.html].

Table 6.1. Component Identification Parameters

Name	Value
listener-class	org.ajax4jsf.event.AjaxListener
event-class	org.ajax4jsf.event.AjaxEvent
tag-class	org.ajax4jsf.taglib.html.jsp.AjaxListenerTag

6.1.1.5. Relevant Resources Links

Visit *AjaxListener* [http://livedemo.exadel.com/richfaces-demo/richfaces/ajaxListener.jsf?c=ajaxListener] page at RichFaces Livedemo for examples of component usage and their sources.

Check Sun JSF TLD documentation for more information on *<f:valueChangeListener> tag* [http://java.sun.com/javaee/javaserverfaces/1.1_01/docs/tlddocs/f/valueChangeListener.html].

6.1.2. < a4j:actionparam > available since 3.0.0

6.1.2.1. Description

The **<a4j:actionparam>** component combines the functionality of both JSF **<f:param>** and **<f:actionListener>** and allows to assign the value to the property of the manager bean directly using the *assignTo* attribute.

6.1.2.2. Details of Usage

The component **<a4j:actionparam>** is a combination of the functionality of two JSF tags: **<f:param>** and **<f:actionListener>** .

At the render phase, it's decoded by parent component (**<h:commandLink>** or like) as usual. At the process request phase, if the parent component performs an action event, update the *"value"* specified in the *"assignTo"* attribute as its *"value"* . If a *"converter"* attribute is specified, use it to encode and decode the *"value"* to a string stored in the html parameter. To make the *"assignTo"* attribute usable add the `actionParam` instance to the parent component as an action listener.

<a4j:actionparam> has a *"noEscape"* attribute. If it is set to "true", the *"value"* is evaluated as a JavaScript code.

Example:

```
...
<script>
   ...
   var foo = "bar";
   ...
</script>
...
<a4j:actionparam noEscape="true" name="param1" value="foo" assignTo="#{bean.prop1}" />
...
```

The **<a4j:param>** extends **<f:param>** , so the *"name"* attribute is mandatory. Otherwise, the *"value"* misses due missing the request parameter name for it.

6.1.2.3. Reference Data

Table of <a4j:actionparam> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/actionparam.html].

Table 6.2. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.ActionParameter
component-class	org.ajax4jsf.component.html.HtmlActionParameter

6.1.2.4. Relevant Resources Links

Visit the *ActionParamter page* [http://livedemo.exadel.com/richfaces-demo/richfaces/actionparam.jsf?c=actionparam] at RichFaces LiveDemo for examples of component usage abd their sources.

More information can be found on the *Ajax4jsf Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4063764].

More information about **<f:param>** and **<f:actionListener>** can be found *in Sun JSF TLD documentation* [http://java.sun.com/javaee/javaserverfaces/1.2/docs/tlddocs/index.html].

6.1.3. < a4j:form > available since 3.0.0

6.1.3.1. Description

The **<a4j:form>** component is very similar to JSF **<h:form>** the only difference is in generation of links inside and possibility of default Ajax submission.

6.1.3.2. Details of Usage

The difference with the original component is that all hidden fields required for command links are always rendered and it doesn't depend on links rendering on the initial page. It solves the problem with invalid links that weren't rendered on a page immediately, but after some Ajax request.

Beginning with release 1.0.5 additional attributes that make this form variant universal have appeared.

If *"ajaxSubmit"* attribute is true, it becomes possible to set Ajax submission way for any components inside with the help of the javascript `A4J.AJAX.Submit(...)`call. In this case, the *"reRender"* attribute contains a list of Ids of components defined for re-rendering. If you have **<h:commandButton>** or **<h:commandLink>** inside the form, they work as **<a4j:commandButton>** .

Example:

```
<a4j:form id="helloForm" ajaxSubmit="true" reRender="table">
   ...
   <t:dataTable id="table"... >
```

```
    ...
  </t:dataTable>
  ...
  <t:datascroller for="table"... >
    ...
  </t:datascroller>
  ...
</a4j:form>
```

This example shows that in order to make **<t:datascroller>** submissions to be Ajax ones it's required only to place this **<t:datascroller>** into **<a4j:form>** . In the other case it is necessary to redefine renders for its child links elements that are defined as **<h:commandLink>** and can't be made Ajax ones with using e.g. **<a4j:support>** .

With the help of *"limitToList"* attribute you can limit areas, which are updated after the responses. If *"limitToList"* is true, only the reRender attribute is taken in account. Therefore, if you use blocks of text wrapped with **<a4j:outputPanel>** and `ajaxRendered= "true"`, blocks of text are ignored.

Information about the *"process"* attribute usage you can find in the "*Decide what to process*" guide section.

6.1.3.3. Reference Data

Table of <a4j:form> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/form.html].

Table 6.3. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Form
component-family	javax.faces.Form
component-class	org.ajax4jsf.component.html.AjaxForm
renderer-type	org.ajax4jsf.FormRenderer

6.1.3.4. Relevant Resources Links

Visit *AjaxForm* [http://livedemo.exadel.com/richfaces-demo/richfaces/form.jsf?c=form] at RichFaces Livedemo for examples of component usage and their sources. a

6.1.4. < a4j:region > available since 3.0.0

6.1.4.1. Description

The **<a4j:region>** component specifies the part of the component tree to be processed on server. If no **<a4j:region>** is defined the whole View functions as a region.

6.1.4.2. Details of Usage

The **<a4j:region>** component specifies the part of the component tree to be processed on server. The processing includes data handling during decoding, conversion, validation and model update. Note that the whole Form is still submitted but only part taken into region will be processed.

Example:

```
<h:form>
    ...
    <a4j:region>
        <a4j:commandLink/>
    </a4j:region>
    ...
<h:form>
```

The whole Form on the schematic listing above will be submitted by request invoked with the **<a4j:commandLink>** . The only part that is going to be processed on the server is enclosed with **<a4j:region>** and **</a4j:region>** tags. If no **<a4j:region>** is defined the whole View functions as a region.

The regions could be nested. Server picks out and decodes only the region, which contains the component that initiates the request.

Example:

```
<h:form>
     ...
    <a4j:region>
        <a4j:commandLink value="Link 1" id="link1"/>
        <a4j:region>
            <a4j:commandLink value="Link 2" id="link2"/>
        </a4j:region >
    </a4j:region>
    ...
<h:form>
```

The external region is decoded for `link1` and the internal one is decoded for `link2`.

The *"renderRegionOnly"* attribute is used when it is necessary to exclude all the components from the outside of the region from updating on the page during Renderer Response phase. Such manipulation allows region to be passed straight into Encode and reduces performance time. This optimization should be implemented carefully because it doesn't allow data from the outside of active region to be updated.

Example:

```
<h:form>
    ...
    <a4j:region renderRegionOnly="true">
        <a4j:commandLink value="Link 1" id="link1"/>
    </a4j:region>
    ...
    <a4j:region renderRegionOnly="false">
        <a4j:commandLink value="Link 2" id="link2"/>
    </a4j:region>
    ...
</h:form>
```

On the example above the first region only will be updated if `link1` initiates a request. When a request is initiated by `link2` both regions will be updated. In this case search for components to include them into Renderer Response will be performed on the whole component tree.

RichFaces allows setting Ajax responses rendering basing on component tree nodes directly, without referring to the JSP (XHTML) code. This speeds up a response output considerably and could be done by setting the **<a4j:region>** *"selfRendered"* attribute to "true". However, this rapid processing could cause missing of transient components that present on view and don't come into a component tree as well as omitting of **<a4j:outputPanel>** usage described below.

Example:

```
<a4j:region selfRendered ="true">
    <a4j:commandLink value="Link" id="link"/>
    <!--Some HTML content-->
</a4j:region>
```

In this case the processing is quicker and going on without referring to the page code. The HTML code is not saved in a component tree and could be lost. Thus, such optimization should be performed carefully and additional RichFaces components usage (e.g. **<a4j:outputPanel>**) is required.

Starting from RichFaces 3.2.0 the **<a4j:region>** can be used together with iterative components (e.g. **<rich:column>** or **<rich:scrollableDataTable>** , etc.). It became possible to re-render a particular row in a table without updating the whole table and without any additional listeners.

Example:

```
<rich:column>
```

```
    <a4j:region>
        <a4j:commandLink reRender="out"/>
    </a4j:region>
</rich:column>
<rich:column>
    <h:outputText id="out">
</rich:column>
```

In most cases there is no need to use the **<a4j:region>** as `ViewRoot` is a default one.

6.1.4.3. Reference Data

Table of <a4j:region> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/region.html].

Table 6.4. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.AjaxRegion
component-family	org.ajax4jsf.AjaxRegion
component-class	org.ajax4jsf.component.html.HtmlAjaxRegion
renderer-type	org.ajax4jsf.components.AjaxRegionRenderer

6.1.4.4. Relevant Resources Links

Visit *<a4j:region> demo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/region.jsf?c=region] at RichFaces live demo for examples of component usage and their sources.

Useful articles and examples:

- *<a4j:region> and two <h:inputTexts>* [http://www.jboss.org/community/docs/DOC-11866] in RichFaces cookbook at JBoss portal;
- "*A sad story about UIInput* [http://ishabalov.blogspot.com/2007/08/sad-story-about-uiinput.html]" at personal blog of I.Shabalov and *exhaustive example* [http://livedemo.exadel.com/richfaces-local-value-demo/pages/local-value-demo.jsf] of solving the problem with the help of **<a4j:region>** .

6.1.5. < a4j:support > available since 3.0.0

6.1.5.1. Description

The **<a4j:support>** component is the most important core component in the RichFaces library. It enriches any existing non-Ajax JSF or RichFaces component with Ajax capability. All other RichFaces Ajax components are based on the same principles **<a4j:support>** has.

6.1.5.2. Details of Usage

The **<a4j:support>** component has two key attributes:

- mandatory *"event"* attribute that defines the JavaScript event the Ajax support will be attached to
- *"reRender"* attribute that defines id(s) of JSF component(s) that should be rerendered after an Ajax request

As mentioned above, the **<a4j:support>** component adds Ajax capability to non-Ajax JSF components. Let's create ajaxed **<h:selectOneMenu>** called "Planets and Their Moons".

We begin with the common behavior description. When a page is rendered you see only one select box with the list of planets. When you select a planet the **<h:dataTable>** containing moons of the selected planet appears.

In other words we need **<h:selectOneMenu>** with the nested **<a4j:support>** component that is attached to the onchange event.

When an Ajax response comes back the **<h:dataTable>** is re-rendered on the server side and updated on the client.

```
...
<h:form id="planetsForm">
   <h:outputLabel value="Select the planet:" for="planets" />
                    <h:selectOneMenu      id="planets"      value="#{planetsMoons.currentPlanet}"
 valueChangeListener="#{planetsMoons.planetChanged}">
      <f:selectItems value="#{planetsMoons.planetsList}" />
      <a4j:support event="onchange" reRender="moons" />
   </h:selectOneMenu>
   <h:dataTable id="moons" value="#{planetsMoons.moonsList}" var="item">
      <h:column>
         <h:outputText value="#{item}"/>
      </h:column>
   </h:dataTable>
</h:form>
...
```

Finally we need a backing bean:

```
...
public class PlanetsMoons {
   private String currentPlanet="";
```

```
    public List<SelectItem> planetsList = new ArrayList<SelectItem>();
    public List<String> moonsList = new ArrayList<String>();
    private static final String [] EARTH = {"The Moon"};
    private static final String [] MARS = {"Deimos", "Phobos"};
    private static final String [] JUPITER = {"Europa", "Gamymede", "Callisto"};

    public PlanetsMoons() {
        SelectItem item = new SelectItem("earth", "Earth");
        planetsList.add(item);
        item = new SelectItem("mars", "Mars");
        planetsList.add(item);
        item = new SelectItem("jupiter", "Jupiter");
        planetsList.add(item);
    }

    public void planetChanged(ValueChangeEvent event){
         moonsList.clear();
         String[] currentItems;
         if (((String)event.getNewValue()).equals("earth")) {
             currentItems = EARTH;
         }else if(((String)event.getNewValue()).equals("mars")){
             currentItems = MARS;
         }else{
             currentItems = JUPITER;
         }
         for (int i = 0; i < currentItems.length; i++) {
             moonsList.add(currentItems[i]);
         }
     }

    //Getters and Setters
    ...
}
```

There are two properties `planetsList` and `moonsList`. The `planetsList` is filled with planets names in the constructor. After you select the planet, the `planetChanged()` listener is called and the `moonsList` is populated with proper values of moons.

With the help of *"onsubmit"* and *"oncomplete"* attributes the **<a4j:support>** component allows to use JavaScript calls before and after an Ajax request respectively. Actually the JavaScript specified in the *"oncomplete"* attribute will be executed in any case whether the Ajax request is completed successfully or not.

You can easily add confirmation dialog for the planet select box and colorize **<h:dataTable>** after the Ajax response:

```
...
<h:form id="planetsForm">
   <h:outputLabel value="Select the planet:" for="planets" />
                    <h:selectOneMenu      id="planets"      value="#{planetsMoons.currentPlanet}"
 valueChangeListener="#{planetsMoons.planetChanged}">
      <f:selectItems value="#{planetsMoons.planetsList}" />
      <a4j:support event="onchange" reReRender="moons"
          onsubmit="if(!confirm('Are you sure to change the planet?')) {form.reset(); return false;}"



 />
   </h:selectOneMenu>
   <h:dataTable id="moons" value="#{planetsMoons.moonsList}" var="item">
      <h:column>
         <h:outputText value="#{item}"/>
      </h:column>
   </h:dataTable>
</h:form>
...
```

There is the result:

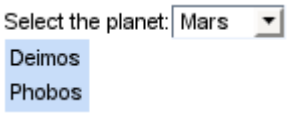


Figure 6.1. "Planets and Their Moons"

Information about the *"process"* attribute usage you can find in the " *Decide what to process* " guide section.

Tip:

The **<a4j:support>** component created on a page as following

```
<h:inputText value="#{bean.text}">
    <a4j:support event="onkeyup" reRender="output" action="#{bean.action}"/>
</h:inputText>
```

is decoded in HTML as

```
<input onkeyup="A4J.AJAX.Submit( Some request parameters )"/>
```

6.1.5.3. Reference Data

Table of <a4j:support> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/support.html].

Table 6.5. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Support
component-family	org.ajax4jsf.AjaxSupport
component-class	org.ajax4jsf.component.html.HtmlAjaxSupport
renderer-type	org.ajax4jsf.components.AjaxSupportRenderer

6.1.5.4. Relevant Resources Links

Visit *<a4j:support> demo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/support.jsf?c=support] at RichFaces live demo for examples of component usage and their sources.

6.1.6. < a4j:commandButton > available since 3.0.0

6.1.6.1. Description

The **<a4j:commandButton>** component is very similar to JSF **<h:commandButton>** , the only difference is that an Ajax form submit is generated on a click and it allows dynamic rerendering after a response comes back.

Figure 6.2. The <a4j:commandButton> component rendered in Blue Sky skin

6.1.6.2. Details of Usage

The **<a4j:commandButton>** component is used in the same way as JSF **<h:commandButton>** . The difference is that in case of **<a4j:commandButton>** the components to be updated should be specified.

The example *above* generates the following HTML code:

```
<input type="submit" onclick="A4J.AJAX.Submit(request parameters);return false;"
 value="Button"/>
```

#licking the generated anchor fires the utility method `A4J.AJAX.Submit()` that perfroms Ajax request.

Note:

The **<a4j:commandButton>** already has Ajax support built-in and there is no need to add **<a4j:support>** .

The usage of the keyword `'this'` in JavaScript code in the value for *"oncomplete"* attribute depends on the location of **<a4j:commandButton>** . If the **<a4j:commandButton>** is situated outside the re-rendered region it is possible to use keyword 'this' as in the following example:

```
<h:form>
            <a4j:commandButton action="director.rollCamera" onclick="this.disabled=true"
 oncomplete="this.disabled=false" />
</h:form>
```

Otherwise, if the **<a4j:commandButton>** is contained in a re-rendered region than the *"oncomplete"* attribute has a problem with obtaining a reference of the commandButton object when using the keyword `'this'`. In this case use the *"oncomplete"* attribute as in the following example:

```
<h:form id="form">
    <a4j:commandButton id="cbutton" action="director.rollCamera" onclick="this.disabled=true"
 oncomplete="document.getElementById('form:cbutton').disabled=false" />
</h:form>
```

Common JSF navigation could be performed after an Ajax submit and partial rendering, but Navigation Case must be defined as **<redirect/>** in order to avoid problems with some browsers.

As any Core Ajax component that sends Ajax requests and processes server responses the **<a4j:commandButton>** has all attributes that provide the required behavior of requests (delay, limitation of submit area and rendering, etc.)

Note:

When attaching a JavaScript API function to the **<a4j:commandButton>** with the help of the **<rich:componentControl>** do not use the *"attachTo"* attribute of the last one. The attribute adds event handlers using `Event.observe` but **<a4j:commandButton>** has no such event. The example below will not work:

```
<a4j:commandButton value="Show Current Selection" reRender="table"
 action="#{dataTableScrollerBean.takeSelection}" id="button">
     <rich:componentControl attachTo="button" for="panel" event="oncomplete"
 operation="show" />
</a4j:commandButton>
```

This one should work properly:

```
<a4j:commandButton value="Show Current Selection" reRender="table"
 action="#{dataTableScrollerBean.takeSelection}" id="button">
    <rich:componentControl for="panel" event="oncomplete" operation="show" />
</a4j:commandButton>
```

Information about the *"process"* attribute usage you can find in the "*Decide what to process*" guide section.

6.1.6.3. Reference Data

Table of <a4j:commandButton> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/commandButton.html].

Table 6.6. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.CommandButton
component-family	javax.faces.Command
component-class	org.ajax4jsf.component.html.HtmlAjaxCommandButton
renderer-type	org.ajax4jsf.components.AjaxCommandButtonRenderer

6.1.6.4. Relevant Resources Links

Visit *CommandButton demo* [http://livedemo.exadel.com/richfaces-demo/richfaces/commandButton.jsf?c=commandButton] page at RichFaces live demo for examples of component usage and their sources.

6.1.7. < a4j:commandLink > available since 3.0.0

6.1.7.1. Description

The **<a4j:commandLink>** component is very similar to the **<h:commandLink>** component, the only difference is that an Ajax form submit is generated on a click and it allows dynamic rerendering after a response comes back. It's not necessary to plug any support into the component, as Ajax support is already built in.

6.1.7.2. Details of Usage

The **<a4j:commandLink>** component is used in the same way as JSF **<h:commandLink>** . The difference is that in case of **<a4j:commandLink>** the components to be updated should be specified. In this chapter we will use the code from *RichFaces Greeter* and change there **<a4j:commandButton>** to **<a4j:commandLink>** :

```
...
<a4j:commandLink value="Get greeting" reRender="greeting" />
...
```

It's not necessary to add nested **<a4j:support>** as the **<a4j:commandLink>** has an Ajax support already built-in. As a result of our changes we will get a form with "Get greeting" link instead of the button:

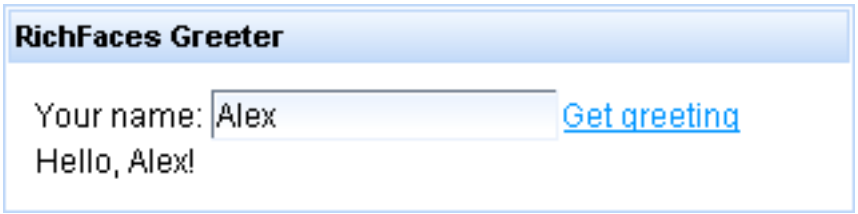


Figure 6.3. The RicjFaces greeter with <a4j:commandLink>

The example *above* generates the following HTML code:

```
<a href="#" onclick="A4J.AJAX.Submit(?"request parameters"); return false;"><span>Get greeting</span></a>
```

If you click on the generated anchor the utility method `A4J.AJAX.Submit()` will be fired.

Note:

Common JSF navigation could be performed after Ajax submit and partial rendering, but Navigation Case must be defined as **<redirect/>** in order to avoid problems with some browsers.

As any Core Ajax component that sends Ajax requests and processes server responses the **<a4j:commandLink>** has all attributes that provide the required behavior of requests (delay, limitation of submit area and rendering, etc.)

Information about the *"process"* attribute usage you can find "*Decide what to process*" guide section.

6.1.7.3. Reference Data

Table of <a4j:commandLink> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/commandLink.html].

Table 6.7. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.CommandLink
component-family	javax.faces.Command
component-class	org.ajax4jsf.component.html.HtmlAjaxCommandLink
renderer-type	org.ajax4jsf.components.AjaxCommandLinkRenderer

6.1.7.4. Relevant Resources Links

Visit *CommandLink demo* [http://livedemo.exadel.com/richfaces-demo/richfaces/commandLink.jsf?c=commandLink] page at RichFaces live demo for examples of component usage and their sources.

Useful articles:

- *How to use "window.confirm" JavaScript with <a4j:commandLink> "onclick" attribute* [http://www.jboss.org/community/docs/DOC-11850] in RichFaces cookbook at JBoss portal.

6.1.8. < a4j:jsFunction > available since 3.0.0

6.1.8.1. Description

The **<a4j:jsFunction>** component allows to perform Ajax requests directly from JavaScript code, invoke server-side data and return it in a JSON format to use in a client JavaScript calls.

6.1.8.2. Details of Usage

As the component uses Ajax request to get data from server it has all common Ajax Action attributes. Hence, *"action"* and *"actionListener"* can be invoked, and reRendering some parts of the page fired after calling function.

When using the **<a4j:jsFunction>** it's possible to initiate the Ajax request from the JavaScript and perform partial update of a page and/or invoke the JavaScript function with data returned by Ajax response.

```
<body onload="callScript()">
    <h:form>
        ...
                                                    <a4j:jsFunction
        name="callScript"          data="#{bean.someProperty1}"          reReRender="someComponent"
oncomplete="myScript(data.subProperty1, data.subProperty2)">
            <a4j:actionparam name="param_name" assignTo="#{bean.someProperty2}"/>
        </a4j:jsFunction>
        ...
    </h:form>
    ...
    </body>
```

The **<a4j:jsFunction>** allows to use **<a4j:actionparam>** or pure **<f:param>** for passing any number of parameters of the JavaScript function into Ajax request. **<a4j:jsFunction>** is similar to **<a4j:commandButton>** , but it could be activated from the JavaScript code. It allows to invoke some server-side functionality and use the returned data in the JavaScript function invoked from *"oncomplete"* attribute. Hence it's possible to use **<a4j:jsFunction>** instead of **<a4j:commandButton>** . You can put it anywhere, just don't forget to use **<h:form>** and **</h:form>** around it.

Information about the *"process"* attribute usage you can find "*Decide what to process*" guide section.

6.1.8.3. Reference Data

Table of <a4j:jsFunction> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/jsFunction.html].

Table 6.8. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Function
component-family	org.ajax4jsf.components.ajaxFunction

Name	Value
component-class	org.ajax4jsf.component.html.HtmlajaxFunction
renderer-type	org.ajax4jsf.components.ajaxFunctionRenderer

6.1.8.4. Relevant Resources Links

Visit the *jsFunction page* [http://livedemo.exadel.com/richfaces-demo/richfaces/jsFunction.jsf?c=jsFunction] at RichFaces LiveDemo for component usage and sources for the given examples.

Useful articles:

- "*JsFunctionJson* [http://www.jboss.org/community/docs/DOC-11856]" article in the RichFaces Cookbook describes how to use **"a4j:jsFunction"** to call the jsonTest backing bean that generates some random data in a JSON String;

6.1.9. < a4j:poll > available since 3.0.0

6.1.9.1. Description

The **<a4j:poll>** component allows periodical sending of Ajax requests to a server and is used for a page updating according to a specified time interval.

6.1.9.2. Details of Usage

The **<a4j:poll>** componet is used for periodical polling of server data. In order to use the component it's necessary to set an update interval. The *"interval"* attribute defines an interval in milliseconds between the previous response and the next request. The total period beetween two requests generated by the **<a4j:poll>** component is a sum of an *"interval"* attribute value and server response time. Default value for *"interval"* attribute is set to "1000" milliseconds (1 second). See an example of definition in the "*Creating the component with a Page Tag*" section.

The *"timeout"* attribute defines response waiting time in milliseconds. If a response isn't received during this period a connection is aborted and the next request is sent. Default value for *"timeout"* attribute isn't set.

The *"enabled"* attribute defines should the **<a4j:poll>** send request or not. It's necessary to render the **<a4j:poll>** to apply the current value of *"enabled"* attribute. You can use an EL-expression for *"enabled"* attribute to point to a bean property. An example of usage of mentioned above attributes is placed below:

Example:

```
...
<a4j:region>
    <h:form>
```

```
                    <a4j:poll id="poll" interval="1000" enabled="#{userBean.pollEnabled}"
reReRender="poll,grid"/>
    </h:form>
</a4j:region>
<h:form>
    <h:panelGrid columns="2" width="80%" id="grid">
        <h:panelGrid columns="1">
            <h:outputText value="Polling Inactive" rendered="#{not userBean.pollEnabled}" />
            <h:outputText value="Polling Active" rendered="#{userBean.pollEnabled}" />
                                    <a4j:commandButton style="width:120px" id="control"
value="#{userBean.pollEnabled?'Stop':'Start'} Polling" reRender="poll, grid">
                        <a4j:actionparam name="polling" value="#{!userBean.pollEnabled}"
assignTo="#{userBean.pollEnabled}"/>
            </a4j:commandButton>
        </h:panelGrid>
                <h:outputText id="serverDate" style="font-size:16px" value="Server Date:
#{userBean.date}"/>
    </h:panelGrid>
</h:form>
...
```

The example shows how date and time are updated on a page in compliance with data taken from a server. The **<a4j:poll>** componet sends requests to the server every second. *"reRender"* attribute of the **<a4j:poll>** contains poll's own `Id`. Hence, it is self rendered for applying the current value of *"enabled"* attribute.

Notes:

- The form around the **<a4j:poll>** component is required.
- To make the **<a4j:poll>** component send requests periodically when it `limitToList` is set to "true", pass the **<a4j:poll>** ID to it `reRender` attribute.

Information about the *"process"* attribute usage you can find "*Decide what to process*" guide section.

6.1.9.3. Reference Data

Table of <a4j:poll> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/poll.html].

Table 6.9. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Poll

Name	Value
component-family	org.ajax4jsf.components.AjaxPoll
component-class	org.ajax4jsf.component.html.AjaxPoll
renderer-type	org.ajax4jsf.components.AjaxPollRenderer

6.1.9.4. Relevant Resources Links

Visit the *Poll page* [http://livedemo.exadel.com/richfaces-demo/richfaces/poll.jsf?c=poll] at RichFaces LiveDemo for examples of the component usage and their sources.

Useful examples and articles:

- "*Create a Banner Using Effects and Poll* [http://www.jboss.org/community/wiki/CreateABannerUsingEffectsAndPoll]" article at RichFaces Wiki gives an example of how to create an image banner using **<rich:effect>** and **<a4j:poll>** components;
- "*Create an HTML Banner Using Effects and Poll* [http://www.jboss.org/community/wiki/CreateAHTMLBannerUsingEffectsAndPoll]" article at RichFaces Wiki brings the code of the way of creating an HTML banner banner using **<rich:effect>** and **<a4j:poll>** components;
- "*RichFaces and Slideshow* [http://www.jboss.org/index.html?module=bb&op=viewtopic&t=125621]" thread in the RichFaces users forum contains an information and code on making a Slide Show with the help of the **<a4j:poll>** component;

Manage the *RichFaces Users Forum* [http://jboss.com/index.html?module=bb&op=viewtopic&t=103909] for fresh issues about the component usage.

6.1.10. < a4j:push > available since 3.0.0

6.1.10.1. Description

The **<a4j:push>** periodically perform Ajax request to server, to simulate 'push' data.

The main difference between **<a4j:push>** and **<a4j:poll>** components is that **<a4j:push>** makes request to minimal code only (not to JSF tree) in order to check the presence of messages in the queue. If the message exists the complete request is performed. The component doesn't poll registered beans but registers `EventListener` which receives messages about events.

6.1.10.2. Details of Usage

The **<a4j:push>** implements reverse Ajax technique.

The bean, for example, could be subscribed to Java Messaging Service (*JMS* [http://java.sun.com/products/jms/]) topic or it could be implemented as Message Driven Bean (MDB) in order to send

a message to the **<a4j:push>** component about an event presence. In the presence of the event some action occurs.

Thus, a work paradigm with the **<a4j:push>** component corresponds to an anisochronous model, but not to pools as for **<a4j:poll>** *component*. See the simplest example below:

Example:

```
...
class MyPushEventListener implements PushEventListener {
   public void onEvent(EventObject evt) {
      System.out.println(evt.getSource());
         //Some action
   }
}
...
```

Code for `EventListener` registration in the bean is placed below:

Example:

```
...
public void addListener(EventListener listener) {
      synchronized (listener) {
            if (this.listener != listener) {
               this.listener = (PushEventListener) listener;
            }
      }
}
...
```

A page code for this example is placed below.

Example:

```
...
<a4j:status startText="in progress" stopText="done"/>
<a4j:form>
    <a4j:region>
       <a4j:push reRender="msg" eventProducer="#{pushBean.addListener}" interval="2000"/>
    </a4j:region>
    <a4j:outputPanel id="msg">
        <h:outputText value="#{pushBean.date}">
```

```
            <f:convertDateTime type="time"/>
        </h:outputText>
    </a4j:outputPanel>
    <a4j:commandButton value="Push!!" action="#{pushBean.push}" ajaxSingle="true"/>
</a4j:form>
...
```

The example shows how date is updated on a page in compliance with data taken from a server. In the example *"interval"* attribute has value "2000". This attribute defines an interval in milliseconds between the previous response and the next request. Default value is set to "1000" milliseconds (1 second). It's possible to set value equal to "0". In this case connection is permanent.

The *"timeout"* attribute defines response waiting time in milliseconds. If a response isn't received during this period a connection is aborted and the next request is sent. Default value for *"timeout"* attribute isn't set. Usage of *"interval"* and *"timeout"* attributes gives an opportunity to set short polls of queue state or long connections.

Note:

The form around the **<a4j:push>** component is required.

6.1.10.3. Reference Data

Table of <a4j:push> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/push.html].

Table 6.10. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Push
component-family	org.ajax4jsf.components.AjaxPush
component-class	org.ajax4jsf.component.html.AjaxPush
renderer-type	org.ajax4jsf.components.AjaxPushRenderer

6.1.10.4. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/push.jsf?c=push] you can found some additional information for **<a4j:push>** component usage.

6.1.11. < a4j:queue > available since 3.3.0

6.1.11.1. Description

The **<a4j:queue>** component enqueues set of Ajax requests sent from client. The RichFaces components with built-in Ajax can reference the queue to optimize Ajax requests.

6.1.11.2. Details of Usage

The RichFaces Queue has four different types: global default, view scoped default, view scoped named and form-based default queue (general Queue principles are good documented in the "*Queue Principles*" section). The current section will take closer to the form based queue. The usage of other types is similar.

In order to disable or enable the **<a4j:queue>** component on the page you can use the *"disabled"* attribute.

The *"requestDelay"* attribute defines delay time for all the requests fired by the action components.

The *"size"* attribute specifies the number of requests that can be stored in the queue at a time. The attribute helps to prevent server overloading. It is also possible to determine queue's behaviour when it's size is exceeded. Use the *"sizeExceededBehavior"* for this purpose. There are four possible strategies of exceeded queue's behavior:

- "dropNext" drops next request that should be fired
- "dropNew" drops the incoming request
- "fireNext" immediately fires the next request in line to be fired
- "fireNew" immediately fires the incoming request.

Example:

```
<h:form>
            <a4j:queue size="2" requestDelay="500" sizeExceededBehavior="dropNext"
 onsizeexceeded="alert('The size of the queue is exceeded')" />
   <h:inputText value="#{bean.a}">
      <a4j:support event="onkeyup" />
   </h:inputText>
   <h:inputText value="#{bean.b}">
      <a4j:support event="onblur" />
   </h:inputText>
   <h:selectBooleanCheckbox value="#{bean.check}" id="checkboxID">
      <a4j:support id="checkboxSupport" event="onchange" />
   </h:selectBooleanCheckbox>
</h:form>
```

In this example if the queue has more than 2 requests waiting to be processed the next event will be dropped and a message (the *"onsizeexceeded"* attribute fires a JavaScript function) saying that the queues is exceeded will be displayed.

The *"ignoreDupResponses"* attribute that takes a boolean value can also help optimize your Ajax requests. If set to true, response processing for request will not occur if a similar request is already waiting in the queue. New request will be fired immediately when the response from the previous one returns.

Example:

```
<h:form>
    <a4j:queue requestDelay="500" ignoreDupResponses="true" />
    <h:inputText value="#{bean.a}">
        <a4j:support event="onkeyup" />
    </h:inputText>
</h:form>
```

In this example, the requests are glued together and only the last one is submitted.

Another key attribute that easies server load is *"timeout"* . The attribute specifies the amount of time an item can be in the queue before the sent event is be aborted and dropped from the queue.

If the request is sent and response is not returned within the time frame defined in this attribute - the request is aborted, and the next one is sent.

Example:

```
<h:form>
    <a4j:queue timeout="1000" />
    <h:inputText value="#{bean.a}">
        <a4j:support event="onkeyup" />
    </h:inputText>
</h:form>
```

In this case if the sever doesn't respond within a second the request will be aborted.

As you can see the implementation of the queue provides some custom event handlers that you may use to call JavaScript functions.

The *"oncomplete"* is fired after request completed. In this event handler request object is be passed as a parameter. Thus queue is be accessible using `request.queue`. And the element which was a source of the request is available using `this`.

Example:

```
<h:form>
```

```
    <a4j:queue oncomplete="alert(request.queue.getSize())" requestDelay="1000" />
    <h:inputText value="#{bean.a}">
        <a4j:support event="onkeyup" />
    </h:inputText>
    <h:selectBooleanCheckbox value="#{bean.check}">
        <a4j:support event="onchange"/>
    </h:selectBooleanCheckbox>
</h:form>
```

In this example you can see how the number of requests waiting in the queue change. You will get a message with the number of the requests in the queue.

The *"onbeforedomupdate"* event handler called before updating DOM on a client side.

The *"onrequestqueue"* event handler called after the new request has been added to queue. And the *"onrequestdequeue"* event handler called after the request has been removed from queue.

The *"onsubmit"* event handler called after request is completed. This attribute allows to invoke JavaScript code before an Ajax request is sent.

6.1.11.3. Reference Data

Table of <a4j:queue> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/queue.html].

Table 6.11. Component Identification Parameters

Name	Value
component-family	org.ajax4jsf.Queue
component-class	org.ajax4jsf.component.html.HtmlQueue
renderer-type	org.ajax4jsf.QueueRenderer
tag-class	org.ajax4jsf.taglib.html.jsp.QueueTag

Table 6.12. JavaScript API

Function	Description
getSize()	Returns the current size to the queue
getMaximumSize()	Returns the maximum size to the queue, specified in the "size" attribute

6.1.11.4. Relevant Resources Links

Visit the *Queue Page* [http://livedemo.exadel.com/richfaces-demo/richfaces/queue.jsf?c=queue] at the RichFaces LiveDemo for examples of component usage and their sources.

Useful articles:

"*Queue Principles*" section of the RichFaces developer guide describes general Queue principles.

6.1.12. < a4j:status > available since 3.0.0

6.1.12.1. Description

The **<a4j:status>** component generates elements for displaying of the current Ajax requests status. There are two status modes: Ajax request is in process or finished.

6.1.12.2. Details of Usage

There are two ways for the components or containers definition, which Ajax requests status is tracked by a component.

- Definition with the *"for"* attribute on the **<a4j:status>** component. Here *"for"* attribute should point at an Ajax container (**<a4j:region>**) id, which requests are tracked by a component.

- Definition with the *"status"* attribute obtained by any RichFaces library action component. The attribute should point at the **<a4j:status>** component id. Then this **<a4j:status>** component shows the status for the request fired from this action component.

The component creates two **** or ** ** elements depending on attribute *"layout"* with content defined for each status, one of the elements (start) is initially hidden. At the beginning of an Ajax request, elements state is inversed, hence the second element is shown and the first is hidden. At the end of a response processing, elements display states return to its initial values.

Example:

```
<a4j:status startText="Started" stopText="stopped" />
```

The code shown in the example above is decoded on a page as:

```
<span id="j_id20:status.start" style="display: none">
    Started
</span>
<span id="j_id20:status.stop">
    Stopped
</span>
```

and after the generation of an Ajax response is changed to:

```
<span id="j_id20:status.start">
    Started
</span>
<span id="j_id20:status.stop" style="display: none">
    Stopped
</span>
```

There is a possibility to group a **<a4j:status>** elements content into ** ** elements, instead of **** . To use it, just redefine the *"layout"* attribute from "inline" (default) to "block".

6.1.12.3. Reference Data

Table of <a4j:status> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/status.html].

Table 6.13. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Status
component-family	javax.faces.Panel
component-class	org.ajax4jsf.component.html.HtmlAjaxStatus
renderer-type	org.ajax4jsf.components.AjaxStatusRenderer

Table 6.14. Facets

Facet name	Description
start	Redefines the content for display on starting request
stop	Redefines the content for display on request complete

6.1.12.4. Relevant Resources Links

Visit *Status page* [http://livedemo.exadel.com/richfaces-demo/richfaces/status.jsf?c=status] at RichFaces Livedemo for examples of component usage and their sources.

Useful articles at JBoss portal:

- *RichFacesPleaseWaitBox* [http://wiki.jboss.org/wiki/RichFacesPleaseWaitBox] describes how to show a "Please Wait" box and block the input while the Ajax request is processed using combination of **<a4j:status>** and **<rich:modalPanel>** .

6.2. Resources/Beans Handling

The main purpose of the components covered in this section is to load resources (style sheets, JavaScript files and resource bundle) and to keep a state of a bean between requests.

6.2.1. < a4j:loadBundle > available since 3.0.0

6.2.1.1. Description

The **<a4j:loadBundle>** component is similar to JSF **<f:loadBundle>** : it loads a resource bundle localized for the Locale of the current view and stores properties as a Map in the current request attributes of the current request.

6.2.1.2. Details of Usage

Internationalization and Localization are the processes of adaptation of web applications for different languages and cultures. When you develop English and German versions of a site it can be said that you localize the site for England and Germany. Language is not the only thing that undergoes the localization — dates, times, numbers, currencies, phone numbers, addresses, graphics, icons, colors, personal titles and even favourite sounds are also varies from country to country. It means that an internationalized application may have lots of different types information, which should be changed depending on user location.

There are several approaches of organizing the localization. The JSF **<h:loadBundle>** loads bundles into the request scope when page is being rendered and updates all the needed areas in a crowd. Bundle information loaded in such way becomes unavailable when dealing with Ajax requests that work in their own request scopes. The approach provided by RichFaces **<a4j:loadBundle>** component enriches one given by the JSF **<h:loadBundle>** with Ajax capability: it allows to use reference to a particular bundle item during an Ajax update.

The **<a4j:loadBundle>** usage is pretty simple. Imagine a small application that says "Hello!" in different languages, where switching between translations (localizations, in our case) occurs when corresponding links are being clicked, like you have used to see on lots of sites. In our JSF with RichFaces application (those who feel not strong with that should better read the "*Getting started with RichFaces*" chapter) create resource bundles with "Hello!" message for three different languages: English, German and Italian. Resource bundles are represented with `*.properties` extention files that keep items in `key(name) - value` pairs. A key for an item should be the same for all locales.

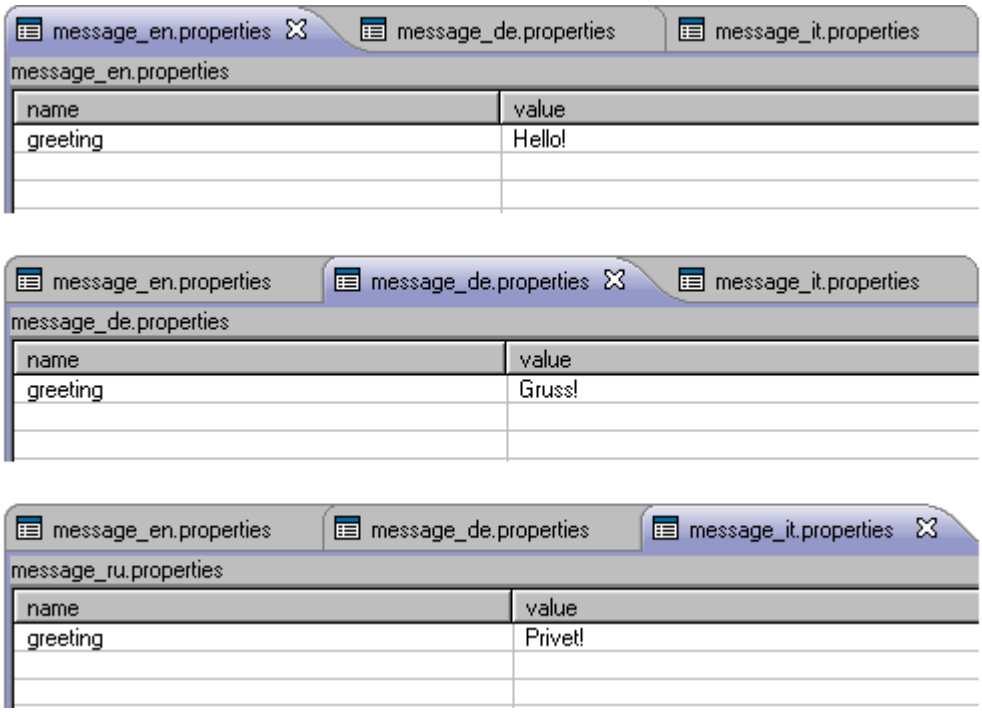


Figure 6.4. Resource bundles `*.properties` files with Keys and Values for multi-language application.

#essage resource bundles should be registered in the Faces configuration (`faces-config.xml`) file of your application as `<message-bundle>` inside the `<application>` element. Name of a resource should be specified without language or country code and without `.properties` extension. Supported locales should be specified inside the `<supported-locale>` element.

Registering resource bundles in the Faces configuration file:

```
<application>
    <locale-config>
        <default-locale>en</default-locale>
        <supported-locale>en</supported-locale>
        <supported-locale>de</supported-locale>
        <supported-locale>it</supported-locale>
    </locale-config>
    <message-bundle>demo.message</message-bundle>
</application>
```

For the application we will use JSF `javax.faces.component.UIViewRoot.setLocale` method that will set a needed Locale (each link will invoke corresponding method — there are, off course, another ways to do that).

`ChangeLocale` Java class with three methods for setting the correponding Locale:

```
package demo;

import java.util.Locale;
import javax.faces.context.FacesContext;

public class ChangeLocale {
  public String germanAction() {
    FacesContext context = FacesContext.getCurrentInstance();
    context.getViewRoot().setLocale(Locale.GERMAN);
    return null;
  }

  public String englishAction() {
    FacesContext context = FacesContext.getCurrentInstance();
    context.getViewRoot().setLocale(Locale.ENGLISH);
    return null;
  }

  public String italianAction() {
     FacesContext context = FacesContext.getCurrentInstance();
     context.getViewRoot().setLocale(Locale.ITALIAN);
     return null;
   }
}
```

Recently, the JSP page will look as following:

```
<h:form>
    <a4j:loadBundle var="msg" basename="demo.message"/>
    <h:outputText id="messageBundle" value="#{msg.greeting}"/>
                    <a4j:commandLink    value="De"    action="#{changeLocale.germanAction}"
reRender="messageBundle" />
                  <a4j:commandLink    value="Eng"    action="#{changeLocale.englishAction}"
reRender="messageBundle" />
                      <a4j:commandLink    value="It"    action="#{changeLocale.italianAction}"
reRender="messageBundle" />
</h:form>
```

As an output we will get a simple application with English "Hello!" by default. Clicking on links "De", "Eng" and "It" will show the messages specified within the corresponding `*.properties` file. To reference to a particular bundle item during an Ajax update it is necessary to point

the component(s) that shold be re-rendered (in this example it is done with the help of **<a4j:commandLink>** *"reRender"* attribute).

Figure 6.5. Using of the RichFaces <a4j:loadBundle> component for application localization.

6.2.1.3. Reference Data

Table of <a4j:loadBundle> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/loadBundle.html].

Table 6.15. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Bundle
component-family	org.ajax4jsf.Bundle
component-class	org.ajax4jsf.component.html.AjaxLoadBundle

6.2.1.4. Relevant Resources Links

Visit the *LoadBundle page* [http://livedemo.exadel.com/richfaces-demo/richfaces/bundle.jsf?c=loadBundle] at RichFaces LiveDemo for additional information on the component.

More useful examples and articles:

- *loadBundle tag reference* [http://java.sun.com/javaee/javaserverfaces/1.1_01/docs/tlddocs/f/loadBundle.html] at java.sun portal;
- *Backing a ResourceBundle with Properties Files* [http://java.sun.com/docs/books/tutorial/i18n/resbundle/propfile.html] at java.sun portal;
- *Internationalization and Localization of J2EE application* [http://www.objectsource.com/j2eechapters/Ch19-I18N_and_L10N.htm] explains main principles of the internationalization of a web application;
- *one more useful tutorial* [http://www.lalilуna.de/javaserver-faces-message-resource-bundle-tutorial.html] explains the internationalization of a web application using JSF message resource bundle;
- *Some special problem with JSF internationalization* [http://www.i-coding.de/www/en/jsf/application/locale.html] and solution from the i-coding.de portal.

6.2.2. < a4j:keepAlive > available since 3.0.0

6.2.2.1. Description

The **<a4j:keepAlive>** tag allows to keep a state of a bean between requests.

6.2.2.2. Details of Usage

If a managed bean is declared with request scope in the configuration file with the help of **<managed-bean-scope>** tag then the life-time of this bean instance is valid only for the current request. Any attempts to make a reference to the bean instance after the request end will throw in Illegal Argument Exception by the server. To avoid these kinds of Exceptions component **<a4j:keepAlive>** is used to maintain the state of the whole bean object among subsequent request.

Example:

```
<a4j:keepAlive beanName = "#{myClass.testBean}"/>
```

The *"beanName"* attribute defines the request scope bean name you'd like to re-use. Note that this attribute must point to a legal JSF EL expression which resolves to a managed mean instance. For example for the above code the class definition may look like this one:

```
class MyClass{
    ...
    private TestBean testBean;
    // Getters and Setters for testBean.
    ...
}
```

The *"ajaxOnly"* attribute declares whether the value of the bean should be available during a non-Ajax request. If the value of this attribute is "true" a request scope bean keeps the same value during Ajax requests from the given page. If a non-Ajax request is sent from this page the bean is re-created as a regular request scope bean.

6.2.2.3. Reference Data

Table of <a4j:keepAlive> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/keepAlive.html].

Table 6.16. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.components.KeepAlive

Name	Value
component-family	org.ajax4jsf.components.AjaxKeepAlive
component-class	org.ajax4jsf.components.AjaxKeepAlive

6.2.2.4. Relevant Resources Links

Visit *KeepAlive page* [http://livedemo.exadel.com/richfaces-demo/richfaces/keepAlive.jsf?c=keepAlive] at RichFaces Livedemo for examples of component usage and their sources.

Search the *RichFaces Users forum* [http://www.jboss.org/index.html?module=bb&op=viewforum&f=261] for some additional information about usage of component.

6.2.3. < a4j:loadScript > available since 3.0.0

6.2.3.1. Description

The **<a4j:loadScript>** component allows to load scripts from alternative sources like a jar files, etc.

6.2.3.2. Details of Usage

The main attribute of the **<a4j:loadScript>** is *"src"* , wich defines the context relative path to the script. The value of the attribute does not require a prefix of an application. Leading slash in the path means the root of the web context. It is also possible to use `resource:///` prefix to access the script file using RichFaces resource framework.

Example:

```
<a4j:loadScript src="resource:///org/mycompany/assets/script/focus.js" />
```

The *"src"* attribute passses value to the `getResourceURL()` method of the ViewHandler of the application, The result is passed through the `encodeResourceURL()` method of the ExternalContext.

6.2.3.3. Reference Data

Table of <a4j:loadScript> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/loadScript.html].

Table 6.17. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.LoadScript

Name	Value
component-family	org.ajax4jsf.LoadScript
component-class	org.ajax4jsf.component.html.HtmlLoadScript
renderer-type	org.ajax4jsf.LoadScriptRenderer

6.2.3.4. Relevant Resources Links

Visit the *Script page at RichFaces LiveDemo* [http://livedemo.exadel.com/richfaces-demo/richfaces/script.jsf?c=loadScript] for examples of component usage abd their sources.

6.2.4. < a4j:loadStyle > available since 3.0.0

6.2.4.1. Description

The **<a4j:loadStyle>** component allows to load a style sheet file from alternative sources like a jar file, etc. It inserts stylesheet links to the head element.

6.2.4.2. Details of Usage

The main attribute of the **<a4j:loadStylet>** is *"src"* , wich defines the context relative path to the script. The value of the attribute does not require a prefix of an application. Leading slash in the path means the root of the web context. It is also possible to use `resource:///` prefix to access the script file using RichFaces resource framework.

Example:

```
<a4j:loadStyle src="resource:///org/mycompany/assets/script/focus.js" />
```

The *"src"* attribute passses value to the `getResourceURL()` method of the ViewHandler of the application, The result is passed through the `encodeResourceURL()` method of the ExternalContext.

6.2.4.3. Reference Data

Table of <a4j:loadStyle> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/loadStyle.html].

Table 6.18. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.LoadStyle
component-family	org.ajax4jsf.LoadStyle
component-class	org.ajax4jsf.component.html.HtmlLoadStyle
renderer-type	org.ajax4jsf.LoadStyleRenderer

6.2.4.4. Relevant Resources Links

Visit the *Script page at RichFaces LiveDemo* [http://livedemo.exadel.com/richfaces-demo/richfaces/style.jsf?c=loadStyle] for examples of component usage abd their sources.

6.3. Ajax Validators

RichFaces components library provides 3 components to validate user input data. These components enhance JSF validation capabilities with Ajax support and possibility to use Hibernate validators.

6.3.1. < rich:ajaxValidator > available since 3.2.2

6.3.1.1. Description

The **<rich:ajaxValidator>** is a component designed to provide Ajax validation inside for JSF inputs.

6.3.1.2. Key Features

- Skips all JSF processing except validation
- Possibility to use both standard and custom validation
- Possibility to use Hibernate Validation
- Event based validation triggering

6.3.1.3. Details of Usage

The **<rich:ajaxValidator>** component should be added as a child component to an input JSF tag which data should be validated and an event that triggers validation should be specified as well. The component is ajaxSingle by default so only the current field will be validated.

The following example demonstrates how the **<rich:ajaxValidator>** adds Ajax functionality to standard JSF validators. The request is sent when the input field loses focus, the action is determined by the *"event"* attribute that is set to `"onblur"`.

```
...
<rich:panel>
    <f:facet name="header">
        <h:outputText value="User Info:" />
    </f:facet>
    <h:panelGrid columns="3">
        <h:outputText value="Name:" />
        <h:inputText value="#{userBean.name}" id="name" required="true">
            <f:validateLength minimum="3" maximum="12"/>
            <rich:ajaxValidator event="onblur"/>
```

```
        </h:inputText>
        <rich:message for="name" />

        <h:outputText value="Age:" />
            <h:inputText value="#{userBean.age}" id="age" required="true">
                <f:convertNumber integerOnly="true"/>
                <f:validateLongRange minimum="18" maximum="99"/>
                <rich:ajaxValidator event="onblur"/>
            </h:inputText>
            <rich:message for="age"/>
    </h:panelGrid>
</rich:panel>
...
```

This is the result of the snippet.

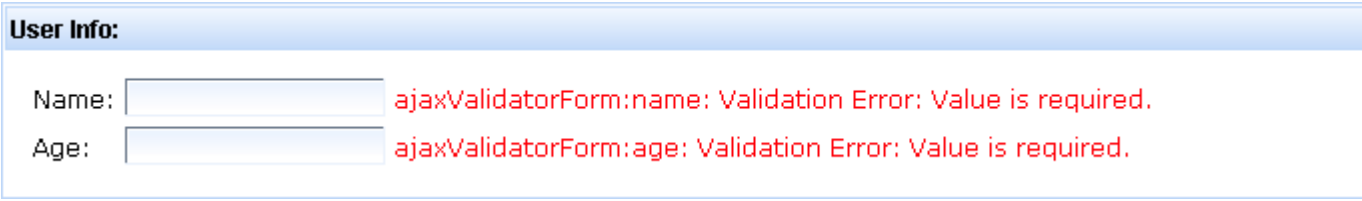


Figure 6.6. Simple example of <rich:ajaxValidator> with

In the example above it's show how to work with standard JSF validators. The **<rich:ajaxValidator>** component also works perfectly with custom validators enhancing their usage with Ajax.

Custom validation can be performed in two ways:

- Using JSF Validation API is available in javax.faces.validator package
- Using Hibernate Validator, specifying a constraint for the data to be validated. A reference on Hibernate Validator can be found *in Hibernated documentation* [http://www.hibernate.org/hib_docs/validator/reference/en/html_single/].

The following example shows how the data entered by user can be validated using Hibernate Validator.

```
...
<rich:panel>
    <f:facet name="header">
        <h:outputText value="User Info:" />
    </f:facet>
    <h:panelGrid  columns="3">
        <h:outputText value="Name:" />
```

```
        <h:inputText value="#{validationBean.name}" id="name" required="true">
            <rich:ajaxValidator event="onblur" />
        </h:inputText>
        <rich:message for="name" />

        <h:outputText value="Email:" />
            <h:inputText value="#{validationBean.email}" id="email">
                <rich:ajaxValidator event="onblur" />
            </h:inputText>
            <rich:message for="email" />

            <h:outputText value="Age:" />
            <h:inputText value="#{validationBean.age}" id="age">
                <rich:ajaxValidator event="onblur" />
            </h:inputText>
            <rich:message for="age" />
    </h:panelGrid>
</rich:panel>
...
```

Here is the source code of the managed bean.

```
package org.richfaces.demo.validation;

import org.hibernate.validator.Email;
import org.hibernate.validator.Length;
import org.hibernate.validator.Max;
import org.hibernate.validator.Min;
import org.hibernate.validator.NotEmpty;
import org.hibernate.validator.NotNull;
import org.hibernate.validator.Pattern;

public class ValidationBean {

   private String progressString="Fill the form please";

   @NotEmpty
   @Pattern(regex=".*[^\\s].*", message="This string contain only spaces")
   @Length(min=3,max=12)
   private String name;
   @Email
   @NotEmpty
   private String email;
```

```
    @NotNull
    @Min(18)
    @Max(100)
    private Integer age;

    public ValidationBean() {
    }

    /* Corresponding Getters and Setters */

}
```

By default the Hibernate Validator generates an error message in 10 language, though you can redefine the messages that are displayed to a user when validation fails. In the shows example it was done by adding `(message="wrong email format")` to the `@Email` annotation.

This is how it looks.

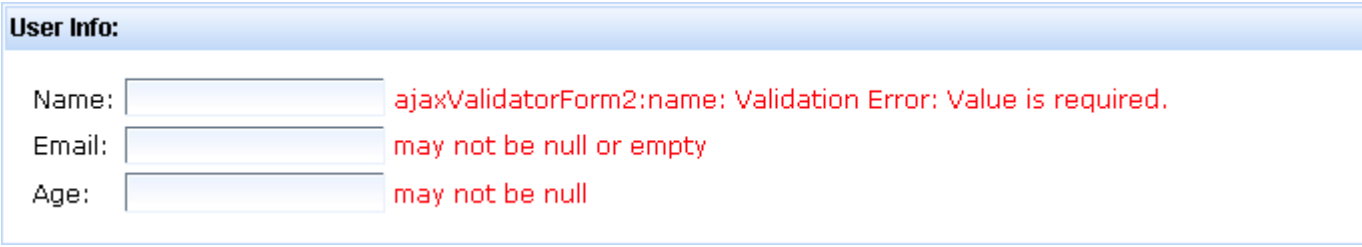


Figure 6.7. Validation using Hibernate validator

6.3.1.4. Reference Data

Table of <rich:ajaxValidator> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/ajaxValidator.html].

Table 6.19. Component Identification Parameters

Name	Value
component-type	org.richfaces.ajaxValidator
component-class	org.richfaces.component.html.HtmlajaxValidator
component-family	org.richfaces.ajaxValidator
renderer-type	org.richfaces.ajaxValidatorRenderer
tag-class	org.richfaces.taglib.ajaxValidatorTag

6.3.1.5. Relevant Resources Links

Visit the *AjaxValidator page* [http://livedemo.exadel.com/richfaces-demo/richfaces/ajaxValidator.jsf?c=ajaxValidator] at RichFaces LiveDemo for examples of component usage and their sources.

6.3.2. < rich:beanValidator > available since 3.2.2

6.3.2.1. Description

The **<rich:beanValidator>** component designed to provide validation using Hibernate model-based constraints.

6.3.2.2. Key Features

- Validation using Hibernate constraints

6.3.2.3. Details of Usage

Starting from 3.2.2 GA version Rich Faces provides support for model-based constraints defined using Hibernate Validator. Thus it's possible to use Hibernate Validators the same as for Seam based applications.

The **<rich:beanValidator>** component is defined in the same way as any JSF validator. Look at the example below.

```
<rich:panel>
    <f:facet name="header">
        <h:outputText value="#{validationBean.progressString}" id="progress"/>
    </f:facet>
    <h:panelGrid columns="3">
        <h:outputText value="Name:" />
        <h:inputText value="#{validationBean.name}" id="name">
            <rich:beanValidator summary="Invalid name"/>
        </h:inputText>
        <rich:message for="name" />

        <h:outputText value="Email:" />
        <h:inputText value="#{validationBean.email}" id="email">
            <rich:beanValidator summary="Invalid email"/>
        </h:inputText>
        <rich:message for="email" />

        <h:outputText value="Age:" />
        <h:inputText value="#{validationBean.age}" id="age">
            <rich:beanValidator summary="Wrong age"/>
```

```
        </h:inputText>
        <rich:message for="age" />
        <f:facet name="footer">
                        <a4j:commandButton  value="Submit"  action="#{validationBean.success}"
 reRender="progress"/>
        </f:facet>
    </h:panelGrid>
</rich:panel>
```

Please play close attention on the bean code that contains the constraints defined with Hibernate annotation which perform validation of the input data.

```
package org.richfaces.demo.validation;

import org.hibernate.validator.Email;
import org.hibernate.validator.Length;
import org.hibernate.validator.Max;
import org.hibernate.validator.Min;
import org.hibernate.validator.NotEmpty;
import org.hibernate.validator.NotNull;
import org.hibernate.validator.Pattern;

public class ValidationBean {

   private String progressString="Fill the form please";

   @NotEmpty
   @Pattern(regex=".*[^\\s].*", message="This string contain only spaces")
   @Length(min=3,max=12)
   private String name;
   @Email
   @NotEmpty
   private String email;

   @NotNull
   @Min(18)
   @Max(100)
   private Integer age;

   public ValidationBean() {
   }
```

```
    /* Corresponding Getters and Setters */

    public void success() {
        setProgressString(getProgressString() + "(Strored successfully)");
    }

    public String getProgressString() {
        return progressString;
    }

    public void setProgressString(String progressString) {
        this.progressString = progressString;
    }
}
```

The following figure shows what happens if validation fails

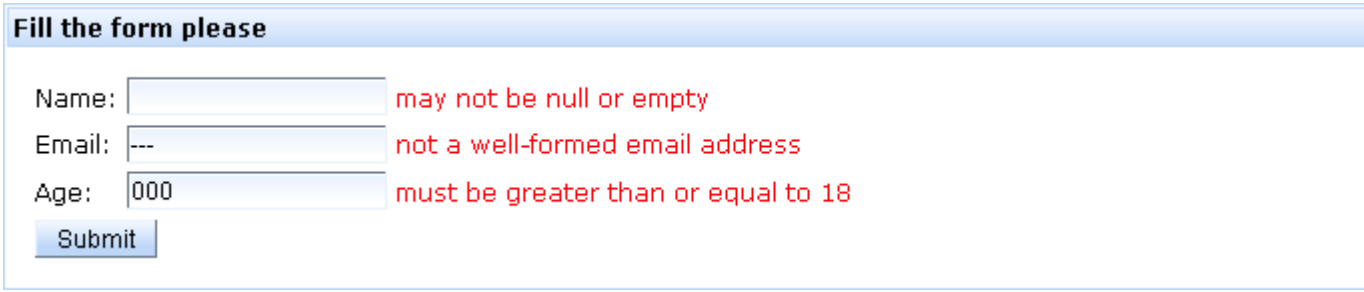


Figure 6.8. <rich:beanValidator> usage

As you can see from the example that in order to validate the **<rich:beanValidator>** should be nested into a input JSF or RichFaces component.

The component has the only attribute - *"summary"* which displays validation messages about validation errors.

6.3.2.4. Reference Data

Table of <rich:beanValidator> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/beanValidator.html].

Table 6.20. Component Identification Parameters

Name	Value
component-type	org.richfaces.beanValidator
component-class	org.richfaces.component.html.HtmlbeanValidator

Name	Value
component-family	org.richfaces.beanValidator
renderer-type	org.richfaces.beanValidatorRenderer
tag-class	org.richfaces.taglib.beanValidatorTag

6.3.2.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/beanValidator.jsf?c=beanValidator] you can see an example of **<rich:beanValidator>** usage and sources for the given example.

6.3.3. < rich:graphValidator > available since 3.2.2

6.3.3.1. Description

The **<rich:graphValidator>** component allows to register Hibernate Validators for multiple input components.

6.3.3.2. Key Features

- Skips all JSF processing except validation

6.3.3.3. Details of Usage

The **<rich:graphValidator>** component behaves basically the same way as the **<rich:beanValidator>** The deference between these two components is that in order to validate some input data with a **<rich:beanValidator>** component, it should be a nested element of an input component, whereas **<rich:graphValidator>** wraps multiple input components and validates the data received from them.

The following example demonstrates a pattern of how the **<rich:graphValidator>** can be used:

```
...
<rich:graphValidator>
    <h:panelGrid columns="3">
        <h:outputText value="Name:" />
        <h:inputText value="#{validationBean.name}" id="name">
            <f:validateLength minimum="2" />
        </h:inputText>
        <rich:message for="name" />
        <h:outputText value="Email:" />
        <h:inputText value="#{validationBean.email}" id="email" />
```

```
        <rich:message for="email" />
    </h:panelGrid>
</rich:graphValidator>
...
```

The data validation can be also performed using Hibernate Validator, the same way as it is done with **<rich:beanValidator>** .

The components's architecture provides an option to bind the component to a managed bean, which is done with the *"value"* attribute. The attribute ensures that the entered data is valid after the model is updated by revalidating the bean properties.

Please look at the example below.

```
...
<rich:graphValidator summary="Invalid values: " value="#{dayStatistics}">
    <a4j:repeat value="#{dayStatistics.dayPasstimes}" var="pt" id="table">
        <h:outputText value="#{pt.title}" />
        <rich:inputNumberSpinner minValue="0" maxValue="24" value="#{pt.time}" id="time" />
        <rich:message for="time" />
    </a4j:repeat>
</rich:graphValidator>
...
```

Hence, the given above code will provide the functionality that is illustrated on the images below.

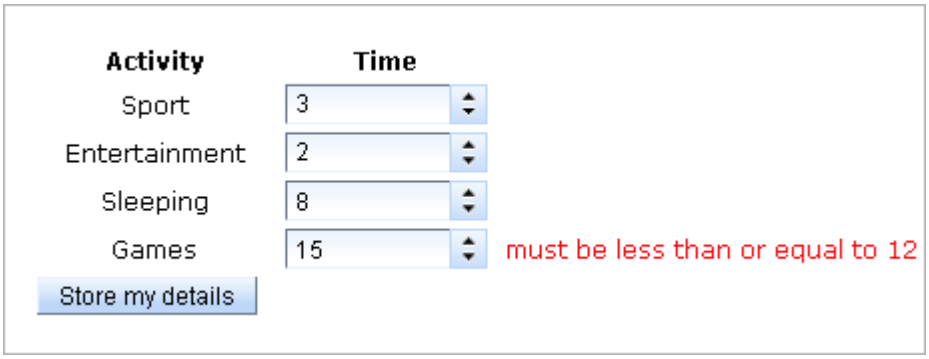


Figure 6.9. "Games" field did not pass validation

As you can see from the picture the "Games" field did not pass validation, as **<rich:graphValidator>** can be used to perform validation of a single input item.

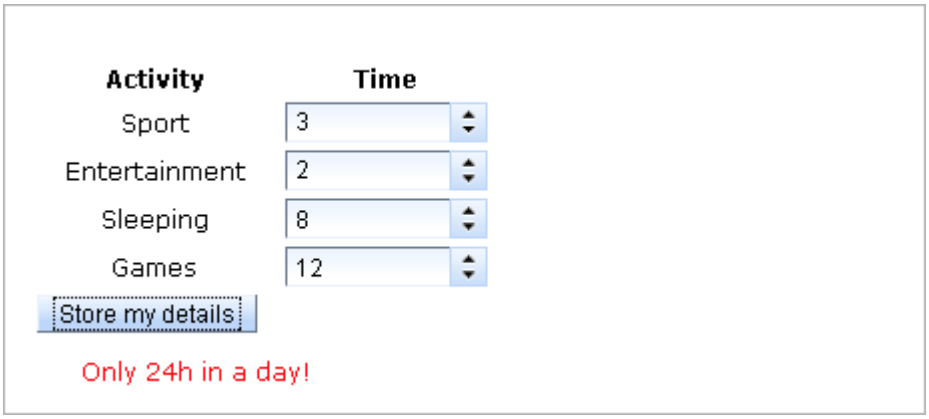


Figure 6.10. Total sum of all input values is incorrect

The figure above shows that the entered data was revalidated after all fields were completed, and the data did not pass revalidation since the total sum was incorrect.

6.3.3.4. Reference Data

Table of <rich:graphValidator> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/graphValidator.html].

Table 6.21. Component Identification Parameters

Name	Value
component-type	org.richfaces.graphValidator
component-class	org.richfaces.component.html.HtmlgraphValidator
component-family	org.richfaces.graphValidator
renderer-type	org.richfaces.graphValidatorRenderer
tag-class	org.richfaces.taglib.graphValidatorTag

6.3.3.5. Relevant Resources Links

Visit the *GraphValidator page* [http://livedemo.exadel.com/richfaces-demo/richfaces/graphValidator.jsf?c=graphValidator] at RichFaces LiveDemo for examples of component usage and their sources.

6.4. Ajax Output

The components described in this section render some content dynamically using Ajax capabilities.

6.4.1. < a4j:include > available since 3.0.0

6.4.1.1. Description

The **<a4j:include>** component is used to include one view as part of another and navigate there using standard JSF navigation.

6.4.1.2. Details of Usage

The component is used to include one view as part of another and may be put anywhere in the page code. The *'viewID'* attribute is used to point at the part to be included and should present a full context-relative path of the resource in order to be used as from-view and to-view in the JSF navigation cases. In general the component functions as Fecelets **<ui:include>** tag but with partial page navigation in Ajax mode as an advantage.

Note:

To make the RichFaces **<a4j:include>** component (as well as Facelets **<ui:include>** tag) work properly when including the part of the page check that included page does not generates extra HTML <!DOCTYPE>, <html>, <body> tags.

The navigation rules could look as following:

Example:

```
<navigation-rule>
    <from-view-id>/pages/include/first.xhtml</from-view-id>
    <navigation-case>
        <from-outcome>next</from-outcome>
        <to-view-id>/pages/include/second.xhtml</to-view-id>
    </navigation-case>
</navigation-rule>
```

6.4.1.3. Reference Data

Table of <a4j:include> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/include.html].

Table 6.22. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Include

Name	Value
component-family	javax.faces.Output
component-class	org.ajax4jsf.component.html.Include
renderer-type	org.ajax4jsf.components.AjaxIncludeRenderer

6.4.1.4. Relevant Resources Links

Visit the *Include page* [http://livedemo.exadel.com/richfaces-demo/richfaces/include.jsf?c=include] for examples of component usage and their sources.

6.4.2. < a4j:mediaOutput > available since 3.0.0

6.4.2.1. Description

The **<a4j:mediaOutput>** component is a facility for generating images, video, sounds and other binary resources defined by you on-the-fly.

6.4.2.2. Details of Usage

The **<a4j:mediaOutput>** component is used for generating images, videos or sounds on-the-fly. Let's consider an image creation and generate a JPEG image with verification digits for captcha (the image will include just digits without any graphical noise and distortion).

Write the following line on the page:

```
<a4j:mediaOutput element="img" cacheable="false" session="false"
createContent="#{mediaBean.paint}" value="#{mediaData}" mimeType="image/jpeg"/>
```

As You see from the example above, first it is necessary to specify the kind of media data You want to generate. This can be done with the help of *"element"* attribute, which possible values are `img`, `object`, `applet`, `script`, `link` or `a`.

The *"cacheable"* defines whether the response will be cached or not. In our case we don't need our image to be cached, cause we need it to be changed every time we refresh the page.

The *"mimeType"* attribute defines the type of output content. It is used to define the corresponded type in the header of an HTTP response.

The **<a4j:mediaOutput>** attribute has two main attributes:

- *"createContent"* specifies a method that will be used for content creating. The method accepts two parameters. The first one — with an `java.io.OutputStream` type — is a reference to the stream that should be used for output. An output stream accepts output bytes and sends them to a recipient. The second parameter is a reference to the component's *"value"* attribute and

has `java.lang.Object` type. This parameter contains deserialized object with data specified in the *"value"* attribute.

- *"value"* attribute specifies a bean class that keeps data for transmitting it into a stream in the method specified with *"createContent"* .

Now let's create the `MediaBean` class and specify there a primitive random-number generator and `paint` method that will convert the generated numbers into an output stream and give a JPEG image as a result. The code for `MediaBean` class is going to look as following:

Example:

```
package demo;

import java.awt.Graphics2D;
import java.awt.image.BufferedImage;
import java.io.IOException;
import java.io.OutputStream;
import java.util.Random;
import javax.imageio.ImageIO;

public class MediaBean {
   public void paint(OutputStream out, Object data) throws IOException{
      Integer high = 9999;
      Integer low = 1000;
      Random generator = new Random();
      Integer digits = generator.nextInt(high - low + 1) + low;
      if (data instanceof MediaData) {
         MediaData paintData = (MediaData) data;
                                                BufferedImage img = new
 BufferedImage(paintData.getWidth(),paintData.getHeight(),BufferedImage.TYPE_INT_RGB);
         Graphics2D graphics2D = img.createGraphics();
         graphics2D.setBackground(paintData.getBackground());
         graphics2D.setColor(paintData.getDrawColor());
         graphics2D.clearRect(0,0,paintData.getWidth(),paintData.getHeight());
         graphics2D.setFont(paintData.getFont());
         graphics2D.drawString(digits.toString(), 20, 35);
         ImageIO.write(img,"png",out);
      }
   }
}
```

Now it is necessary to create a class that will keep transmissional data that will be used as input data for a content creation method. The code for `MediaData` class is going to be as following:

Note:

A bean class transmitted into value should implement `Serializable` interface in order to be encoded to the URL of the resource.

Example:

```
package demo;

import java.awt.Color;
import java.awt.Font;
import java.io.Serializable;

public class MediaData implements Serializable{

   private static final long serialVersionUID = 1L;
   Integer Width=110;
   Integer Height=50;
   Color Background=new Color(190, 214, 248);
   Color DrawColor=new Color(0,0,0);
   Font font = new Font("Serif", Font.TRUETYPE_FONT, 30);

   /* Corresponding getters and setters */

}
```

As a result the **<a4j:mediaOutput>** component will generate the following image that will be updated on each page refresh:

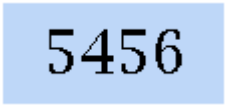


Figure 6.11. Using the <a4j:mediaOutput> for generating an image for captcha

Hence, when using the component it's possible to output your data of any type on a page with Ajax requests.

6.4.2.3. Reference Data

Table of <a4j:mediaOutput> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/mediaOutput.html].

Table 6.23. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.MediaOutput
component-family	org.ajax4jsf.Resource
component-class	org.ajax4jsf.component.html.MediaOutput
renderer-type	org.ajax4jsf.MediaOutputRenderer

6.4.2.4. Relevant Resources Links

Visit the *MediaOutput page* [http://livedemo.exadel.com/richfaces-demo/richfaces/mediaOutput.jsf?c=mediaOutput] at RichFaces LiveDemo for more examples of component usage and their sources.

6.4.3. < a4j:outputPanel > available since 3.0.0

6.4.3.1. Description

The component is used for components grouping in the Ajax output area, which offers several additional output opportunities such as inserting of non-present in tree components, saving of transient elements after Ajax request and some others.

6.4.3.2. Details of Usage

The **<a4j:outputPanel>** component is used when one or more components should be always updated. The component job is similar to that the *"reRender"* attribute does, but instead of specifying a comma separated list of components it wraps the components to be updated. This could be useful in cases when some components aren't rendered during the primary non-ajax response.

Example:

```
<a4j:support reRender="mypanel"/>
...
<a4j:outputPanel id="mypanel">
    <h:panelGrid rendered="#{not empty foo.bar}">
     ...
    </h:panelGrid>
</a4j:outputPanel>
```

By default the **<a4j:outputPanel>** is rendered as opening and closing HTML **** tags and functions as container. With the help of the *"layout"* attribute this output way could be set to any of three variants:

- "inline" (default)
- "block"
- "none"

If `layout="block"` is set, the component is rendered as a pair of opening and closing ** ** tags. In this case it is possible to apply available for ** ** elements style attributes. `layout="none"` helps to avoid an unnecessary tag around a context that is rendered or not according to the *"rendered"* attribute value. In case an inner context isn't rendered the **<a4j:outputPanel>** is rendered in a **** tags with ID equal to ID of a child component and `display:none` style. If a child component is rendered, **<a4j:outputPanel>** doesn't present at all in a final code.

Example:

```
<a4j:support reReder="mypanel"/>
 ...
<a4j:outputPanel layout="none">
    <h:panelGrid id="mypanel" rendered="#{not empty foo.bar}">
     ...
    </h:panelGrid>
</a4j:outputPanel>
```

As you see, the code is very similar to the one shown above, but *"reRender "* attribute refers directly to the updating panelGrid and not to the framing outputPanel, and it's more semantically correct.

The **<a4j:outputPanel>** allows to update a part of a page basing on its own flag. The flag is defined by the *"ajaxRendered"* attribute. The flag is commonly used when a part of a page must be updated or can be updated on any response.

Example:

```
<a4j:outputPanel ajaxRendered="true">
    <h:messages/>
</a4j:outputPanel>
```

The **<a4j:outPanel>** should be used for non-JSF component part framing, which is to be updated on Ajax response, as RichFaces specifies the list of updating areas as a list of an existing JSF component.

On default non-JSF context isn't saved in a component tree, but is rendered anew every time. To accelerate the processing speed and Ajax response input speed, RichFaces saves non-JSF context in a component tree on default. This option could be canceled by *"keepTransient"* attribute

that cancels transient flag forced setting for child components. This flag setting keeps the current value set by child components.

Note:

In JSF 1.1 implementation and lower, where non-JSF context should be framed with the **<f:verbatim>** component, **<a4j:outputPanel>** doesn't improve this JSF implementation option in any way, so you still have to use this tag where it's necessary without RichFaces usage.

RichFaces allows setting Ajax responses rendering directly basing on component tree nodes without referring to the JSP (XHTML) page code. It could be defined by *"selfRendered"* attribute setting to "true" on **<a4j:region>** and could help considerably speed up a response output. However, if a transient flag is kept as it is, this rapid processing could cause missing of transient components that present on view and don't come into a component tree. Hence, for any particular case you could choose a way for you application optimization: speed up processing or redundant memory for keeping tree part earlier defined a transient.

6.4.3.3. Reference Data

Table of <a4j:outputPanel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/outputPanel.html].

Table 6.24. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.OutputPanel
component-family	javax.faces.Panel
component-type	org.ajax4jsf.ajax.OutputPanel
component-class	org.ajax4jsf.component.html.HtmlAjaxOutputPanel
renderer-type	org.ajax4jsf.components.AjaxOutputPanelRenderer

6.4.3.4. Relevant Resources Links

Visit *OutputPanel page* [http://livedemo.exadel.com/richfaces-demo/richfaces/outputPanel.jsf?c=outputPanel] at RichFaces Livedemo for examples of component usage and their sources.

Useful articles:

- search the *RichFaces Users Forum* [http://www.jboss.org/index.html?module=bb&op=viewforum&f=26] for some additional information on component usage;

6.5. Ajax Miscellaneous

6.5.1. < a4j:page > available since 3.0.0

6.5.1.1. Description

The **<a4j:page>** component encodes the full HTML-page structure and used for solving some incompatibility in JSP environment with MyFaces in early Ajax4Jsf versions.

6.5.1.2. Details of Usage

The component solves the problem with MyFaces for early Ajax4Jsf versions: in MyFaces implementation the **<f:view>** JSP tag doesn't get control for encoding contents during the RENDER_RESPONSE phase, thus Ajax can't neiher get a control nor make a response. The **<a4j:page>** solves this problem by wrapping the Ajax updatable areas. In the last versions of both frameworks the problem is successfully fixed and no **<a4j:page>** usage is required.

The component uses facet *"head"* for defining the contents corresponding to the HTML HEAD. There is no need to use *"body"* facet in order to define first body section. The attribute *"format"* defines page layout format for encoding DOCTYPE. The attribute *"pageTitle"* is rendered as title section.

According to the described above, the component defined at page as following

```
<a4j:page format="xhtml" pageTitle="myPage">
    <f:facet name="head">
        <!--Head Content here-->
    </f:facet>
    <!--Page Content Here-->
</a4j:page>
```

will be rendered on a page as

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html>
  <head>
    <title>myPage</title>
    <!--Head Content here-->
  </head>
  <body>
    <!--Page Content Here-->
  </body>
```

```
</html>
```

6.5.1.3. Reference Data

Table of <a4j:page> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/page.html].

Table 6.25. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.components.Page
component-family	org.ajax4jsf.components.AjaxRegion
component-class	org.ajax4jsf.component.html.HtmlPage
renderer-type	org.ajax4jsf.components.AjaxPageRenderer

Table 6.26. Facets

Facet name	Description
head	Defines a head content

6.5.1.4. Relevant Resources Links

Visit the *AjaxPage page* [http://livedemo.exadel.com/richfaces-demo/richfaces/page.jsf?c=page] at RichFaces LiveDemo for examples of component usage and their sources.

6.5.2. < a4j:portlet > available since 3.0.0

6.5.2.1. Description

The **<a4j:portlet>** component is DEPRECATED as far as JSR-301 was defined a same functionality for a UIViewRoot component. Thus, it is implicitly defined by mandatory **<f:view>** component.

6.5.2.2. Details of Usage

The main component purpose is realization of possibility to create several instances the same portlet on one page. But clientId of elements should be different for each window. In that case namespace is used for each portlet. The **<a4j:portlet>** `implemets NaimingContainer` interface and adds namespace to all componets on a page. All portlet content should be wrapped by **<a4j:portlet>** for resolving problems mentioned before.

6.5.2.3. Reference Data

Table of <a4j:portlet> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/portlet.html].

Table 6.27. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Portlet
component-family	org.ajax4jsf.component.Portlet
component-class	org.ajax4jsf.component.html.HtmlPortlet

6.5.2.4. Relevant Resources Links

Visit the *Portlet page* [http://livedemo.exadel.com/richfaces-demo/richfaces/portlet.jsf?c=portlet] at RichFaces LiveDemo for examples of component usage and their sources.

Useful publications:

- *Ajax4Jsf Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&t=107325] — check the forum for additional information about component usage;
- *portal-echo application* [http://anonsvn.jboss.org/repos/ajax4jsf/trunk/samples/portal-echo/] — Portlet Sample, could be checked out from JBoss SVN;
- *First snapshot with Portal environment support* [http://www.jboss.com/index.html?module=bb&op=viewtopic&t=107325] contains usage instructions for the Portlet Sample demo.

6.5.3. < a4j:htmlCommandLink > available since 3.0.0

6.5.3.1. Description

The **<a4j:htmlCommandLink>** component is very similar to the same component from the JSF HTML library, the only slight difference is in links generation and problem solving that occurs when an original component is used.

6.5.3.2. Details of Usage

The difference with the original component is that all hidden fields required for command links with the child **<f:param>** elements are always rendered and it doesn't depend on links rendering on the initial page. It solves the problem with invalid links that weren't rendered on a page immediately, but after some Ajax request.

Example:

```
<a4j:form>
   ...
   <a4j:htmlComandLink action="action" value="link" rendered="#{bean.rendered}">
```

```
      <f:param .../>
   <a4j:htmlComandLink>
   ...
</a4j:form>
```

In this example **<a4j:htmlCommandLink>** works as standard **<h:commandLink>** , but here hidden fields required for correct functionality are rendered before the first downloading of a page, though it doesn't happen if its attribute isn't set to "false".

6.5.3.3. Reference Data

Table of <a4j:htmlCommandLink> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/htmlCommandLink.html].

Table 6.28. Component Identification Parameters

Name	Value
component-type	javax.faces.HtmlCommandLink
component-family	javax.faces.Command
component-class	javax.faces.component.html.HtmlCommandLink
renderer-type	org.ajax4jsf.HtmlCommandLinkRenderer

6.5.3.4. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/htmlCommandLink.jsf?c=htmlCommandLink] you can found some additional information for **<a4j:htmlCommandLink>** component usage.

On RichFaces LiveDemo page [http://java.sun.com/javaee/javaserverfaces/1.1_01/docs/tlddocs/f/param.html] you can found some additional information about **<f:param>** component.

6.5.4. < a4j:log > available since 3.0.0

6.5.4.1. Description

The **<a4j:log >** component generates JavaScript that opens a debug window with useful debug information.

6.5.4.2. Details of Usage

The **<a4j:log >** component generates JavaScript that opens a log window with useful debug information, which contains data on requests and responses, DOM tree changes et al. The log could be generated not only in a new window, but also on the current page in a separate ** ** element. This feature is controlled with the component *"popup"* attribute. The window is opened on pressing of "CTRL+SHIFT+L", which is default registered key. The hot key could be

changed with the *"hotkey"* attribute, where it's necessary to define one letter that together with "CTRL+SHIFT" opens a window.

The *"level"* attribute has several possible values "FATAL", "ERROR", "WARN", "INFO", "ALL" and is used when it is necessary to change a logging level.

Example:

```
<a4j:log level="ALL" popup="false" width="400" height="200"/>
```

The component defined this way is decoded on a page as ** ** inside a page, where all the information beginning with informational message is generated.

Note:

<a4j:log> is getting renewed automatically after execution of Ajax requests. Do not renew **<a4j:log>** by using reRender!

6.5.4.3. Reference Data

Table of <a4j:log> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/log.html].

Table 6.29. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Log
component-family	org.ajax4jsf.Log
component-class	org.ajax4jsf.component.html.AjaxLog
renderer-type	org.ajax4jsf.LogRenderer

6.5.4.4. Relevant Resources Links

Visit the *Log page* [http://livedemo.exadel.com/richfaces-demo/richfaces/log.jsf?c=log] at RichFaces LiveDemo for example of component usage and their sources.

6.6. Data Iteration

The following components iterate over a collection of data and represent it on the page.

6.6.1. < rich:column > available since 3.0.0

6.6.1.1. Description

The component for row rendering for a UIData component.

United States Capitals

Capitals and States Table			
State Flag	Capital Name	State Name	TimeZone
	Montgomery	Alabama	GMT-6
	Juneau	Alaska	GMT-9
	Phoenix	Arizona	GMT-7
	Little Rock	Arkansas	GMT-6
	Sacramento	California	GMT-8
State Flag	Capital Name	State Name	TimeZone
Capitals and States Table			

Figure 6.12. <rich:column> component

6.6.1.2. Key Features

- Completely skinned table rows and child elements
- Possibility to combine columns with the help of *"colspan"*
- Possibility to combine rows with the help of *"rowspan"* and *"breakBefore"*
- *Sorting column values*
- *Filtering column values*

6.6.1.3. Details of Usage

To output a simple table, the **<rich:column>** component is used the same way as the standard **<h:column>** , i.e. the following code on a page is used:

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5">
    <rich:column>
        <f:facet name="header">State Flag</f:facet>
        <h:graphicImage value="#{cap.stateFlag}"/>
    </rich:column>
    <rich:column>
        <f:facet name="header">State Name</f:facet>
        <h:outputText value="#{cap.state}"/>
```

```
    </rich:column>
    <rich:column >
        <f:facet name="header">State Capital</f:facet>
        <h:outputText value="#{cap.name}"/>
    </rich:column>
    <rich:column>
        <f:facet name="header">Time Zone</f:facet>
        <h:outputText value="#{cap.timeZone}"/>
    </rich:column>
</rich:dataTable>
...
```

The result is:

State Flag	State Name	State Capital	Time Zone
	Alabama	Montgomery	GMT-6
	Alaska	Juneau	GMT-9
	Arizona	Phoenix	GMT-7
	Arkansas	Little Rock	GMT-6
	California	Sacramento	GMT-8

Figure 6.13. Generated <rich:column> component

Now, in order to group columns with text information into one row in one column with a flag, use the *"colspan"* attribute, which is similar to an HTML one, specifying that the first column contains 3 columns. In addition, it's necessary to specify that the next column begins from the first row with the help of the `breakBefore="true"`.

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5">
    <rich:column colspan="3">
        <h:graphicImage value="#{cap.stateFlag}"/>
    </rich:column>
    <rich:column breakBefore="true">
        <h:outputText value="#{cap.state}"/>
    </rich:column>
    <rich:column >
```

```
        <h:outputText value="#{cap.name}"/>
    </rich:column>
    <rich:column>
        <h:outputText value="#{cap.timeZone}"/>
    </rich:column>
</rich:dataTable>
...
```

As a result the following structure is rendered:

Alabama	Montgomery	GMT-6
Alaska	Juneau	GMT-9
Arizona	Phoenix	GMT-7
Arkansas	Little Rock	GMT-6
California	Sacramento	GMT-8

Figure 6.14. <rich:column> modified with *"colspan"* and *"breakbefore"* attributes

The same way is used for columns grouping with the *"rowspan"* attribute that is similar to an HTML one responsible for rows quantity definition occupied with the current one. The only thing to add in the example is an instruction to move onto the next row for each next after the second column.

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5">
    <rich:column rowspan="3">
        <f:facet name="header">State Flag</f:facet>
        <h:graphicImage value="#{cap.stateFlag}"/>
    </rich:column>
    <rich:column>
        <f:facet name="header">State Info</f:facet>
```

```
        <h:outputText value="#{cap.state}"/>
    </rich:column>
    <rich:column breakBefore="true">
        <h:outputText value="#{cap.name}"/>
    </rich:column>
    <rich:column breakBefore="true">
        <h:outputText value="#{cap.timeZone}"/>
    </rich:column>
</rich:dataTable>
...
```

As a result:

State Flag	State Info
	Alabama
	Montgomery
	GMT-6
	Alaska
	Juneau
	GMT-9
	Arizona
	Phoenix
	GMT-7
	Arkansas
	Little Rock
	GMT-6
	California
	Sacramento
	GMT-8

Figure 6.15. <rich:column> generated with *"rowspan"* attribute

Hence, additionally to a standard output of a particular row provided with the **<h:column>** component, it becomes possible to group easily the rows with special HTML attribute.

The columns also could be grouped in a particular way with the help of the **<h:columnGroup>** component that is described in *the following chapter*.

In the Dynamic Columns Wiki article [http://wiki.jboss.org/wiki/DynamicColumns] you can find additional information about dynamic columns.

6.6.1.4. Sorting and Filtering

6.6.1.4.1. Sorting

In order to sort the columns you should use *"sortBy"* attribute that indicates what values to be sorted.This attribute can be used only with the **<rich:dataTable>** component. In order to sort the column you should click on its header. See the following example.

Example:

```
...
<h:form>
   <rich:dataTable value="#{capitalsBean.capitals}" var="cap" width="300px">
      <f:facet name="header">
         <h:outputText value="Sorting Example"/>
      </f:facet>
      <rich:column sortBy="#{cap.state}">
         <f:facet name="header">
            <h:outputText value="State Name"/>
         </f:facet>
         <h:outputText value="#{cap.state}"/>
      </rich:column>
      <rich:column sortBy="#{cap.name}">
         <f:facet name="header">
            <h:outputText value="State Capital"/>
         </f:facet>
         <h:outputText value="#{cap.name}"/>
      </rich:column>
   </rich:dataTable>
</h:form>
...
```

This is result:

Sorting Example	
State Name	State Capital
Alabama	Montgomery
Alaska	Juneau
Arizona	Phoenix
Arkansas	Little Rock
California	Sacramento

Figure 6.16. <rich:column> with *"sortBy"* attribute

The *"sortExpression"* attribute defines a bean property which is used for sorting of a column. This attribute can be used only with the **<rich:scrollableDataTable>** component. The following example is a example of the attribute usage.

Example:

```
...
<rich:scrollableDataTable id="carList"
        value="#{dataTableScrollerBean.allCars}" sortMode="single"
        binding="#{dataTableScrollerBean.table}">
        <rich:column id="make" sortExpression="#{cap.make}">
            <f:facet name="header">
                <h:outputText styleClass="headerText" value="Make" />
            </f:facet>
            <h:outputText value="#{category.make}" />
        </rich:column>
        <rich:column id="model">
            <f:facet name="header">
                <h:outputText styleClass="headerText" value="Model" />
            </f:facet>
            <h:outputText value="#{category.model}" />
        </rich:column>
        <rich:column id="price">
            <f:facet name="header">
                <h:outputText styleClass="headerText" value="Price" />
            </f:facet>
            <h:outputText value="#{category.price}" />
        </rich:column>
</rich:scrollableDataTable>
```

```
...
```

The *"selfSorted"* attribute that would add the possibility of automatic sorting by clicking the column header. Default value is "true". In the example below the second column is unavailable for sorting.

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap">
    <rich:column>
        <f:facet name="header">
            <h:outputText value="State Flag"/>
        </f:facet>
        <h:graphicImage value="#{cap.stateFlag}"/>
    </rich:column>
    <rich:column sortBy="#{cap.state}" selfSorted="false">
        <f:facet name="header">
            <h:outputText value="State Name"/>
        </f:facet>
        <h:outputText value="#{cap.state}"/>
    </rich:column>
</rich:dataTable>
...
```

"sortOrder" attribute is used for changing the sorting of columns by means of external controls.

Possible values are:

- "ASCENDING" - column is sorted in ascending
- "DESCENDING" - column is sorted in descending
- "UNSORTED" - column isn't sorted

Example:

```
...
<h:form>
  <rich:dataTable value="#{capitalsBean.capitals}" var="cap" width="300px">
    <f:facet name="header">
      <h:outputText value="Sorting Example"/>
    </f:facet>
    <rich:column sortBy="#{cap.state}" sortOrder="ASCENDING">
```

```
        <f:facet name="header">
          <h:outputText value="State Name"/>
        </f:facet>
        <h:outputText value="#{cap.state}"/>
      </rich:column>
      <rich:column sortBy="#{cap.name}" sortOrder="DESCENDING">
        <f:facet name="header">
          <h:outputText value="State Capital"/>
        </f:facet>
        <h:outputText value="#{cap.name}"/>
      </rich:column>
    </rich:dataTable>
</h:form>
...
```

Below you can see the result:

Sorting Example		
Time Zone ▼	State Name ▲	State Capital ▲▼
GMT-9	Alaska	Juneau
GMT-8	California	Sacramento
GMT-8	Idaho	Boise
GMT-8	Nevada	Carson City
GMT-8	Oregon	Salem

Figure 6.17. <rich:column> with *"sortOrder"* attribute

In the example above the first column is sorted in descending order. But if recurring rows appear in the table the relative second column are sorted in ascending order.

If the values of the columns are complex, the *"sortOrder"* attribute should point to a bean property containing the sort order. See how it's done in the *LiveDemo* [http://livedemo.exadel.com/richfaces-demo/richfaces/columns.jsf?c=columns&tab=usage] for **<rich:columns>** .

You can customize the sorting's icon element using "rich-sort-icon" class.

Note

In order to sort a column with the values not in English you can add the `org.richfaces.datatableUsesViewLocale` context parameter in your web.xml. Its value should be "true".

Note:

The *"sortBy"* and the *"selfSorted"* attributes used with the **<rich:dataTable>** component. Also the *"selfSorted"* can be used with the **<rich:extendedDataTable>** .

The *"sortable"* and the *"sortExpression"* attributes used with the **<rich:scrollableDataTable>** component.

6.6.1.4.2. Filtering

There are two ways to filter the column value:

- Using built-in filtering. It uses `startsWith()` function to make filtering. In this case you need to define *"filterBy"* attribute at column you want to be filterable. This attribute defines iterable object property which is used when filtering performed.

  The *"filterValue"* attribute is used to get or change current filtering value. It could be defined with initial filtering value on the page or as value binding to get/change it on server. If the *"filterValue"* attribute isn't empty from the beginning table is filtered on the first rendering.

  You can customize the input form using "rich-filter-input" CSS class.

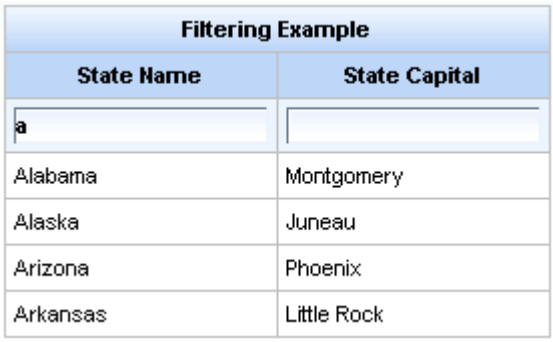
  In order to change filter event you could use *"filterEvent"* attribute on column, e.g. "onblur"(default value).

  Below you can see the example:

  Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" width="500px">
                    <rich:column filterBy="#{cap.state}" filterValue="#{filterName.filterBean}"
 filterEvent="onkeyup">
            <h:outputText value="#{cap.state}"/>
        </rich:column>
        <rich:column filterBy="#{cap.name}" filterEvent="onkeyup">
            <h:outputText value="#{cap.name}"/>
        </rich:column>
</rich:dataTable>
...
```

  This is the result:



Filtering Example	
State Name	State Capital
a	
Alabama	Montgomery
Alaska	Juneau
Arizona	Phoenix
Arkansas	Little Rock

Figure 6.18. Built-in filtering feature usage

- Using external filtering. In this case you need to write your custom filtering function or expression and define controls.

  The *"filterExpression"* attribute is used to define expression evaluated to boolean value. This expression checks if the object satisfies filtering condition.

  The *"filterMethod"* attribute is defined with method binding. This method accepts on Object parameter and return boolean value. So, this method also could be used to check if the object satisfies filtering condition. The usage of this attribute is the best way for implementing your own complex business logic.

  See the following example:

  Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" id="table">
      <rich:column filterMethod="#{filteringBean.filterStates}">
            <f:facet name="header">
                  <h:inputText value="#{filteringBean.filterValue}" id="input">
                        <a4j:support event="onkeyup" reRender="table"
                              ignoreDupResponses="true" requestDelay="700" focus="input" />
                  </h:inputText>
            </f:facet>
            <h:outputText value="#{cap.state}" />
      </rich:column>
                  <rich:column    filterExpression="#{fn:containsIgnoreCase(cap.timeZone,
 filteringBean.filterZone)}">
            <f:facet name="header">
                  <h:selectOneMenu value="#{filteringBean.filterZone}">
                        <f:selectItems value="#{filteringBean.filterZones}" />
                        <a4j:support event="onchange" reRender="table" />
                  </h:selectOneMenu>
```

```
            </f:facet>
            <h:outputText value="#{cap.timeZone}" />
        </rich:column>
    </rich:dataTable>
    ...
```

6.6.1.5. Reference Data

Table of <rich:column> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/column.html].

Table 6.30. Component Identification Parameters

Name	Value
component-type	org.richfaces.Column
component-class	org.richfaces.component.html.HtmlColumn
component-family	org.richfaces.Column
renderer-type	org.richfaces.ColumnRenderer
tag-class	org.richfaces.taglib.ColumnTag

Table 6.31. Facets

Facet name	Description
header	Defines the header content
footer	Defines the footer content

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.1.6. Relevant Resources Links

Visit *Column* [http://livedemo.exadel.com/richfaces-demo/richfaces/dataTable.jsf?c=column] page at RichFaces live demo for examples of component usage and their sources.

" *Using the "rendered" attribute of <rich:column>* [http://www.jboss.org/community/docs/DOC-9607]" article in RichFaces cookbook at JBoss portal gives an example of code of the component usage case.

6.6.2. < rich:columnGroup > available since 3.0.0

6.6.2.1. Description

The component combines columns in one row to organize complex subparts of a table.

Figure 6.19. <rich:columnGroup> component

6.6.2.2. Key Features

- Completely skinned table columns and child elements
- Possibility to combine columns and rows inside
- Possibility to update a limited set of strings with Ajax

6.6.2.3. Details of Usage

The **<rich:columnGroup>** component combines columns set wrapping them into the **<tr>** element and outputting them into one row. Columns are combined in a group the same way as when the *"breakBefore"* attribute is used for columns to add a moving to the next rows, but the first variant is clearer from a source code. Hence, the following simple examples are very same.

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5" id="sublist">
      <rich:column colspan="3">
            <f:facet name="header">State Flag</f:facet>
            <h:graphicImage value="#{cap.stateFlag}"/>
      </rich:column>
     <rich:columnGroup>
```

```
            <rich:column>
                <h:outputText value="#{cap.state}"/>
            </rich:column>
            <rich:column >
                <h:outputText value="#{cap.name}"/>
            </rich:column>
            <rich:column >
                <h:outputText value="#{cap.timeZone}"/>
            </rich:column>
        </rich:columnGroup>
</rich:dataTable>
...
```

And representation without a grouping:

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5" id="sublist">
        <rich:column colspan="3">
                <f:facet name="header">State Flag</f:facet>
                <h:graphicImage value="#{cap.stateFlag}"/>
        </rich:column>
        <rich:column breakBefore="true">
                <h:outputText value="#{cap.state}"/>
        </rich:column>
        <rich:column breakBefore="true">
                <h:outputText value="#{cap.name}"/>
        </rich:column>
        <rich:column >
                <h:outputText value="#{cap.timeZone}"/>
        </rich:column>
</rich:dataTable>
....
```

The result is:

State Flag		
		
Alabama	Montgomery	GMT-6
		
Alaska	Juneau	GMT-9
		
Arizona	Phoenix	GMT-7
		
Arkansas	Little Rock	GMT-6
		
California	Sacramento	GMT-8

Figure 6.20. Generated <rich:columnGroup> component with *"breakBefore"* attribute

It's also possible to use the component for output of complex headers in a table. For example adding of a complex header to a facet for the whole table looks the following way:

Example:

```
...
<f:facet name="header">
      <rich:columnGroup>
            <rich:column rowspan="2">
               <h:outputText value="State Flag"/>
            </rich:column>
            <rich:column colspan="3">
                  <h:outputText value="State Info"/>
            </rich:column>
            <rich:column breakBefore="true">
                  <h:outputText value="State Name"/>
            </rich:column>
            <rich:column>
                  <h:outputText value="State Capital"/>
            </rich:column>
            <rich:column>
                  <h:outputText value="Time Zone"/>
            </rich:column>
      </rich:columnGroup>
```

```
</f:facet>
...
```

Generated on a page as:

State Flag	State Info		
	State Name	State Capital	Time Zone
	Alabama	Montgomery	GMT-6
	Alaska	Juneau	GMT-9
	Arizona	Phoenix	GMT-7
	Arkansas	Little Rock	GMT-6
	California	Sacramento	GMT-8

Figure 6.21. <rich:columnGroup> with complex headers

6.6.2.4. Reference Data

Table of <rich:columnGroup> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/columnGroup.html].

Table 6.32. Component Identification Parameters

Name	Value
component-type	org.richfaces.ColumnGroup
component-class	org.richfaces.component.html.HtmlColumnGroup
component-family	org.richfaces.ColumnGroup
renderer-type	org.richfaces.ColumnGroupRenderer
tag-class	org.richfaces.taglib.ColumnGroupTag

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.2.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataTable.jsf?c=columnGroup] you can see the example of **<rich:columnGroup>** usage and sources for the given example.

6.6.3. < rich:columns > available since 3.2.0

6.6.3.1. Description

The **<rich:columns>** is a component, that allows you to create a dynamic set of columns from your model.

Name	State	Time Zone
Montgomery	Alabama	GMT-6
Juneau	Alaska	GMT-9
Phoenix	Arizona	GMT-7
Little Rock	Arkansas	GMT-6
Sacramento	California	GMT-8
Denver	Colorado	GMT-7
Hartford	Connecticut	GMT-5
Dover	Delaware	GMT-5
Tallahassee	Florida	GMT-5
Atlanta	Georgia	GMT-5

Figure 6.22. <rich:columns> component

6.6.3.2. Key Features

- Highly customizable look and feel
- Dynamic tables creation
- Possibility to combine columns with the help of *"colspan"* and *"breakBefore"*
- Possibility to combine rows with the help of *"rowspan"*
- *Sorting column values*
- *Filtering column values*

6.6.3.3. Details of Usage

The **<rich:columns>** component gets a list from data model and outputs corresponding set of columns inside **<rich:dataTable>** on a page. It is possible to use *"header"* and *"footer"* facets with **<rich:columns>** component.

The *"value"* and *"var"* attributes are used to access the values of collection.

The simple example is placed below.

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap">
      <rich:columns value="#{capitalsBean.labels}" var="col" index="index">
            <f:facet name="header">
                  <h:outputText value="#{col.text}" />
            </f:facet>
       <h:outputText value="#{cap[index]}" />
       <f:facet name="footer">
             <h:outputText value="#{col.text}" />
       </f:facet>
      </rich:columns>
</rich:dataTable>
...
```

The *"columns"* attribute defines the count of columns.

The *"rowspan"* attribute defines the number of rows to be displayed. If the value of this attribute is zero, all remaining rows in the table are displayed on a page.

The *"begin"* attribute contains the first iteration item. Note, that iteration begins from zero.

The *"end"* attribute contains the last iteration item.

With the help of the attributes described below you can customize the output, i.e. define which columns and how many rows appear on a page.

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap">
           <rich:columns value="#{capitalsBean.labels}" var="col" index="index" rowspan="0"
 columns="3" begin="1" end="2">
            <f:facet name="header">
                  <h:outputText value="#{col.text}" />
            </f:facet>
            <h:outputText value="#{cap[index]}" />
      </rich:columns>
</rich:dataTable>
...
```

In the example below, columns from first to second and all rows are shown in the **<rich:dataTable>** .

The result is:

Name	Capital
Montgomery	Alabama
Juneau	Alaska
Phoenix	Arizona
Little Rock	Arkansas
Sacramento	California
Denver	Colorado
Hartford	Connecticut
Dover	Delaware
Tallahassee	Florida
Atlanta	Georgia

Figure 6.23. Generated <rich:columns> with columns from first to second and all rows

The **<rich:columns>** component does not prevent to use **<rich:column>** . In the following example one column renders in any way and another columns could be picked from the model.

Example:

```
...
<rich:dataTable value="#{rowBean.rows}" var="row">
	<rich:column>
		<h:outputText value ="#{row.columnValue}"/>
	</rich:column>
	<rich:columns value="#{colBean.columns}" var="col">
		<f:facet name="header">
			<h:outputText value="#{col.header}"/>
		</f:facet>
		<h:outputText value="#{row.columnValue}"/>
		<f:facet name="footer">
			<h:outputText value="#{col.footer}"/>
		</f:facet>
	</rich:columns>
</rich:dataTable>
...
```

Now, you can use a few **<rich:columns>** together with **<rich:column>** within the one table:

```
...
<rich:dataTable value="#{dataTableScrollerBean.model}" var="model" width="500px"
 rows="5">
      <f:facet name="header">
            <h:outputText value="Cars Available"></h:outputText>
      </f:facet>
      <rich:columns value="#{dataTableScrollerBean.columns}" var="columns" index="ind">
            <f:facet name="header">
                  <h:outputText value="#{columns.header}" />
            </f:facet>
            <h:outputText value="#{model[ind].model} " />
      </rich:columns>
      <rich:column>
            <f:facet name="header">
                  <h:outputText value="Price" />
            </f:facet>
           <h:outputText value="Price" />
      </rich:column>
      <rich:columns value="#{dataTableScrollerBean.columns}" var="columns" index="ind">
            <f:facet name="header">
                  <h:outputText value="#{columns.header}" />
            </f:facet>
            <h:outputText value="#{model[ind].mileage}$" />
      </rich:columns>
</rich:dataTable>
...
```

In order to group columns with text information into one row, use the *"colspan"* attribute, which is similar to an HTML one. In the following example the third column contains 3 columns. In addition, it's necessary to specify that the next column begins from the first row with the help of the `breakBefore = "true"` .

Example:

```
...
<rich:dataTable value="#{columns.data1}" var="data">
      <rich:column>
            <h:outputText value="#{column.Item1}" />
      </rich:column>
      <rich:column>
            <h:outputText value="#{column.Item2}" />
      </rich:column>
```

```
        <rich:column>
            <h:outputText value="#{column.Item3}" />
        </rich:column>
        <rich:columns columns="3" colspan="3" breakBefore="true">
            <h:outputText value="#{data.str0}" />
        </rich:columns>
</rich:dataTable>
...
```

The same way is used for columns grouping with the *"rowspan"* attribute that is similar to an HTML. The only thing to add in the example is an instruction to move onto the next row for each next after the second column.

Example:

```
...
<rich:dataTable value="#{columns.data1}" var="data">
        <rich:columns columns="2" rowspan="3">
            <h:outputText value="#{data.str0}" />
        </rich:columns>
        <rich:column>
            <h:outputText value="#{column.Item1}" />
        </rich:column>
        <rich:column  breakBefore="true">
            <h:outputText value="#{column.Item2}" />
        </rich:column>
        <rich:column  breakBefore="true">
            <h:outputText value="#{column.Item3}" />
        </rich:column>
</rich:dataTable>
...
```

Note:

The **<rich:columns>** tag is initialized during components tree building process. This process precedes page rendering at "Render Response" JSF phase. To be rendered properly the component needs all it variables to be initialized while the components tree is being building. A *javax.servlet.jsp.JspTagException* occurs if **<rich:columns>** uses variables passed from other components, if these variables are initialized during rendering. Thus, when **<rich:columns>** is asking for such variables they do not already exist. Use <c:forEach> JSP standard tag as workaround. Compare two examples below.

This code calls the exception:

```
...
<rich:dataTable value="#{bean.data}" var="var">
        <rich:columns value="#{var.columns}">
                ...
        </rich:columns>
</rich:dataTable>
...
```

This code works properly:

```
...
<c:forEach items="#{bean.data}" var="var">
        <rich:columns value="#{var.columns}">
                ...
        </rich:columns>
</c:forEach>
...
```

Note:

Since 3.3.0GA **<rich:columns>** requires explicit definition of *"id"* for children components to ensure that decode process works properly. The example of how you can define unique *"id"* for children component:

```
...
<rich:columns value="#{bean.columns}" var="col" index="ind" ... >
        <h:inputText id="input#{ind}" value="">
           <a4j:support id="support#{ind}" event="onchange" reRender="someId" />
        </h:inputText>
</rich:columns>
...
```

Only if *"id"* defined as shown above Ajax after onchange event will be processed as expected.

Sorting and filtering for the **<rich:columns>** component works the same as for **<rich:column>** . See the *"Sorting and Filtering"* section.

6.6.3.4. Reference Data

Table of <rich:columns> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/columns.html].

Table 6.33. Component Identification Parameters

Name	Value
component-type	org.richfaces.Column
tag-class	org.richfaces.taglib.ColumnsTagHandler

Table 6.34. Facets

Facet name	Description
header	Defines the header content
footer	Defines the footer content

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.3.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataTable.jsf?c=columns] you can found some additional information for **<rich:columns>** component usage.

6.6.4. < rich:dataDefinitionList > available since 3.0.0

6.6.4.1. Description

The component to render definition lists that allows choosing data from a model and obtains built-in support of Ajax updates.

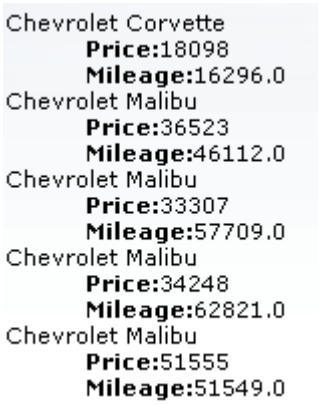


Figure 6.24. <rich:dataDefinitionList> component

6.6.4.2. Key Features

- Completely skinned table rows and child elements
- Possibility to update a limited set of rows with Ajax
- Possibility to receive values dynamically from a model

6.6.4.3. Details of Usage

The **<rich:dataDefinitionList>** component allows to generate a definition list from a model.

The component has the *"term"* facet, which corresponds to the *"type"* parameter for the **<dt>** HTML element.

Here is an example:

```
...
<h:form>
          <rich:dataDefinitionList var="car" value="#{dataTableScrollerBean.allCars}" rows="5"
 first="4" title="Cars">
            <f:facet name="term">
               <h:outputText value="#{car.make} #{car.model}"></h:outputText>
            </f:facet>
            <h:outputText value="Price:" styleClass="label"></h:outputText>
            <h:outputText value="#{car.price}" /><br/>
            <h:outputText value="Mileage:" styleClass="label"></h:outputText>
            <h:outputText value="#{car.mileage}" /><br/>
      </rich:dataDefinitionList>
</h:form>
...
```

This is a result:

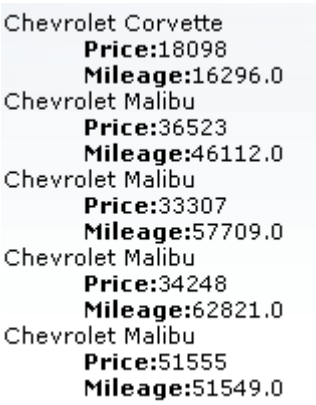


Figure 6.25. <rich:dataDefinitionList> component with *"term"* facet

In the example the *"rows"* attribute limits a number of output elements of the list.

The *"first"* attribute defines the first element for output. *"title"* is used for a popup title.

The **<rich:dataDefinitionList>** component could be partially updated with Ajax. The *"ajaxKeys"* attribute points to an Object (java.util.Set) that should contain row keys to be updated after an Ajax request. See an example of usage the *"ajaxKeys"* attribute for the **<rich:dataList>** component in the *RichFacs Cookbook article* [http://www.jboss.org/community/wiki/UsingtheajaxKeysattributeforrichdataList].

6.6.4.4. Reference Data

Table of <rich:dataDefinitionList> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dataDefinitionList.html].

Table 6.35. Component Identification Parameters

Name	Value
component-type	org.richfaces.DataDefinitionList
component-class	org.richfaces.component.html.HtmlDataDefinitionList
component-family	org.richfaces.DataDefinitionList
renderer-type	org.richfaces.DataDefinitionListRenderer
tag-class	org.richfaces.taglib.DataDefinitionListTag

Table 6.36. Classes names that define a list appearance

Class name	Description
rich-deflist	Defines styles for an html <dl> element
rich-definition	Defines styles for an html <dd> element

Class name	Description
rich-definition-term	Defines styles for an html <dt> element

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.4.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataLists.jsf?c=dataDefinitionList] you can see the example of **<rich:dataDefinitionList>** usage and sources for the given example.

6.6.5. < rich:dataFilterSlider > available since 3.0.0

6.6.5.1. Description

A slider-based action component is used for filtering table data.

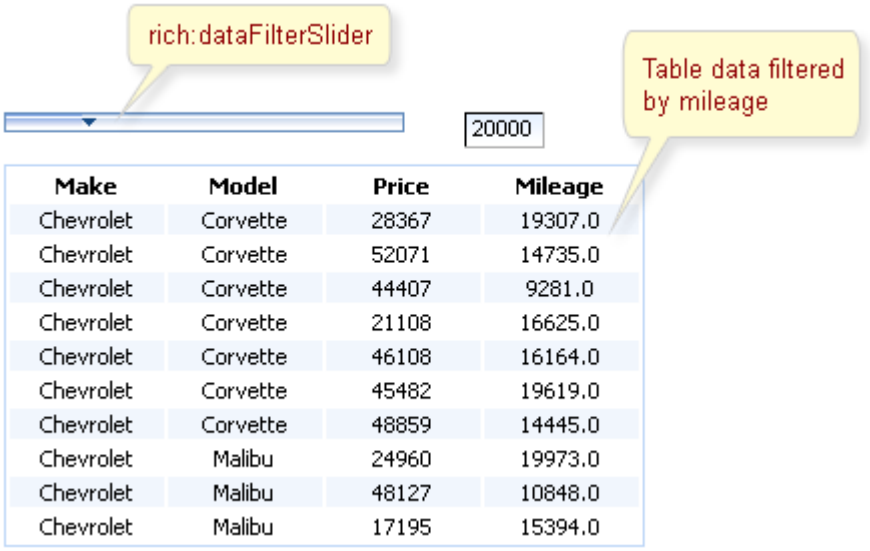


Figure 6.26. <rich:dataFilterSlider> component

6.6.5.2. Key Features

- Filter any UIData based component in dependency on its child's values
- Fully skinnable control and input elements
- Optional value text field with an attribute-managed position
- Optional disablement of the component on a page
- Optional toolTip to display the current value while a handle is dragged

- Dragged state is stable after the mouse moves
- Optional manual input possible if a text input field is present
- Validation of manual input

6.6.5.3. Details of Usage

The **dataFilterSlider** component is bound to some UIData component using a *"for"* attribute and filters data in a table.

Example:

```
...
<rich:dataFilterSlider sliderListener="#{mybean.doSlide}"
                       startRange="0"
                       endRange="50000"
                       increment="10000"
                       handleValue="1"
                       for="carIndex"
                       forValRef="inventoryList.carInventory"
                       filterBy="getMileage" />
...
<h:dataTable id="carIndex">
      ...
</h:dataTable>
...
```

In this example other two attributes are used for filtering:

- *"forValRef"* is a string which is used in a value attribute of the target UIData component. It's designed for resetting the UIData component back to the original list provided by a backing bean.
- *"filterBy"* is a getter of an object member that is to be compared to a slider value. It's a value that is used in results filtering.

"handleValue" is an attribute for keeping the current handle position on the dataFilterSlider component. Based on the current value, appropriate values obtained from a getter method defined in *"filterBy"* are filtered.

One more important attribute is a *"storeResults"* one that allows the dataFilterSlider component to keep UIData target object in session.

If it's necessary the component submits a form on event of a handle state changing, use the *"submitOnSlide"* attribute. When the attribute definition is `"true"`, submission on this event is defined.

Information about the *"process"* attribute usage you can find in the *"Decide what to process "* guide section.

6.6.5.4. Reference Data

Table of <rich:dataFilterSlider> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dataFilterSlider.html].

Table 6.37. Component Identification Parameters

Name	Value
component-type	org.richfaces.dataFilterSlider
component-class	org.richfaces.component.html.HtmlDataFilterSlider
component-family	org.richfaces.DataFilterSlider
renderer-type	org.richfaces.DataFilterSliderRenderer
tag-class	org.richfaces.taglib.dataFilterSliderTag

6.6.5.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataFilterSlider.jsf?c=dataFilterSlider] you can see the example of **<rich:dataFilterSlider>** usage and sources for the given example.

6.6.6. < rich:dataGrid > available since 3.0.0

6.6.6.1. Description

The component to render data as a grid that allows choosing data from a model and obtains built-in support of Ajax updates.

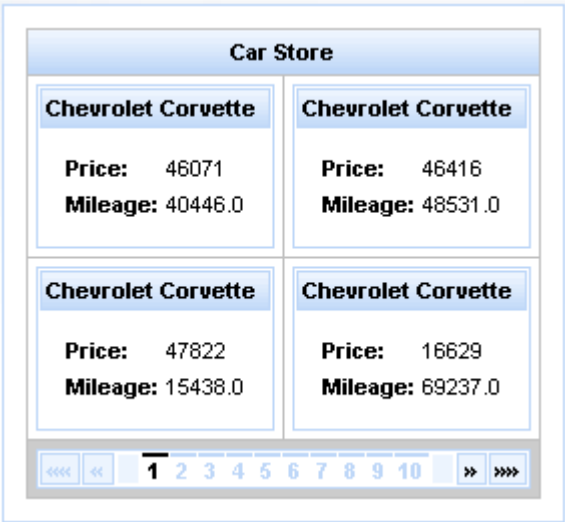


Figure 6.27. <rich:dataGrid> component

6.6.6.2. Key Features

- A completely skinned table and child elements
- Possibility to update a limited set of rows with Ajax
- Possibility to receive values dynamically from a model

6.6.6.3. Details of Usage

The component takes a list from a model and outputs it the same way as with **<h:panelGrid>** for inline data. To define grid properties and styles, use the same definitions as for **<h:panelGrid>.**

The component allows to:

- Use *"header"* and *"footer"* facets for output
- Limit number of output elements (*"elements"* attribute) and define first element for output (*"first"* attribute)
- Bind pages with **<rich:datascroller>** component

Here is an example:

Example:

```
...
<rich:panel style="width:150px;height:200px;">
      <h:form>
                <rich:dataGrid value="#{dataTableScrollerBean.allCars}" var="car" columns="2"
 elements="4" first="1">
              <f:facet name="header">
                   <h:outputText value="Car Store"></h:outputText>
                </f:facet>
                <rich:panel>
                   <f:facet name="header">
                        <h:outputText value="#{car.make} #{car.model}"></h:outputText>
                   </f:facet>
                   <h:panelGrid columns="2">
                        <h:outputText value="Price:" styleClass="label"></h:outputText>
                        <h:outputText value="#{car.price}"/>
                        <h:outputText value="Mileage:" styleClass="label"></h:outputText>
                        <h:outputText value="#{car.mileage}"/>
                   </h:panelGrid>
                </rich:panel>
```

```
                <f:facet name="footer">
                    <rich:datascroller></rich:datascroller>
                </f:facet>
            </rich:dataGrid>
        </h:form>
</rich:panel>
...
```

This is a result:

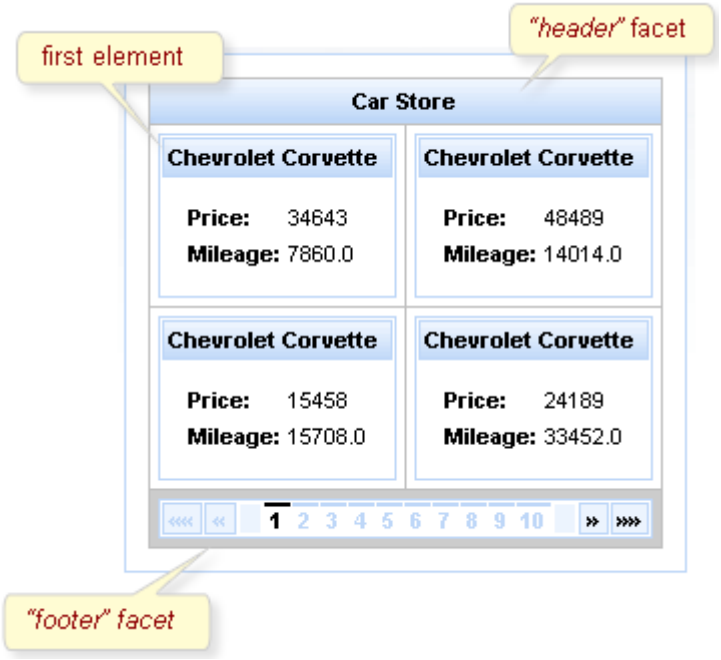


Figure 6.28. Component usage

The component was created basing on the **<a4j:repeat>** component and as a result it could be partially updated with Ajax. *"ajaxKeys"* attribute allows to define row keys that are updated after an Ajax request.

Here is an example:

Example:

```
...
<rich:dataGrid value="#{dataTableScrollerBean.allCars}" var="car" ajaxKeys="#{listBean.list}"
                binding="#{listBean.dataGrid}" id="grid" elements="4" columns="2">
    ...
</rich:dataGrid>
...
```

```
<a4j:commandButton action="#{listBean.action}" reRender="grid" value="Submit"/>
...
```

In the example *"reRender"* attribute contains value of *"id"* attribute for **<rich:dataGrid>** component. As a result the component is updated after an Ajax request.

6.6.6.4. Reference Data

Table of <rich:dataGrid> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dataGrid.html].

Table 6.38. Component Identification Parameters

Name	Value
component-type	org.richfaces.DataGrid
component-class	org.richfaces.component.html.HtmlDataGrid
component-family	org.richfaces.DataGrid
renderer-type	org.richfaces.DataGridRenderer
tag-class	org.richfaces.taglib.DataGridTag

Table 6.39. Facets

Facet name	Description
header	Defines the header content
footer	Defines the footer content
caption	Defines the caption content

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.6.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataGrid.jsf?c=dataGrid] you can see the example of **<rich:dataGrid>** usage and sources for the given example.

6.6.7. < rich:dataList > available since 3.0.0

6.6.7.1. Description

The component to render unordered lists that allows choosing data from a model and obtains built-in support of Ajax updates.

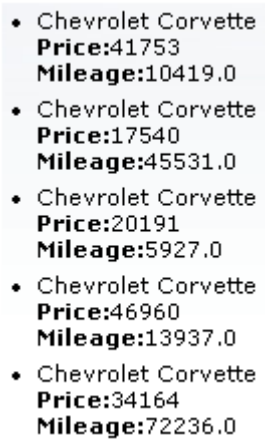


Figure 6.29. <rich:dataList> component

6.6.7.2. Key Features

- A completely skinned list and child elements
- Possibility to update a limited set of rows with Ajax
- Possibility to receive values dynamically from a model

6.6.7.3. Details of Usage

The **<rich:dataList>** component allows to generate a list from a model.

The component has the *"type"* attribute, which corresponds to the *"type"* parameter for the **<ul>** HTML element and defines a marker type. Possible values for *"type"* attribute are: "disc", "circle", "square".

Here is an example:

```
...
<h:form>
        <rich:dataList var="car" value="#{dataTableScrollerBean.allCars}" rows="5" type="disc"
 title="Car Store">
            <h:outputText value="#{car.make} #{car.model}"/><br/>
            <h:outputText value="Price:" styleClass="label"></h:outputText>
            <h:outputText value="#{car.price} "/><br/>
            <h:outputText value="Mileage:" styleClass="label"></h:outputText>
            <h:outputText value="#{car.mileage} "/><br/>
      </rich:dataList>
</h:form>
...
```

This is a result:

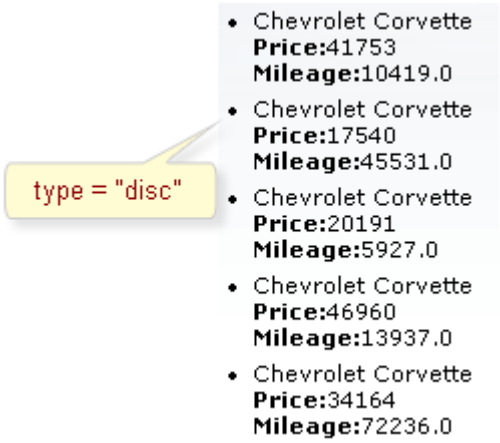


Figure 6.30. <rich:dataList> component with *"type"* attribute

In the example the *"rows"* attribute limits a number of output elements of the list.

The *"first"* attribute defines the first element for output. *"title"* is used for a popup title. See the picture below:

Figure 6.31. The <rich:dataList> component with *"title"* attribute

The **<rich:dataList>** component could be partially updated with Ajax. The *"ajaxKeys"* attribute points to an Object (java.util.Set) that contains row keys to be updated after an Ajax request. See an example of usage the attribute in the *Using the ajaxKeys attribute for <rich:dataList>* [http://www.jboss.org/community/wiki/UsingtheajaxKeysattributeforrichdataList] article in the RichFaces Cookbook.

6.6.7.4. Reference Data

Table of <rich:dataList> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dataList.html].

Table 6.40. Component Identification Parameters

Name	Value
component-type	org.richfaces.DataList
component-class	org.richfaces.component.html.HtmlDataList
component-family	org.richfaces.DataList
renderer-type	org.richfaces.DataListRenderer
tag-class	org.richfaces.taglib.DataListTag

Table 6.41. Classes names that define a list appearance

Class name	Description
rich-datalist	Defines styles for an html element
rich-list-item	Defines styles for an html element

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.7.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataLists.jsf?c=dataList] you can see the example of **<rich:dataList>** usage and sources for the given example.

6.6.8. < rich:dataOrderedList > available since 3.0.0

6.6.8.1. Description

The component to render ordered lists that allows choosing data from a model and obtains built-in support of Ajax updates.

1. Chevrolet Corvette
   Price:16080
   Mileage:55773.0
2. Chevrolet Corvette
   Price:49936
   Mileage:72356.0
3. Chevrolet Corvette
   Price:52167
   Mileage:30749.0
4. Chevrolet Corvette
   Price:21148
   Mileage:55447.0
5. Chevrolet Corvette
   Price:18098
   Mileage:16296.0

Figure 6.32. <rich:dataOderedList> component

6.6.8.2. Key Features

- A completely skinned list and child elements
- Possibility to update a limited set of rows with Ajax
- Possibility to receive values dynamically from a model

6.6.8.3. Details of Usage

The **<rich:dataOrderedList>** component allows to generate an ordered list from a model.

The component has the *"type"* attribute, which corresponds to the *"type"* parameter for the **<ol>** HTML element and defines a marker type. Possible values for *"type"* attribute are: "A", "a", "I", "i", "1".

Here is an example:

```
...
<h:form>
            <rich:dataOrderedList var="car" value="#{dataTableScrollerBean.allCars}" rows="5"
 type="1" title="Car Store">
             <h:outputText value="#{car.make} #{car.model}"/><br/>
             <h:outputText value="Price:" styleClass="label"></h:outputText>
             <h:outputText value="#{car.price}" /><br/>
             <h:outputText value="Mileage:" styleClass="label"></h:outputText>
             <h:outputText value="#{car.mileage}" /><br/>
       </rich:dataOrderedList>
</h:form>
...
```

This is a result:

1. Chevrolet Corvette
   Price:16080
   Mileage:55773.0
2. Chevrolet Corvette
   Price:49936
   Mileage:72356.0
3. Chevrolet Corvette
   Price:52167
   Mileage:30749.0
4. Chevrolet Corvette
   Price:21148
   Mileage:55447.0
5. Chevrolet Corvette
   Price:18098
   Mileage:16296.0

Figure 6.33. <rich:dataOrderedList> component with the *"type"* attribute

In the example the *"rows"* attribute limits a number of output elements of the list.

The *"first"* attribute defines the first element for output. *"title"* is used for a popup title.

The **<rich:dataOrderedList>** component could be partially updated with Ajax. The *"ajaxKeys"* attribute points to an Object (java.util.Set) that should contain row keys to be updated after an Ajax request. See an example of usage the *"ajaxKeys"* attribute for the **<rich:dataList>** component in the *RichFacs Cookbook article* [http://www.jboss.org/community/wiki/UsingtheajaxKeysattributeforrichdataList].

6.6.8.4. Reference Data

Table of <rich:dataOrderedList> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dataOrderedList.html].

Table 6.42. Component Identification Parameters

Name	Value
component-type	org.richfaces.DataOrderedList
component-class	org.richfaces.component.html.HtmlDataOrderedList
component-family	org.richfaces.DataOrderedList
renderer-type	org.richfaces.DataOrderedListRenderer
tag-class	org.richfaces.taglib.DataOrderedListTag

Table 6.43. Classes names that define a list appearance

Class name	Description
rich-orderedlist	Defines styles for an html element
rich-list-item	Defines styles for an html element

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.8.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataLists.jsf?c=dataOrderedList] you can see the example of **<rich:dataOrderedList >** usage and sources for the given example.

6.6.9. < rich:datascroller > available since 3.0.0

6.6.9.1. Description

The component designed for providing the functionality of tables scrolling using Ajax requests.

Figure 6.34. <rich:datascroller> component

6.6.9.2. Key Features

- Provides table scrolling functionality
- Built-in Ajax processing
- Provides fast controls
- Skin support

6.6.9.3. Details of Usage

The **<rich:datascroller>** component provides table scrolling functionalitity the same as TOMAHAWK scroller but with Ajax requests usage.

The **<rich:datascroller>** component should be reRendered also with **<rich:dataTable>** when you changing filter in order to be updated according to the **<rich:dataTable>** current model.

The component should be placed into footer of the parent table or be bound to it with the *"for"* attribute. Note, that *"for"* is evaluated on view build, not on view render, that is why it will ignore JSTL tags.

The table should also have the defined *"rows"* attribute limiting the quantity of inputted table rows.

The scroller could limit the maximum quantity of rendered links on the table pages with the help of the *"maxPages"* attribute.

Component provides two controllers groups for switching:

- Page numbers for switching onto a particular page
- The controls of fast switching: *"first", "last", "next", "previous", "fastforward", "fastrewind"*

The controls of fast switching are created adding the facets component with the corresponding name:

Example:

```
...
<rich:datascroller for="table" maxPages="10">
        <f:facet name="first">
                <h:outputText value="First"/>
        </f:facet>
        <f:facet name="last">
                <h:outputText value="Last"/>
        </f:facet>
</rich:datascroller>
...
```

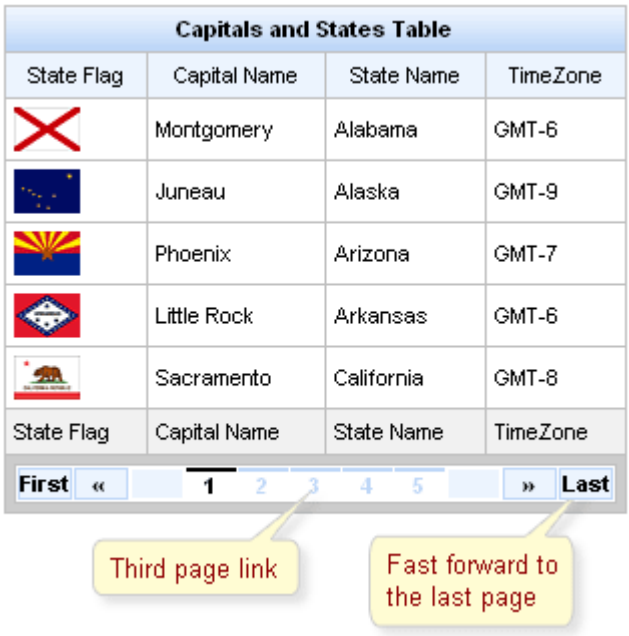


Figure 6.35. <rich:datascroller> controls of fast switching

The screenshot shows one controller from each group.

There are also facets used to create the disabled states: `"first_disabled"`, `"last_disabled"`, `"next_disabled"`, `"previous_disabled"`, `"fastforward_disabled"`, `"fastrewind_disabled"`.

For the "fastforward"/"fastrewind" controls customization the additional *"fastStep"* attribute is used. The attribute indicates pages quantity to switch onto when fast scrolling is used.

The *"page"* is a value-binding attribute used to define and save current page number. The example is placed below.

Example:

```
...
<h:form id="myForm">
            <rich:dataTable id="carList" rows="7" value="#{dataTableScrollerBean.allCars}"
 var="category">
      <f:facet name="header">
         <rich:columnGroup>
            <h:column>
               <h:outputText value="Make" />
            </h:column>
            <h:column>
               <h:outputText value="Model" />
            </h:column>
            <h:column>
               <h:outputText value="Price" />
            </h:column>
         </rich:columnGroup>
      </f:facet>
      <h:column>
         <h:outputText value="#{category.make}" />
      </h:column>
      <h:column>
         <h:outputText value="#{category.model}" />
      </h:column>
      <h:column>
         <h:outputText value="#{category.price}" />
      </h:column>
   </rich:dataTable>
               <rich:datascroller id="sc2" for="carList" reRender="sc1" maxPages="7"
 page="#{dataTableScrollerBean.scrollerPage}" />
   <h:panelGrid>
      <h:panelGroup>
         <h:outputText value="Set current page number:" />
         <h:inputText value="#{dataTableScrollerBean.scrollerPage}" id="sc1" size="1"/>
         <h:commandButton value="Set" />
      </h:panelGroup>
   </h:panelGrid>
</h:form>
```

```
...
```

In the example above you can enter the page number you want and set it by clicking on the **<h:commandButton>** . By the way, if you use **<rich:datascroller>** page links the input field rerenders and current page number changes.

The result should be like below:

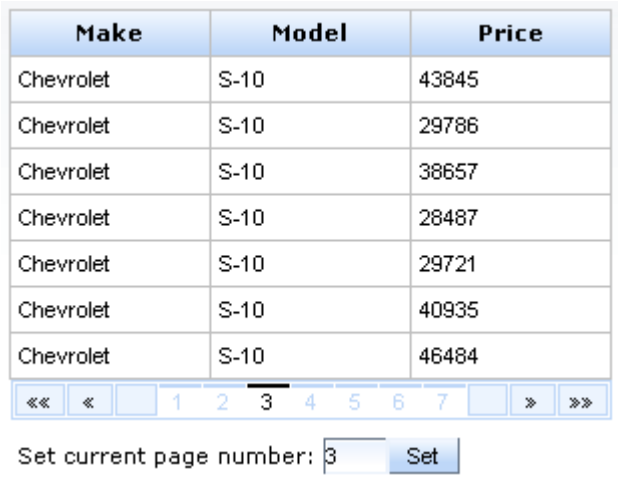


Figure 6.36. The *"page"* attribute usage

The *"pageIndexVar"* and *"pagesVar"* attributes define a request scope variables and provide an ability to show the current page and the number of pages in the **<rich:datascroller>** .

These attributes are used for definition the names of variables, that is used in the facet with name *"pages"* . An example can be found below:

Example:

```
...
<h:form>
   <rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5">
      <rich:column>
         <h:outputText value="#{cap.name}" />
      </rich:column>
      <f:facet name="footer">
         <rich:datascroller pageIndexVar="pageIndex" pagesVar="pages">
            <f:facet name="pages">
               <h:outputText value="#{pageIndex} / #{pages}" />
            </f:facet>
         </rich:datascroller>
      </f:facet>
```

```
    </rich:dataTable>
</h:form>
...
```

It's possible to insert optional separators between controls. For this purpose use a *"controlsSeparator"* facet. An example is placed below.

```
 ...
<f:facet name="controlsSeparator">
        <h:graphicImage value="/image/sep.png"/>
</f:facet>
...
```

Starting from 3.2.1 of RichFaces multiple **<rich:datascroller>** instances behavior and page bindings are corrected. Incorrect page after model changes handling is added. Phase Listener called before RenderResponce scans the page for the **<rich:datascroller>** and performs the following operations:

- Checks if the **<rich:datascroller>** is rendered. (If the checking generates an exception, the **<rich:datascroller>** is considered to be not rendered)
- If the **<rich:datascroller>** is rendered - the table to which the **<rich:datascroller>** is attached gets the value of the page attribute of **<rich:datascroller>** .

Information about the *"process"* attribute usage you can find in the *" Decide what to process "* guide section.

Note:

Make sure, that all **<rich:datascroller>** components, defined for a table, have same values for all *"page"* attributes. The page, specified in the last *"page"* , will be rendered in browser.

6.6.9.4. Reference Data

Table of <rich:datascroller> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/datascroller.html].

Table 6.44. Component Identification Parameters

Name	Value
component-type	org.richfaces.Datascroller

Name	Value
component-class	org.richfaces.component.html.HtmlDatascroller
component-family	org.richfaces.Datascroller
renderer-type	org.richfaces.DataScrollerRenderer
tag-class	org.richfaces.taglib.DatascrollerTag

Table 6.45. JavaScript API

Function	Description
switchToPage(page)	Switches to the defined page, "page" is Number or String
next()	Navigates to the next page
previous()	Navigates to the previous page
first()	Navigates to the first page
last()	Navigates to the last page
fastForward()	Navigates ahead over a certain number of pages. The number of pages to traverse is defined with fastStep attribute
fastRewind()	Navigates backwards over a certain number of pages. The number of pages to traverse is defined with fastStep attribute

Table 6.46. Facets

Facet	Description
controlsSeparator	Redefines optional separators between controls
first	Redefines the "first" button with the content set
first_disabled	Redefines the disabled "first" button with the content set
last	Redefines the "last" button with the content set
last_disabled	Redefines the disabled "last" button with the content set
fastrewind	Redefines the "fastrewind" button with the content set
fastrewind_disabled	Redefines the disabled "fastrewind" button with the content set
fastforward	Redefines the "fastforward" button with the content set
fastforward_disabled	

Facet	Description
	Redefines the disabled "fastforward" button with the content set
previous	Redefines the "previous" button with the content set
previous_disabled	Redefines the disabled "previous" button with the content set
next	Redefines the "next" button with the content set
next_disabled	Redefines the disabled "next" button with the content set
pages	Redefines the pages buttons with the content set

Table 6.47. Classes names that define a component appearance

Class name	Description
rich-datascr	Defines styles for a wrapper element of a datascroller
rich-dtascroller-table	Defines styles for a wrapper <table> element of a datascroller
rich-datascr-button	Defines styles for a button
rich-datascr-ctrls-separator	Defines styles for a separator between buttons

Table 6.48. Classes names that define a buttons appearance

Class name	Description
rich-datascr-act	Defines styles for an active button
rich-datascr-inact	Defines styles for an inactive button
rich-datascr-button-dsbld	Defines styles for a disabled button

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.9.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataTableScroller.jsf?c=dataTableScroller] you can see the example of **<rich:datascroller>** usage and sources for the given example.

The solution about how to do correct pagination using datascroller (load a part of data from database) can be found on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4060199#4060199].

How to use **<rich:dataTable>** and **<rich:datascroller>** in a context of Extended Data Model see on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&t=115636].

6.6.10. < rich:dataTable > available since 3.0.0

6.6.10.1. Description

The component is meant for rendering tables. It allows choosing data from a model and obtains built-in support of Ajax updates.

United States Capitals

Capitals and States Table			
State Flag	Capital Name	State Name	TimeZone
	Montgomery	Alabama	GMT-6
	Juneau	Alaska	GMT-9
	Phoenix	Arizona	GMT-7
	Little Rock	Arkansas	GMT-6
	Sacramento	California	GMT-8
State Flag	Capital Name	State Name	TimeZone
Capitals and States Table			

Figure 6.37. <rich:dataTable> component

6.6.10.2. Key Features

- A completely skinned table and child elements
- Possibility to insert the complex subcomponents "colGroup" and "subTable"
- Possibility to update a limited set of strings with Ajax
- *Sorting* and *filtering* functionalities for a table columns

6.6.10.3. Details of Usage

The **<rich:dataTable>** component is similar to the **<h:dataTable>** one, except Ajax support and skinnability. Ajax support is possible, because the component was created basing on the **<a4j:repeat>** component and as a result it could be partially updated with Ajax. The *"ajaxKeys"* attribute allows to define row keys which are updated after an Ajax request. You

can find an example which demonstrate the usage of the *"ajaxKeys"* attributes for data iteration components in the *RichFaces Cookbook article* [http://www.jboss.org/community/wiki/UsingtheajaxKeysattributeforrichdataList].

The component allows to use *"header"*, *"footer"* and *"caption"* facets for output. See an example below:

Example:

```
...
<rich:dataTable value="#{capitalsBean.capitals}" var="cap" rows="5">
    <f:facet name="caption">
        <h:outputText value="United States Capitals" />
    </f:facet>
    <f:facet name="header">
        <h:outputText value="Capitals and States Table" />
    </f:facet>
    <rich:column>
        <f:facet name="header">State Flag</f:facet>
            <h:graphicImage value="#{cap.stateFlag}"/>
        <f:facet name="footer">State Flag</f:facet>
    </rich:column>
    <rich:column>
        <f:facet name="header">State Name</f:facet>
            <h:outputText value="#{cap.state}"/>
        <f:facet name="footer">State Name</f:facet>
    </rich:column>
    <rich:column >
        <f:facet name="header">State Capital</f:facet>
            <h:outputText value="#{cap.name}"/>
        <f:facet name="footer">State Capital</f:facet>
    </rich:column>
    <rich:column>
        <f:facet name="header">Time Zone</f:facet>
          <h:outputText value="#{cap.timeZone}"/>
        <f:facet name="footer">Time Zone</f:facet>
    </rich:column>
    <f:facet name="footer">
        <h:outputText value="Capitals and States Table" />
    </f:facet>
</rich:dataTable>
...
```

This is a result:

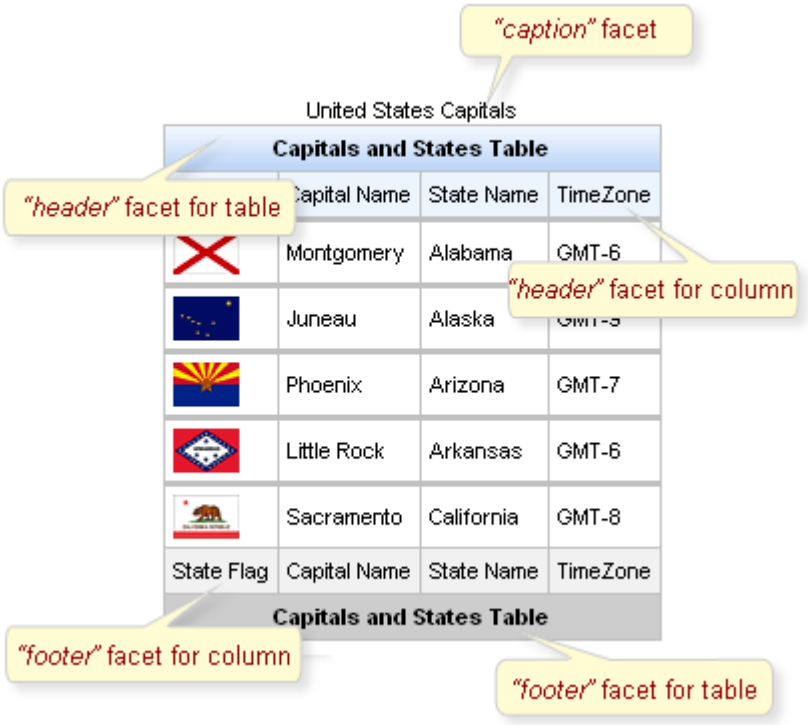


Figure 6.38. <rich:dataTable> component with facets

Information about sorting and filtering you can find *in the corresponding section*.

You can find information how to remove header's gradient *in the "How to remove rich:dataTable header background " article* [http://wiki.jboss.org/wiki/RichFacesDataTableBackgroundOut].

6.6.10.4. Reference Data

Table of <rich:dataTable> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dataTable.html].

Table 6.49. Component Identification Parameters

Name	Value
component-type	org.richfaces.DataTable
component-class	org.richfaces.component.html.HtmlDataTable
component-family	org.richfaces.DataTable
renderer-type	org.richfaces.DataTableRenderer
tag-class	org.richfaces.taglib.DataTableTag

Table 6.50. Facets

Facet	Description
header	Redefines the header content

Facet	Description
footer	Redefines the footer content
caption	Defines the caption content

Table 6.51. Classes names that define a whole component appearance

Class name	Description
rich-table	Defines styles for all table
rich-table-caption	Defines styles for a "caption" facet element

Table 6.52. Classes names that define header and footer elements

Class name	Description
rich-table-header	Defines styles for a table header row
rich-table-header-continue	Defines styles for all header lines after the first
rich-table-subheader	Defines styles for a column header
rich-table-footer	Defines styles for a footer row
rich-table-footer-continue	Defines styles for all footer lines after the first
rich-table-subfooter	Defines styles for a column footer

Table 6.53. Classes names that define rows and cells of a table

Class name	Description
rich-table-headercell	Defines styles for a header cell
rich-table-subheadercell	Defines styles for a column header cell
rich-table-cell	Defines styles for a table cell
rich-table-row	Defines styles for a table row
rich-table-firstrow	Defines styles for a table's first row
rich-table-footercell	Defines styles for a footer cell
rich-table-subfootercell	Defines styles for a column footer cell

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.10.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dataTable.jsf?c=dataTable] you can see the example of **<rich:dataTable>** usage and sources for the given example.

The article about **<rich:dataTable>** flexibility can be found in the *"rich:dataTable Flexibility " article* [http://www.jboss.org/community/docs/DOC-11847].

Article on dataTable skinability [http://www.jboss.org/community/docs/DOC-11848] provides you a simple example of skinnability.

More information about using **<rich:dataTable>** and **<rich:subTable>** could be found on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4059044#4059044].

How to use **<rich:dataTable>** and **<rich:datascroller>** in a context of Extended Data Model see on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&t=115636].

From *"rich:dataTable border to 0px "* [http://www.jboss.org/community/docs/DOC-11861] article you'll figure out how to set rich:dataTable border to 0px

dataTable Background Out [http://www.jboss.org/community/docs/DOC-11860] tells you how to remove rich:dataTable header background

6.6.11. < rich:subTable > available since 3.0.0

6.6.11.1. Description

The component is used for inserting subtables into tables with opportunity to choose data from a model and built-in Ajax updates support.

Figure 6.39. <rich:subTable> element

6.6.11.2. Key Features

- Completely skinned table rows and child elements
- Possibility to insert complex columnGroup subcomponents
- Possibility to combine rows and columns inside

- Possibility to update a limited set of rows with Ajax

6.6.11.3. Details of Usage

The **<rich:subTable>** component is similar to the **<h:dataTable>** one, except Ajax support and skinnability. One more difference is that the component doesn't add the wrapping **<table>** and **<tbody>** tags. Ajax support is possible, because the component was created basing on the **<a4j:repeat>** component and as a result it could be partially updated with Ajax. The *"ajaxKeys"* attribute allows to define row keys which are updated after an Ajax request. You can find an example which demonstrate the usage of the *"ajaxKeys"* attributes for data iteration components in the *RichFaces Cookbook article* [http://www.jboss.org/community/wiki/UsingtheajaxKeysattributeforrichdataList].

The component allows to use *"header"* and *"footer"* facets for output. See an example for **<rich:dataTable>** *component [186]*.

6.6.11.4. Reference Data

Table of <rich:subTable> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/subTable.html].

Table 6.54. Component Identification Parameters

Name	Value
component-type	org.richfaces.SubTable
component-class	org.richfaces.component.html.HtmlSubTable
component-family	org.richfaces.SubTable
renderer-type	org.richfaces.SubTableRenderer
tag-class	org.richfaces.taglib.SubTableTag

Table 6.55. Facets

Facet name	Description
header	Defines the header content
footer	Defines the footer content

Table 6.56. Classes names that define a component appearance

Class name	Description
rich-subtable	Defines styles for all subtable
rich-subtable-caption	Defines styles for a "caption" facet element

Table 6.57. Classes names that define header and footer elements

Class name	Description
rich-subtable-header	Defines styles for a subtable header row
rich-subtable-header-continue	Defines styles for all subtable header lines after the first
rich-subtable-subheader	Defines styles for a column header of subtable
rich-subtable-subfooter	Defines styles for a column footer of subtable
rich-subtable-footer	Defines styles for a subtable footer row
rich-subtable-footer-continue	Defines styles for all subtable footer lines after the first

Table 6.58. Classes names that define rows and cells

Class name	Description
rich-subtable-headercell	Defines styles for a subtable header cell
rich-subtable-subheadercell	Defines styles for a column header cell of subtable
rich-subtable-cell	Defines styles for a subtable cell
rich-subtable-row	Defines styles for a subtable row
rich-subtable-firstrow	Defines styles for a subtable start row
rich-subtable-subfootercell	Defines styles for a column footer cell of subtable
rich-subtable-footercell	Defines styles for a subtable footer cell

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.12. < rich:extendedDataTable > available since 3.2.2

6.6.12.1. Description

The component for tables extending standard component **<rich:dataTable>** .

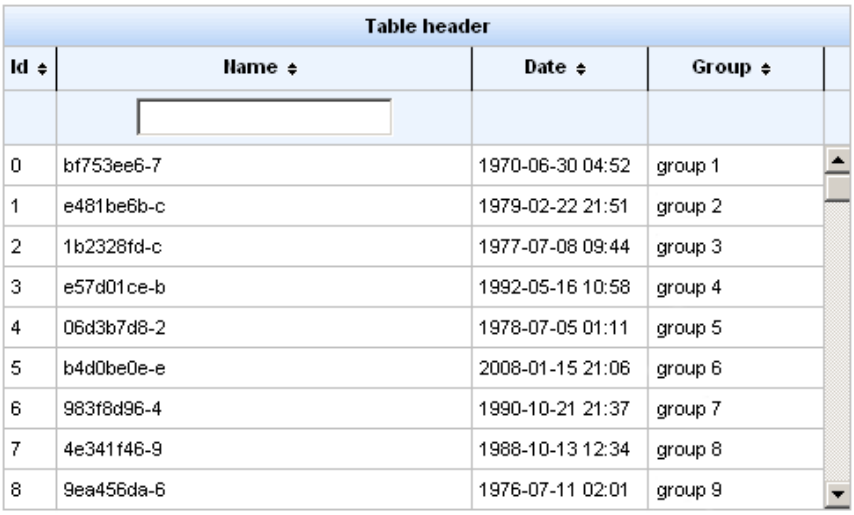


Table header			
Id	Name	Date	Group
0	bf753ee6-7	1970-06-30 04:52	group 1
1	e481be6b-c	1979-02-22 21:51	group 2
2	1b2328fd-c	1977-07-08 09:44	group 3
3	e57d01ce-b	1992-05-16 10:58	group 4
4	06d3b7d8-2	1978-07-05 01:11	group 5
5	b4d0be0e-e	2008-01-15 21:06	group 6
6	983f8d96-4	1990-10-21 21:37	group 7
7	4e341f46-9	1988-10-13 12:34	group 8
8	9ea456da-6	1976-07-11 02:01	group 9

Figure 6.40. <rich:extendedDataTable> component

6.6.12.2. Key Features

- Possibility to scroll data
- Possibility to add an attribute to set the kind of selection (none, single line or multiple lines)
- Possibility to change the sequence of the displayed columns by dragging the column-header to another position
- Possibility to show or hide columns by selecting or deselecting them in a context menu
- Possibility to save the current settings (visible columns, column width, sequence of the columns) to be reused the next time the page will be shown
- Possibility to combine rows to groups

6.6.12.3. Details of Usage

The **<rich:extendedDataTable>** component is similar to the **<rich:dataTable>** . The data in component is scrollable. You can also set the type of selection (*"none"*, *"single"* or *"multi"* lines). Selection of multiple lines is possible using Shift and Ctrl keys.

Here is an example:

Example:

```
...
<rich:extendedDataTable id="edt" value="#{extendedDT.dataModel}" var="edt"
  width="500px" height="500px" selectedClass="dataTableSelectedRow" sortMode="single"
        selectionMode="multi" selection="#{extendedDT.selection}" rowKeyVar="rkvar"
 tableState="#{extendedDT.tableState}">
```

```
                    <rich:column id="id" headerClass="dataTableHeader" width="50"
    label="Id" sortable="true" sortBy="#{edt.id}" sortIconAscending="dataTableAscIcon"
sortIconDescending="dataTableDescIcon">
            <f:facet name="header">
                <h:outputText value="Id" />
            </f:facet>
            <h:outputText value="#{edt.id}" />
        </rich:column>
                    <rich:column id="name" width="300" headerClass="dataTableHeader"
label="Name" sortable="true" sortBy="#{edt.name}" sortIconAscending="dataTableAscIcon"
    sortIconDescending="dataTableDescIcon" filterBy="#{edt.name}" filterEvent="onkeyup"
visible="false">
            <f:facet name="header">
                <h:outputText value="Name" />
            </f:facet>
            <h:outputText value="#{edt.name}" />
        </rich:column>
                    <rich:column id="date" width="100" headerClass="dataTableHeader"
            label="Date" sortable="true" comparator="#{extendedDT.dateComparator}"
sortIconAscending="dataTableAscIcon" sortIconDescending="dataTableDescIcon">
            <f:facet name="header">
                <h:outputText value="Date" />
            </f:facet>
          <h:outputText value="#{edt.date}"><f:convertDateTime pattern="yyyy-MM-dd HH:mm:ss"
/>
            </h:outputText>
        </rich:column>
                    <rich:column id="group" width="50" headerClass="dataTableHeader"
label="Group" sortable="true" sortBy="#{edt.group}" sortIconAscending="dataTableAscIcon"
sortIconDescending="dataTableDescIcon">
            <f:facet name="header">
                <h:outputText value="Group" />
            </f:facet>
            <h:outputText value="#{edt.group}" />
        </rich:column>
</rich:extendedDataTable>
...
```

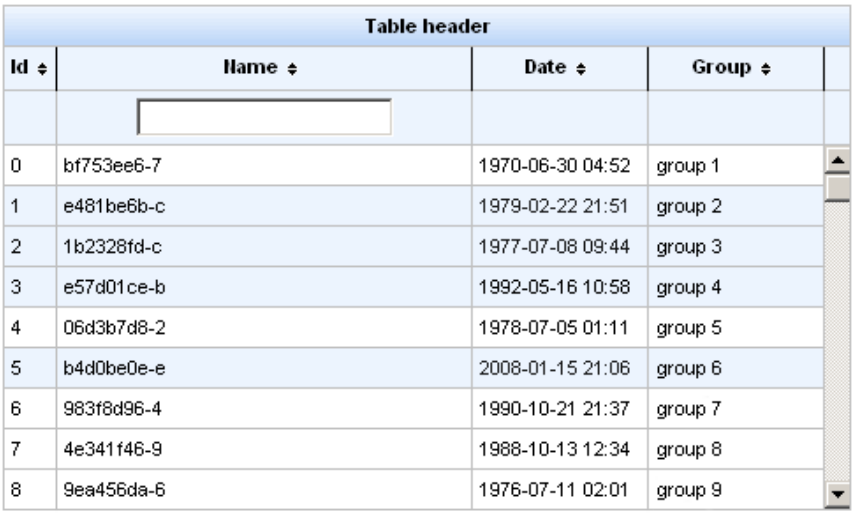


Table header			
Id	Name	Date	Group
0	bf753ee6-7	1970-06-30 04:52	group 1
1	e481be6b-c	1979-02-22 21:51	group 2
2	1b2328fd-c	1977-07-08 09:44	group 3
3	e57d01ce-b	1992-05-16 10:58	group 4
4	06d3b7d8-2	1978-07-05 01:11	group 5
5	b4d0be0e-e	2008-01-15 21:06	group 6
6	983f8d96-4	1990-10-21 21:37	group 7
7	4e341f46-9	1988-10-13 12:34	group 8
8	9ea456da-6	1976-07-11 02:01	group 9

Figure 6.41. <rich:extendedDataTable> component with selected multiple lines

Information about sorting and filtering can be found in *RichFaces Developer Guide section on sorting*.

For external filtering **<rich:extendedDataTable>** component supports *"filter"* facet for **<rich:column>** component. In this facet you can define your own controls for filtering which will be positioned like built-in filter controls. Rest of the filter scenario is the same as described *RichFaces Developer Guide section on filtering*.

In the example *"selection"* attribute contains object with selected rows.

Note:

Attribute *"height"* is mandatory. The default value is *"500px"* .

Menu on the right side of the column header is used to perform action: sorting, grouping, hiding columns.

This is an example:

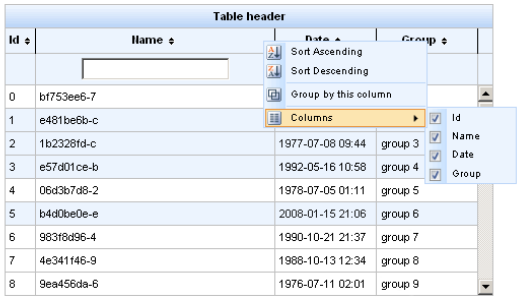


Figure 6.42. Column menu

After selecting a "Group by this column" option, you can see the data grouped. You can collapse and expand groups by clicking on a group header.

This is an example:

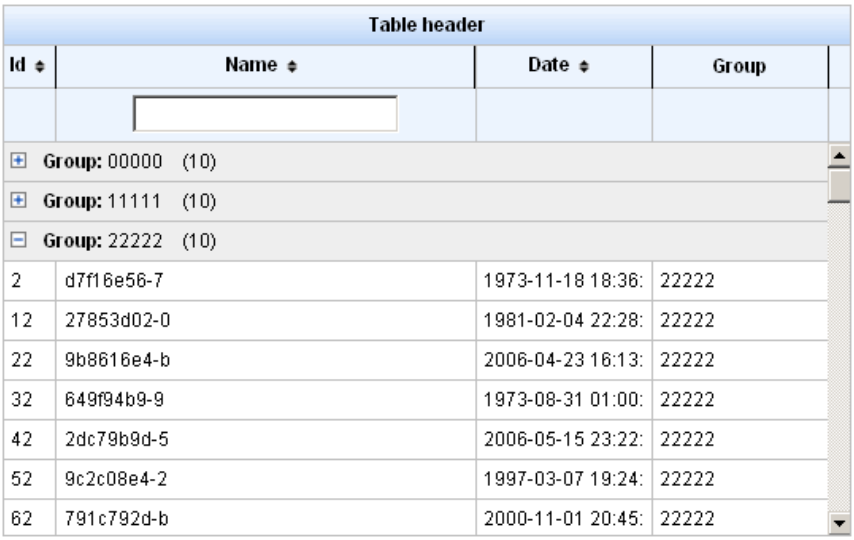


Figure 6.43. <rich:extendedDataTable> component with grouped data

The *"label"* attribute in **<rich:column>** sets the name of the column, which is used when dragging columns (in drag window) and in context menu, in "Columns" submenu.

Example:

```
...
<rich:column id="name" label="#{msg['name']}"
...
```

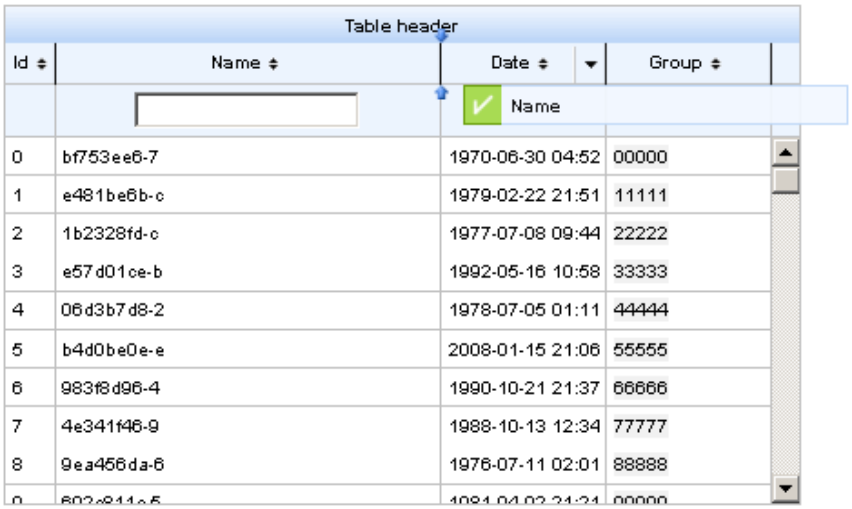


Figure 6.44. <rich:extendedDataTable> component with Drag&Drop column 'Name'

In the component **<rich:extendedDataTable>** columns can hidden:

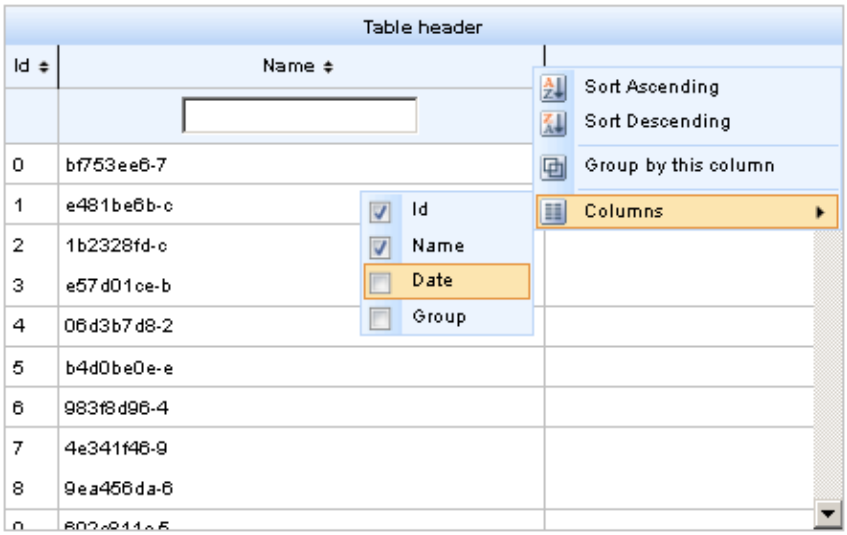


Figure 6.45. <rich:extendedDataTable> component with hidden column 'Id' and 'Group'

"tableState" attribute can be used to bind state of the table (column width, column position, visible, sequence, grouping...) to a backing-bean string property, for a later used. This state can be for example saved to a database, and it is different form standard JSF state saving mechanisms.

Example:

```
...
```

```
<rich:extendedDataTable tableState="#{extendedDT.tableState}">
...
```

6.6.12.4. Reference Data

Table of <rich:extendedDataTable> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/extendedDataTable.html].

Table 6.59. Component Identification Parameters

Name	Value
component-type	org.richfaces.ExtendedDataTable
component-class	org.richfaces.component.html.HtmlExtendedDataTable
component-family	org.richfaces.ExtendedDataTable
renderer-type	org.richfaces.ExtendedDataTableRenderer
tag-class	org.richfaces.taglib.ExtendedDataTableTag

Table 6.60. Facets

Facet	Description
header	Redefines the header content
footer	Redefines the footer content
caption	Redefines the caption content

Table 6.61. Classes names that define a whole component appearance

Class name	Description
rich-extdt	Defines styles for all table
rich-extdt-caption	Defines styles for a "caption" facet element

Table 6.62. Classes names that define header and footer elements

Class name	Description
rich-extdt-header	Defines styles for a table header row
rich-extdt-header-continue	Defines styles for all header lines after the first
rich-extdt-subheader	Defines styles for a column header
rich-extdt-footer	Defines styles for a footer row
rich-extdt-footer-continue	Defines styles for all footer lines after the first
rich-extdt-subfooter	Defines styles for a column footer

Table 6.63. Classes names that define rows and cells of a table

Class name	Description
rich-extdt-headercell	Defines styles for a header cell
rich-extdt-subheadercell	Defines styles for a column header cell
rich-extdt-cell	Defines styles for a table cell
rich-extdt-row	Defines styles for a table row
rich-extdt-firstrow	Defines styles for a table start row
rich-extdt-footercell	Defines styles for a footer cell
rich-extdt-subfootercell	Defines styles for a column footer cell
rich-extdt-group-cell	Defines styles for a grouping row cell

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.12.5. Relevant Resources Links

Some additional information about usage of component can be found *on its LiveDemo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/extendedDataTable.jsf?c=extendedDataTable].

6.6.13. < a4j:repeat > available since 3.0.0

6.6.13.1. Description

The **<a4j:repeat>** component implements a basic iteration component that allows to update a set of its children with Ajax.

6.6.13.2. Details of Usage

The **<a4j:repeat>** component is similar to Facelets **<ui:repeat>** tag, which is used to iterate through a collection of objects binded with JSF page as EL expression. The main difference of the **<a4j:repeat>** is a possibility to update particular components (it's children) instead of all using Ajax requests. The feature that makes the component different is a special *"ajaxKeys"* attribute that defines row that are updated after an Ajax request. As a result it becomes easier to update several child components separately without updating the whole page.

```
...
<table>
    <tbody>
                                        <a4j:repeat    value="#{repeatBean.items}"    var="item"
 ajaxKeys="#{updateBean.updatedRow}">
            <tr>
                <td><h:outputText value="#{item.code}" id="item1" /></td>
```

```
                <td><h:outputText value="#{item.price}" id="item2" /></td>
            </tr>
        </a4j:repeat>
    </tbody>
</table>
 ...
```

The example above the **<a4j:repeat>** points to an method that contains row keys to be updated.

Note:

The **<a4j:repeat>** component is defined as fully updated, but really updated there are only the row keys which defined in the *"ajaxKeys"* attribute.

One more benefit of this component is absence of strictly defined markup as JSF HTML DataTable and TOMAHAWK DataTable has. Hence the components could be used more flexibly anywhere where it's necessary to output the results of selection from some collection.

The next example shows collection output as a plain HTML list:

```
<ul>
    <a4j:repeat ...>
      <li>...<li/>
            ...
      <li>...<li/>
    </a4j:repeat>
</ul>
```

All other general attributes are defined according to the similar attributes of iterative components (**<h:dataTable>** or **<ui:repeat>**) and are used in the same way.

6.6.13.3. Reference Data

Table of <a4j:repeat> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/a4j/repeat.html].

Table 6.64. Component Identification Parameters

Name	Value
component-type	org.ajax4jsf.Repeat
component-family	javax.faces.Data
component-class	org.ajax4jsf.component.html.HtmlAjaxRepeat

Name	Value
renderer-type	org.ajax4jsf.components.RepeatRenderer

6.6.13.4. Relevant Resources Links

Visit the *Repeat page* [http://livedemo.exadel.com/richfaces-demo/richfaces/repeat.jsf?c=repeat] at RichFaces LiveDemo for examples of component usage and their sources.

6.6.14. < rich:scrollableDataTable > available since 3.1.0

6.6.14.1. Description

The **<rich:scrollableDataTable>** component is used for the table-like component creation. The component just adds the set of additional features described below in comparison with the standard table.

Figure 6.46. <rich:scrollableDataTable> component

6.6.14.2. Key Features

- Highly customizable look and feel
- Variable content of the table cells

- Dynamically fetching the rows from the server when the table is scrolled up and down
- Resizing columns by mouse dragging the column bar
- Sorting column by clicking the header
- Fixed one or more left columns when table is scrolled horizontally
- One and multi-selection rows mode
- Built-it drag-n-drop support
- *Sorting column values*

6.6.14.3. Details of Usage

The component represents on a page as a scrollable table with some fixed (non-scrollable) rows (with header and footer) and columns. Like other tables **<rich:scrollableDataTable>** also has optional footer and header that could be implemented using the corresponding facets. Columns of the table are optionally resizable. Resizing is available using "drag and drop" of the column vertical borders. You can define the number of the fixed columns from the left side using attribute *"frozenColCount"* that is not scrolled via horizontal scroll.

There is possibility to increase component performance using attribute *"hideWhenScrolling"* . If attribute value is "true" data is hidden during scrolling.

It's possible to select the whole row with onclick on the row or some set of rows. Selection is optional and availability of such feature is defined on the component. There are two ways to select a few rows:

- Just clicking the columns one by one.
- Clicking some row with the SHIFT button hold. In this case all the rows starting from last selected up to clicked should be selected.

It's possible to sort the table content after clicks on the header. The feature is optional (to disable it, use attribute sortable on rich:column). Every column should be pointed to the comparator method that is used for sorting the table. In case the **<rich:scrollableDataTable>** is already sorted by some column and the header of this column has been clicked again - the sorting is reversed.

After sorting selection that was made before is reset

The typical variant of using:

```
...
<rich:scrollableDataTable value="#{modelBuilder.model}" var="issues"
        frozenColCount="1"
        first="0"
        rows="40"
```

```
        width="300px"
        height="396px">
    <rich:column width="100px">
        <f:facet name="header" >
            <h:outputText value="State"/>
        </f:facet>
        <h:outputText value="#{issues.cell1}"/>
        <f:facet name="footer">
            <h:outputText value="State"/>
        </f:facet>
    </rich:column>
    <!--Set of columns and header/footer facets-->
</rich:scrollableDataTable>
...
```

The *"selection"* attribute allows to get the row data when using one and multi-selection rows mode.

This attribute is a reference to object to the instance of `org.richfaces.model.selection.Selection` [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/model/selection/Selection.html]. interface interface, containing current collection of objects selected by you.

In the following example when you submit the form, current collection of the selected objects is placed in the object's property. Then on complete action the **<rich:modalPanel>** with selected data is shown.

Example:

```
...
<h:form>
      <rich:spacer height="30" />
            <rich:scrollableDataTable rowKeyVar="rkv" frozenColCount="1" height="200px"
                  width="300px" id="carList" rows="40" columnClasses="col"
                  value="#{dataTableScrollerBean.allCars}" var="category" sortMode="single"
                  selection="#{dataTableScrollerBean.selection}">
                  <rich:column id="make">
                    <f:facet name="header"><h:outputText styleClass="headerText" value="Make"
 /></f:facet>
                        <h:outputText value="#{category.make}" />
                  </rich:column>
                  <rich:column id="model">
                   <f:facet name="header"><h:outputText styleClass="headerText" value="Model"
 /></f:facet>
```

```
                        <h:outputText value="#{category.model}" />
                    </rich:column>
                    <rich:column id="price">
                      <f:facet name="header"><h:outputText styleClass="headerText" value="Price"
 /></f:facet>
                        <h:outputText value="#{category.price}" />
                    </rich:column>
            </rich:scrollableDataTable>
            <rich:spacer height="20px"/>
            <a4j:commandButton value="Show Current Selection" reRender="table"
                action="#{dataTableScrollerBean.takeSelection}"
                oncomplete="javascript:Richfaces.showModalPanel('panel');"/>
</h:form>
<rich:modalPanel id="panel" autosized="true">
      <f:facet name="header">
            <h:outputText value="Selected Rows"/>
      </f:facet>
      <f:facet name="controls">
        <span style="cursor:pointer" onclick="javascript:Richfaces.hideModalPanel('panel')">X</
span>
      </f:facet>
      <rich:dataTable value="#{dataTableScrollerBean.selectedCars}" var="sel" id="table">
            <rich:column>
                <f:facet name="header"><h:outputText value="Make" /></f:facet>
                <h:outputText value="#{sel.make}" />
            </rich:column>
            <rich:column id="model">
                <f:facet name="header"><h:outputText value="Model" /></f:facet>
            <h:outputText value="#{sel.model}" />
            </rich:column>
            <rich:column id="price">
                <f:facet name="header"><h:outputText value="Price" /></f:facet>
                <h:outputText value="#{sel.price}" />
            </rich:column>
      </rich:dataTable>
</rich:modalPanel>
...
```

This is a result:

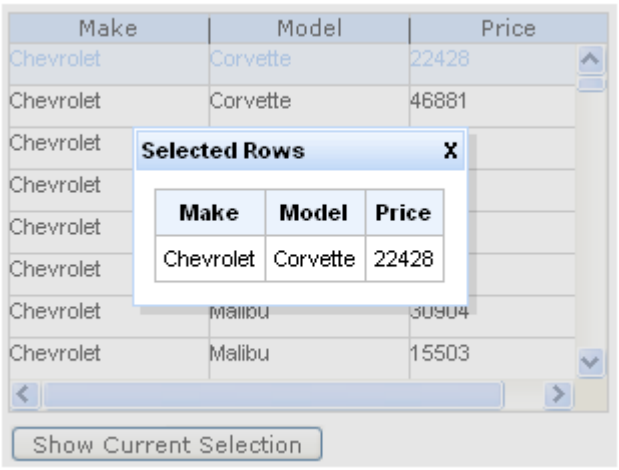


Figure 6.47. The *"selection"* attribute usage

On RichFaces LiveDemo page [http://wiki.jboss.org/wiki/RichFacesCookbook/ScrollableDataTableSelectionUsage] you can find fuller example of use of this attribute with example bean.

The **<rich:scrollableDataTable>** component has the following extra attributes for event processing on the client:

- *"onselectionchange"*
- *"onRowClick"*
- *"onRowDblClick"*
- *"onRowMouseUp"*
- *"onRowMouseDown"*

From version 3.3.1 it becomes possible to switch selection mode with selectionMode attribute

Information about sorting and filtering you can find in RichFaces Developer guide section about*sorting*.

Information about the *"process"* attribute usage you can find in the *"Decide what to process"* guide section.

Note:

If you want to use specific features such as pagination on database level you should pass to the *"value"* of the **<rich:scrollableDataTable>** component an object which class extends `org.richfaces.model.ScrollableTableDataModel`.

6.6.14.4. Reference Data

Table of <rich:scrollableDataTable> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/scrollableDataTable.html].

Table 6.65. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.ScrollableDataTable
component-class	org.richfaces.component.html.HtmlScrollableDataTable
component-family	org.richfaces.component.ScrollableDataTable
renderer-type	org.richfaces.renderkit.html.ScrollableDataTableRenderer
tag-class	org.richfaces.taglib.ScrollableDataTableTag

Table 6.66. Facets

Facet	Description
header	Defines the header content
footer	Defines the footer content

Table 6.67. Classes names that define a component appearance

Class name	Description
rich-sdt	Defines styles for a component appearance

Table 6.68. Classes names that define footer and header elements

Class name	Description
rich-sdt-header-cell	Defines styles for header cells
rich-sdt-header-row	Defines styles for a header raw
rich-sdt-column-cell	Defines styles for column cells
rich-sdt-footer-cell	Defines styles for footer cells
rich-sdt-footer-row	Defines styles for a footer raw
rich-sdt-hsep	Defines styles for header separators

Table 6.69. Classes names that define different states

Class name	Description
rich-sdt-row-active	Defines styles for an active row
rich-sdt-row-selected	Defines styles for a selected row
rich-sdt-column-sort-up	Defines styles for ascending sorted column
rich-sdt-column-sort-down	Defines styles for descending sorted column

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.6.14.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/scrollableDataTable.jsf?c=scrollableDataTable] you can see the example of **<rich:scrollableDataTable>** usage.

Cookbook article *Scrollable dataTable Selection Usage* [http://www.jboss.org/community/docs/DOC-11857] provides a simple example of how you can use the "selection" attribute in order to get row selection in rich:scrollableDataTable.

6.7. Drag-Drop Support

In this section you will find components that help you build drag-and-drop controls, manage their behaviour and define the area on the page to be used as a drop zone.

6.7.1. < rich:dragIndicator > available since 3.0.0

6.7.1.1. Description

This is a component for defining what appears under the mouse cursor during drag-and-drop operations. The displayed drag indicator can show information about the dragged elements.

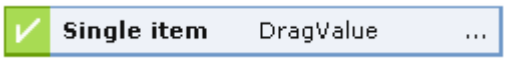


Figure 6.48. <rich:dragIndicator> component

6.7.1.2. Key Features

- Customizable look and feel
- Customizable marker according to the type of dragable elements

6.7.1.3. Details of Usage

In the simplest way the component could be defined empty - in that case a default indicator is shown like this:

Figure 6.49. The simplest <rich:dragIndicator>

For indicator customization you need to define one of the following facets:

- *"single"* — indicator shown when dragging a single item;
- *"multiple"* — indicator shown when dragging several items.

Note:

The current implementation of the **<rich:dragIndicator>** component does not support multiple items selection. The feature is described for future releases.

Thus for specify a look-and-feel you have to define one of these facets and include into it a content that should be shown in indicator.

6.7.1.3.1. Macro definitions

To place some data from drag or drop zones into component you can use macro definitions. They are being defining in the following way:

- **<rich:dndParam>** component with a specific name and value is being included into a drag/drop support component (an image can be defined as placed inside **<rich:dndParam>** without defining a value).
- in needed place a parameter value is included into the marking of indicator using syntax (name of parameter)

For instance, this:

```
...
<rich:dropSupport...>
      <rich:dndParam name="testDrop">
            <h:graphicImage value="/images/file-manager.png" />
      </rich:dndParam>
</rich:dropSupport>
...
```

Is placed into indicator as follows:

```
...
<f:facet name="single">
      {testDrop}
</f:facet>
```

```
...
```

6.7.1.3.2. Predefined macro definitions

Indicator can accept two default macro definitions:

- marker
- label

Thus including one of these elements in the marking of indicator, in other words after setting up appropriate parameters in DnD components and defining only default indicator - without specifying facets - a developer gets these parameters values displayed in indicator in the order "marker - label".

6.7.1.3.3. Marker customization

The macro definition *"marker"* can be customized depending on what a draggable element is located over. For that you should define one of these three parameters (specify a parameter with one of three names):

- `accept`

Parameter will be set instead of {marker} into indicator when a draggable element is positioned over drop zone that accept this type of elements

- `reject`

Parameter is set instead of {marker} into indicator when a draggable element is positioned over drop zone that doesn't accept this type of elements

- `default`

Parameter is set instead of {marker} into indicator when a draggable element is positioned over all the rest of page elements

Note:

If you use **<rich:dragIndicator>** inside a form do not forget to use id like `formId:indicatorID` defined in **<rich:dragSupport>** indicator attribute.

6.7.1.4. Reference Data

Table of <rich:dragIndicator> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dragIndicator.html].

Table 6.70. Component Identification Parameters

Name	Value
component-type	org.richfaces.Draggable
component-class	org.richfaces.component.html.HtmlDragIndicator
component-family	org.richfaces.DragIndicator
renderer-type	org.richfaces.DragIndicatorRenderer
tag-class	org.richfaces.taglib.DragIndicatorTag

6.7.1.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dragSupport.jsf?c=dragIndicator] you can see the example of **<rich:dragIndicator>** usage and sources for the given example.

6.7.2. < rich:dragSupport > available since 3.0.0

6.7.2.1. Description

This component defines a subtree of the component tree as draggable for drag-and-drop operations. Within such a "drag zone," you can click the mouse button on an item and drag it to any component that supports drop operations (a "drop zone"). It encodes all the necessary JavaScript for supporting drag-and-drop operations.

Figure 6.50. <rich:dragSupport> component

6.7.2.2. Key Features

- Encodes all necessary JavaScript to perform drag actions
- Can be used within any component type that provides the required properties for drag operations
- Supports drag-and-drop between different forms

6.7.2.3. Details of Usage

The dragSupport tag inside a component completely specifies the events and JavaScript required to use the component and it's children for dragging as part of a drag-and-drop operation. In order to work, though, dragSupport must be placed inside a wrapper component that outputs child components and that has the right events defined on it. Thus, this example won't work, because the **<h:column>** tag doesn't provide the necessary properties for redefining events on the client:

Example:

```
...
<h:column>
    <rich:dragSupport dragIndicator=":form:iii" dragType="text">
        <a4j:actionparam value="#{caps.name}" name="name"/>
    </rich:dragSupport>
    <h:outputText value="#{caps.name}"/>
</h:column>
...
```

However, using a4j:outputPanel as a wrapper inside **<h:column>** , the following code could be used successfully:

Example:

```
...
<h:column>
    <a4j:outputPanel>
        <rich:dragSupport dragIndicator=":form:iii" dragType="text">
            <a4j:actionparam value="#{caps.name}" name="name"/>
        </rich:dragSupport>
        <h:outputText value="#{caps.name}"/>
    </a4j:outputPanel>
</h:column>
...
```

This code makes all rows of this column draggable.

One of the main attributes for dragSupport is *"dragType"*, which associates a name with the drag zone. Only drop zones with this name as an acceptable type can be used in drag-and-drop operations. Here is an example:

Example:

```
...
<h:panelGrid id="drag1">
      <rich:dragSupport dragType="singleItems" .../>
      <!--Some content to be dragged-->
</h:panelGrid>
...
<h:panelGrid id="drag2">
      <rich:dragSupport dragType="groups" .../>
      <!--Some content to be dragged-->
</h:panelGrid>
...
<h:panelGrid id="drop1">
      <rich:dropSupport acceptedTypes="singleItems" .../>
      <!--Drop zone content-->
</h:panelGrid>
...
```

In this example, the `drop1` panel grid is a drop zone that invokes drag-and-drop for drops of items from the first `drag1` panel grid, but not the second `drag2` panel grid. In the section about dropSupport , you will find an example that shows more detailed information about moving data between tables with drag and drop.

The dragSupport component also has a *"value"* attribute for passing data into the processing after a drop event.

One more important attribute for **<rich:dragSupport>** is the *"dragIndicator"* attribute that point to the component id of the **<rich:dragIndicator>** component to be used for dragged items from this drag zone. If it isn't defined, a default indicator for drag operations is used.

Finally, the component has the following extra attributes for event processing on the client:

- *"ondragstart"*
- *"ondragend"*

You can use your own custom JavaScript functions to handle these events.

Note:

If you define width for a outputPanel, in Internet Explorer 6 you can perform a drag and drop operation, placing the mouse cursor on the text in the outputPanel only.

6.7.2.4. Reference Data

Table of <rich:dragSupport> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dragSupport.html].

Table 6.71. Component Identification Parameters

Name	Value
component-type	org.richfaces.DragSupport
component-class	org.richfaces.component.html.HtmlDragSupport
component-family	org.richfaces.DragSupport
renderer-type	org.richfaces.DragSupportRenderer
tag-class	org.richfaces.taglib.DragSupportTag

6.7.2.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dragSupport.jsf?c=dragSupport] you can see the example of **<rich:dragSupport>** usage and sources for the given example.

6.7.3. < rich:dragListener > available since 3.1.0

6.7.3.1. Description

The **<rich:dragListener>** represents an action listener method that is notified after a drag operation.

6.7.3.2. Key Features

- Allows to define some drag listeners for the components with "Drag and Drop" support

6.7.3.3. Details of Usage

The **<rich:dragListener>** is used as a nested tag with components like **<rich:dragSupport>** , **<rich:tree>** and **<rich:treeNode>** .

Attribute *"type"* defines the fully qualified Java class name for a listener. This class should implement `org.richfaces.event.DropListener` [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/event/DropListener.html] interface.

The typical variant of using:

```
...
<h:panelGrid id="dragPanel">
   <rich:dragSupport dragType="item">
      <rich:dragListener type="demo.ListenerBean"/>
   </rich:dragSupport>
   <!--Some content to be dragged-->
</h:panelGrid>
...
```

Java bean source:

```
package demo;

import org.richfaces.event.DragEvent;

public class ListenerBean implements org.richfaces.event.DragListener{
...
   public void processDrag(DragEvent arg0){
      //Custom Developer Code
   }
...
}
```

6.7.3.4. Reference Data

Table of <rich:dragListener> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dragListener.html].

Table 6.72. Component Identification Parameters

Name	Value
listener-class	org.richfaces.event.DragListener
event-class	org.richfaces.event.DragEvent
tag-class	org.richfaces.taglib.DragListenerTag

6.7.4. < rich:dropListener > available since 3.1.0

6.7.4.1. Description

The **<rich:dropListener>** represents an action listener method that is notified after a drop operation.

6.7.4.2. Key Features

- Allows to define some drop listeners for the components with "Drag and Drop" support

6.7.4.3. Details of Usage

The **<rich:dropListener>** is used as a nested tag with components like **<rich:dropSupport>**, **<rich:tree>** and **<rich:treeNode>**.

Attribute *"type"* defines the fully qualified Java class name for the listener. This class should implement `org.richfaces.event.DropListener` [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/event/DropListener.html] interface. .

The typical variant of using:

```
...
<rich:panel style="width:100px;height:100px;">
   <f:facet name="header">Drop Zone</f:facet>
   <rich:dropSupport acceptedTypes="text">
      <rich:dropListener type="demo.ListenerBean"/>
   </rich:dropSupport>
</rich:panel>
...
```

Java bean source:

```
package demo;

import org.richfaces.event.DropEvent;

public class ListenerBean implements org.richfaces.event.DropListener{
...
   public void processDrop(DropEvent arg0){
      //Custom Developer Code
   }
...
}
```

6.7.4.4. Reference Data

Table of <rich:dropListener> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dropListener.html].

Table 6.73. Component Identification Parameters

Name	Value
listener-class	org.richfaces.event.DropListener
event-class	org.richfaces.event.DropEvent
tag-class	org.richfaces.taglib.DropListenerTag

6.7.5. < rich:dropSupport > available since 3.0.0

6.7.5.1. Description

This component transforms a parent component into a target zone for drag-and-drop operations. When a draggable element is moved and dropped onto the area of the parent component, Ajax request processing for this event is started.

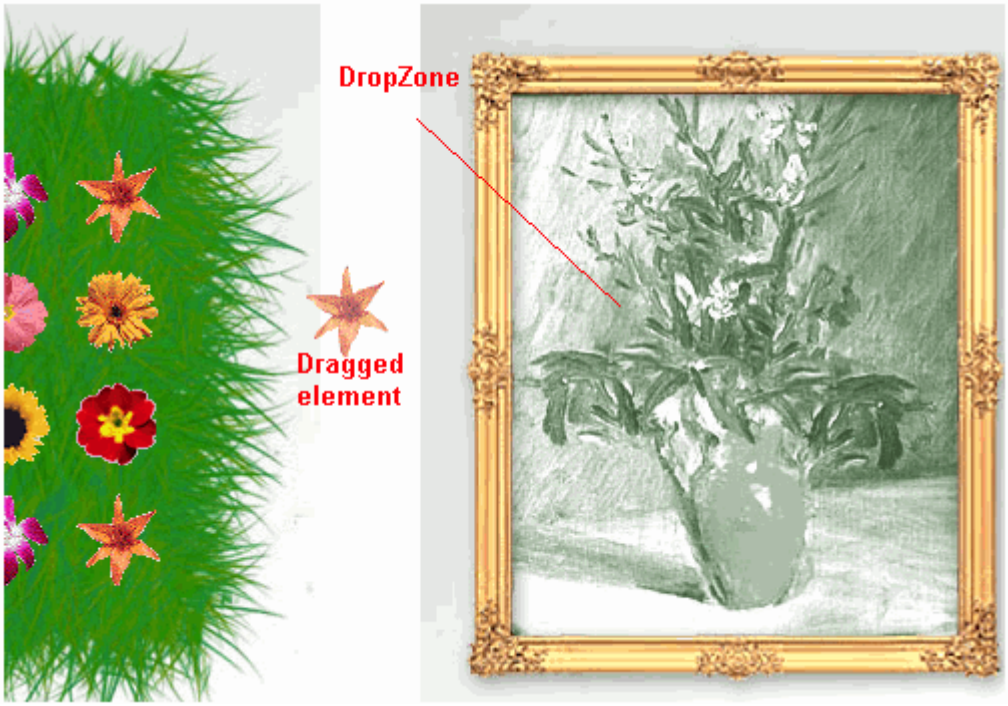


Figure 6.51. <rich:dropSupport> component

6.7.5.2. Key Features

- Encodes all necessary JavaScript to perform drop actions
- Can be used within any component type that provides the required properties for drop operations
- Built-in Ajax processing
- Supports drag-and-drop between different forms

6.7.5.3. Details of Usage

The key attribute for **<rich:dropSupport>** is *"acceptedTypes"* . It defines, which types of dragable items (zones) could be accepted by the current drop zone. Check the example below:

```
<rich:panel styleClass="dropTargetPanel">
    <f:facet name="header">
        <h:outputText value="PHP Frameworks" />
    </f:facet>

                    <rich:dropSupport id="php" acceptedTypes="PHP" dropValue="PHP"
 dropListener="#{eventBean.processDrop}" reRender="phptable, src">
    </rich:dropSupport>
    ...
</rich:panel>
```

and here is what happens on the page:

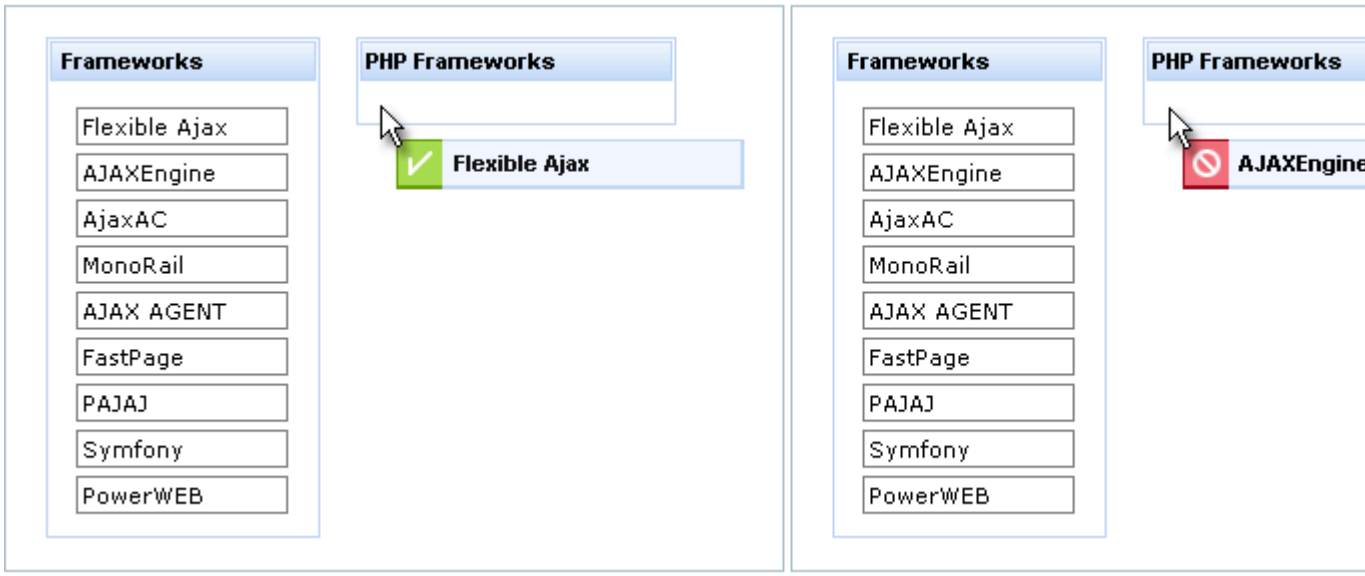


Figure 6.52. Drop zone accepts dragable item with "PHP" type only

Using the *"typeMapping"* attribute. Previous example shows that a drop zone could accept a dragable item or not. Special markers, which are placed at **<rich:dragIndicator>** , inform user about drop zone's possible behaviors: "checkmark" appears if drop is accepted and "No" symbol if it is not. Moreover, some extra information (e.g. text message) could be put into the Indicator to reinforce the signal about drop zone's behavior or pass some other additional sense. This reinforcement could be programmed and attributed to drop zone via *"typeMapping"* attribute using JSON syntax. The type of dragged zone (dragType) should be passed as "key" and name of **<rich:dndParam>** that gives needed message to Indicator as "value":

```
<rich:panel styleClass="dropTargetPanel">
    <f:facet name="header">
        <h:outputText value="PHP Frameworks" />
    </f:facet>

                    <rich:dropSupport id="php" acceptedTypes="PHP" dropValue="PHP"
 dropListener="#{eventBean.processDrop}" reRender="phptable, src"
                        typeMapping="{PHP: text_for_accepting, DNET: text_for_rejecting}">
        <rich:dndParam name="text_for_accepting" value="Drop accepted!" />
        <rich:dndParam name="text_for_rejecting" value="Drop is not accepted!" />
    </rich:dropSupport>
    ...
</rich:panel>
```

What happens on the page:

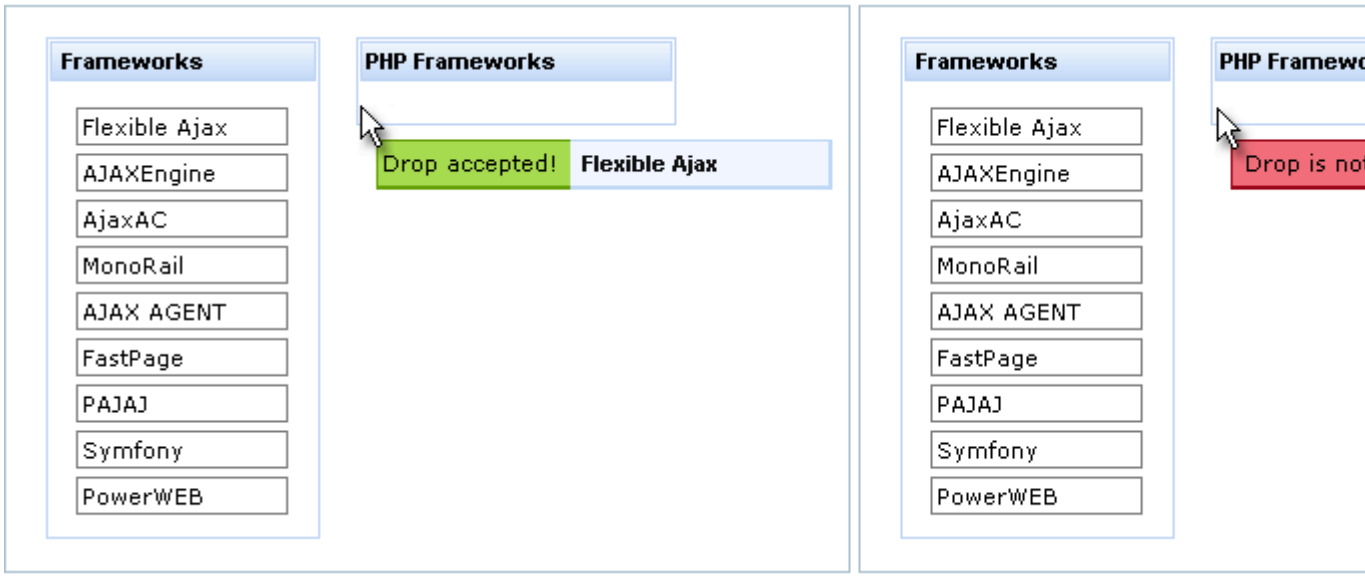


Figure 6.53. *"typeMapping"* helps to add some extra information to <rich:dragIndicator>

Here is an example of moving records between tables. The example describes all the pieces for drag-and-drop. As draggable items, this table contains a list of such items designated as being of type `"text"` :

```
<rich:dataTable value="#{capitalsBean.capitals}" var="caps">
      <f:facet name="caption">Capitals List</f:facet>
      <h:column>
            <a4j:outputPanel>
```

```
                <rich:dragSupport dragIndicator=":form:ind" dragType="text">
                    <a4j:actionparam value="#{caps.name}" name="name"/>
                </rich:dragSupport>
                <h:outputText value="#{caps.name}"/>
            </a4j:outputPanel>
        </h:column>
</rich:dataTable>
```

As a drop zone, this panel will accept draggable items of type `text` and then rerender an element with the ID of `box` :

```
<rich:panel style="width:100px;height:100px;">
        <f:facet name="header">Drop Zone</f:facet>
        <rich:dropSupport acceptedTypes="text" reRender="box"
                dropListener="#{capitalsBean.addCapital2}"/>
</rich:panel>
```

As a part of the page that can be updated in a partial page update, this table has an ID of `box` :

```
<rich:dataTable value="#{capitalsBean.capitals2}" var="cap2" id="box">
        <f:facet name="caption">Capitals chosen</f:facet>
        <h:column>
            <h:outputText value="#{cap2.name}"/>
        </h:column>
</rich:dataTable>
```

And finally, as a listener, this listener will implement the dropped element:

```
public void addCapital2(DropEvent event) {
        FacesContext context = FacesContext.getCurrentInstance();
        Capital cap = new Capital();

 cap.setName(context.getExternalContext().getRequestParameterMap().get("name").toString());
        capitals2.add(cap);
}
```

Here is the result after a few drops of items from the first table:

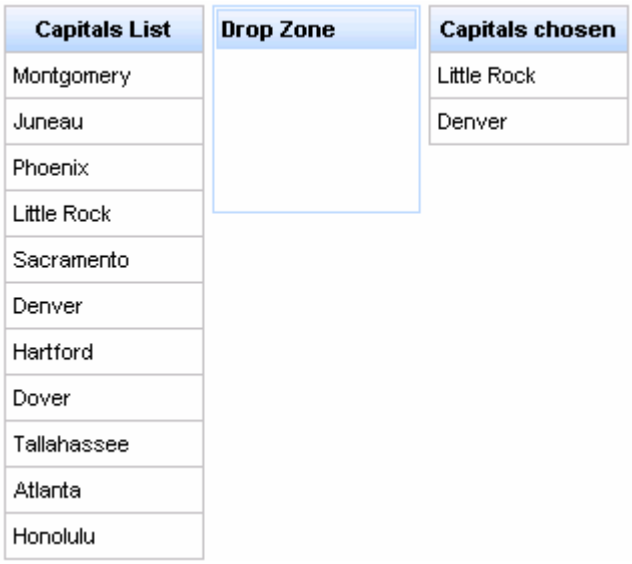


Figure 6.54. Results of drop actions

In this example, items are dragged element-by-element from the rendered list in the first table and dropped on a panel in the middle. After each drop, a drop event is generated and a common Ajax request is performed that renders results in the third table.

As with every Ajax action component, **<rich:dropSupport>** has all the common attributes (*"timeout"* , *"limitToList"* , *"reRender"* , etc.) for Ajax request customization.

Finally, the component has the following extra attributes for event processing on the client:

- *"ondragenter"*
- *"ondragexit"*
- *"ondrop"*
- *"ondropend"*

Developers can use their own custom JavaScript functions to handle these events.

Information about the *"process"* attribute usage you can find in the *"Decide what to process"* guide section .

6.7.5.4. Reference Data

Table of <rich:dropSupport> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dropSupport.html].

Table 6.74. Component Identification Parameters

Name	Value
component-type	org.richfaces.DropSupport

Name	Value
component-class	org.richfaces.component.html.HtmlDropSupport
component-family	org.richfaces.DropSupport
renderer-type	org.richfaces.DropSupportRenderer
tag-class	org.richfaces.taglib.DropSupportTag

6.7.5.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dragSupport.jsf?c=dropSupport] you can see the example of **<rich:dropSupport>** usage and sources for the given example.

6.7.6. <rich:dndParam> available since 3.0.0

6.7.6.1. Description

The component is used for passing parameters during drag-and-drop operations.

6.7.6.2. Details of Usage

The **<rich:dndParam>** is used during drag-and-drop operations for passing parameters to an indicator. To use the component it is necessary to set "type" attribute that specifies what kind of functionality the component will provide: dragging or dropping. Attributes "name" and "value" are also should be defiend. Instead of the "value" attribute definition it is possible to define value of the component using nested contents.

Variants of usage:

- Passing parameters for indicator's drag icon. The **<rich:dndParam>** can define the indicator's drag icon that will be used during dragging instead of indicator's default icon. For example, a drag icon may be represented with a minimized image of a dragged element. In this case `type="drag"`:

```
...
    <rich:dragSupport ... >
      <rich:dndParam type="drag" name="dragging">
            <h:graphicImage value="/img/product1_small.png"/>
      </rich:dndParam>
      <h:graphicImage value="product1.png"/>
</rich:dragSupport>
...
```

- Passing parameters for indicator's informational part. The **<rich:dndParam>** can transmit it's value into indicator's. In this case `type="drag"`:

```
...
<rich:dragSupport ... >
      <rich:dndParam type="drag" name="label" value="#{msg.subj}"/>
      ...
</rich:dragSupport>
...
```

- Passing parameters to a component that supports drop after drop happens. The **<rich:dndParam>** can pass icons into an indicator, if dragged content of a comp type is above the given drop zone that processes it on the next drop event. In this case `type="drop"`:

```
...
<rich:dropSupport ... >
      <rich:dndParam type="drop" name="comp" >
            <h:graphicImage height="16" width="16" value="/images/comp.png"/>
      </rich:dndParam>
      ...
</rich:dropSupport >
...
```

6.7.6.3. Reference Data

Table of <rich:dndParam> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dndParam.html].

Table 6.75. Component Identification Parameters

Name	Value
component-type	org.richfaces.DndParam
component-class	org.richfaces.component.html.HtmlDndParam
tag-class	org.richfaces.taglib.DndParamTag

6.8. Rich Menu

This section tells how you can create menus on your page: either navigational ones or context.

6.8.1. < rich:contextMenu > available since 3.0.0

6.8.1.1. Description

The **<rich:contextMenu>** component is used for creation of multilevelled context menus that are activated after defined events like *"onmouseover"*, *"onclick"* etc. The component could be applied to any element on the page.

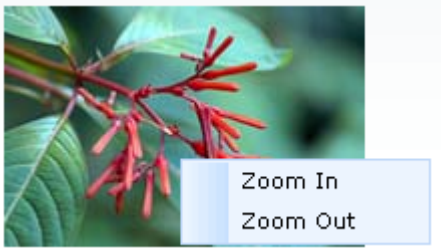


Figure 6.55. <rich:contextMenu> component

6.8.1.2. Key Features

- Highly customizable look and feel
- *"oncontextmenu"* event support
- Disablement support
- Pop-up appearance event customization
- Usage of shared instance of a menu on a page

6.8.1.3. Details of Usage

<rich:contextMenu> is a support-like component. Context menu itself is an invisible panel that appears after a particular client-side event (*"onmouseover"*, *"onclick"*, etc.) occurred on a parent component. The event is defined with an *"event"* attribute. The component uses *"oncontextmenu"* event by default to call a context menu by clicking on the right mouse button.

<rich:menuGroup>, *<rich:menuItem>* and *<rich:menuSeparator>* components can be used as nested elements for **<rich:contextMenu>** in the same way as for **<rich:dropDownMenu>**.

By default, the **<rich:contextMenu>** disables right mouse click on a page in the context menu area only. But if you want to disable browser's context menu completely you should set the *"disableDefaultMenu"* attribute value to "true".

If *"attached"* value is "true" (default value), component is attached to the parent component or to the component, which *"id"* is specified in the *"attachTo"* attribute:

```
<rich:contextMenu event="oncontextmenu" attachTo="pic1" submitMode="none">
    <rich:menuItem value="Zoom In" onclick="enlarge();" id="zin"/>
```

```
    <rich:menuItem value="Zoom Out" onclick="decrease();" id="zout"/>
</rich:contextMenu>
<h:panelGrid columns="1" columnClasses="cent">
    <h:panelGroup id="picture">
        <h:graphicImage value="/richfaces/jQuery/images/pic1.png" id="pic"/>
    </h:panelGroup>
</h:panelGrid>
<h:panelGrid columns="1" columnClasses="cent">
    <h:panelGroup id="picture1">
        <h:graphicImage value="/richfaces/jQuery/images/pic2.png" id="pic1"/>
     </h:panelGroup>
</h:panelGrid>
```

The `"enlarge()"` and `"decrease()"` functions definition is placed below.

```
<script type="text/javascript">
      function enlarge(){
            document.getElementById('pic').width=document.getElementById('pic').width*1.1;
           document.getElementById('pic').height=document.getElementById('pic').height*1.1;
      }
      function decrease(){
            document.getElementById('pic').width=document.getElementById('pic').width*0.9;
           document.getElementById('pic').height=document.getElementById('pic').height*0.9;
      }
</script>
```

In the example a picture zooming possibility with **<rich:contextMenu>** component usage was shown. The picture is placed on the **<h:panelGroup>** component. The **<rich:contextMenu>** component is not nested to **<h:panelGroup>** and has a value of the *"attachTo"* attribute defined as `"pic1"`. Thus, the context menu is attached to the component, which *"id"* is `"pic1"`. The context menu has two items to zoom in (zoom out) a picture by *"onclick"* event. For earch item corresponding JavaScript function is defined to provide necessary action as a result of the clicking on it. For the menu is defined an *"oncontextmenu"* event to call the context menu on a right click mouse event.

In the example the context menu is defined for the parent **<h:panelGroup>** component with a value of *"id"* attribute equal to "`picture`" You should be careful with such definition, because a client context menu is looked for a DOM element with a client Id of a parent component on a server. If a parent component doesn't encode an Id on a client, it can't be found by the **<rich:contextMenu>** and it's attached to its closest parent in a DOM tree.

If the *"attached"* attribute has "false" value, component activates via JavaScript API with assistance of **<rich:componentControl>** . An example is placed below.

Example:

```
<h:form id="form">
    <rich:contextMenu attached="false" id="menu" submitMode="ajax">
        <rich:menuItem ajaxSingle="true">
            <b>{car} {model}</b> details
             <a4j:actionparam name="det" assignTo="#{ddmenu.current}" value="{car} {model}
details"/>
        </rich:menuItem>
        <rich:menuGroup value="Actions">
            <rich:menuItem ajaxSingle="true">
                Put <b>{car} {model}</b> To Basket
                    <a4j:actionparam name="bask" assignTo="#{ddmenu.current}" value="Put
{car} {model} To Basket"/>
            </rich:menuItem>
            <rich:menuItem value="Read Comments" ajaxSingle="true">
                    <a4j:actionparam name="bask" assignTo="#{ddmenu.current}" value="Read
Comments"/>
            </rich:menuItem>
            <rich:menuItem ajaxSingle="true">
                Go to <b>{car}</b> site
                    <a4j:actionparam name="bask" assignTo="#{ddmenu.current}" value="Go to
{car} site"/>
            </rich:menuItem>
        </rich:menuGroup>
    </rich:contextMenu>

    <h:panelGrid columns="2">
                            <rich:dataTable   value="#{dataTableScrollerBean.tenRandomCars}"
        var="car"          id="table"          onRowMouseOver="this.style.backgroundColor='#F8F8F8'"

rowClasses="cur">
            <rich:column>
                <f:facet name="header">Make</f:facet>
                <h:outputText value="#{car.make}"/>
            </rich:column>
            <rich:column>
                <f:facet name="header">Model</f:facet>
                <h:outputText value="#{car.model}"/>
            </rich:column>
            <rich:column>
                <f:facet name="header">Price</f:facet>
                <h:outputText value="#{car.price}" />
            </rich:column>
```

```
            <rich:componentControl event="onRowClick" for="menu" operation="show">
                <f:param value="#{car.model}" name="model"/>
                <f:param value="#{car.make}" name="car"/>
            </rich:componentControl>
        </rich:dataTable>
        <a4j:outputPanel ajaxRendered="true">
            <rich:panel>
                <f:facet name="header">Last Menu Action</f:facet>
                <h:outputText value="#{ddmenu.current}"></h:outputText>
            </rich:panel>
        </a4j:outputPanel>
    </h:panelGrid>
</h:form>
```

This is a result:

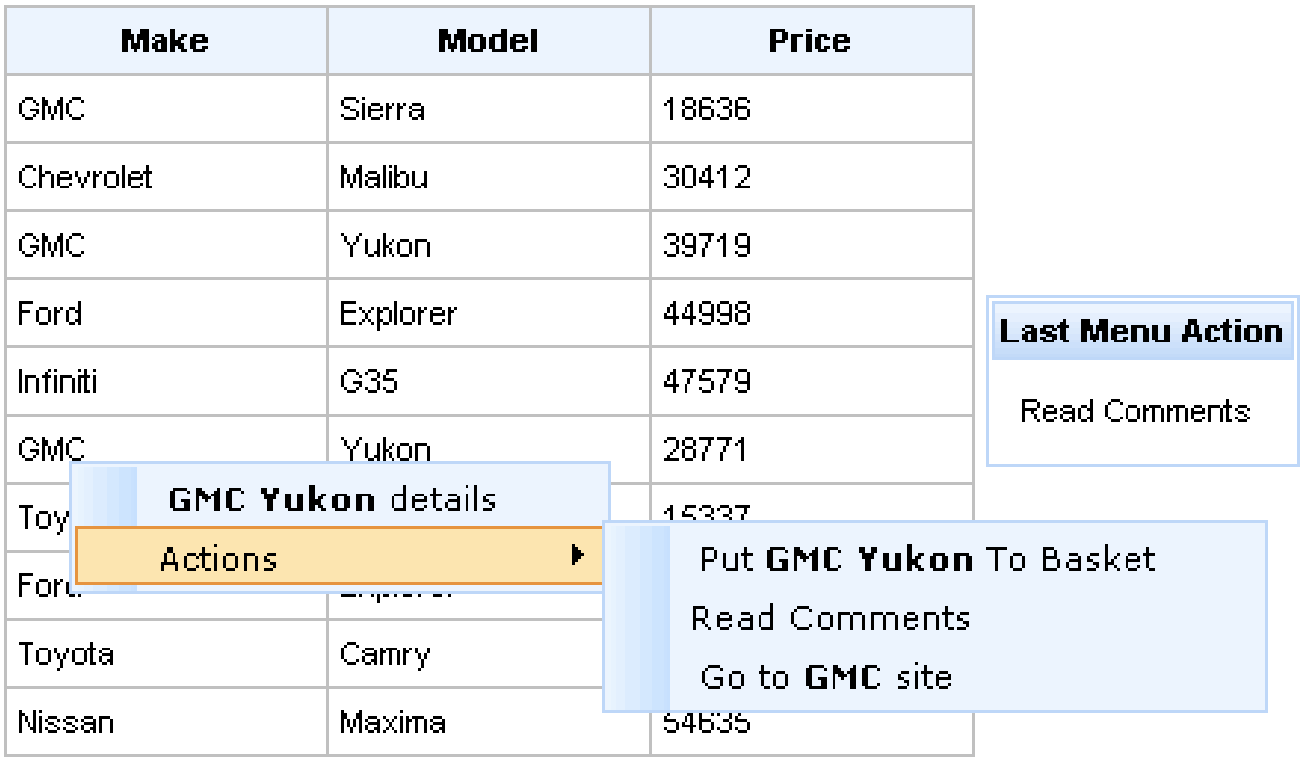


Figure 6.56. The *"attached"* attribute usage

In the example the context menu is activated (by clicking on the left mouse button) on the table via JavaScript API with assistance of **<rich:componentControl>** . The attribute *"for"* contains a value of the **<rich:contextMenu>** Id. For menu appearance Java Script API function `"show()"` is used. It is defined with *"operation"* attribute for the **<rich:componentControl>** component. Context menu is recreated after the every call on a client and new {car} and {model} values are inserted in it. In the example for a menu customization macrosubstitutions were used.

The **<rich:contextMenu>** component can be defined once on a page and can be used as shared for different components (this is the main difference from the **<rich:dropDownMenu>** component). It's necessary to define it once on a page (as it was shown in the example *above [224]*) and activate it on required components via JavaScript API with assistance of **<rich:componentControl>** .

The **<rich:contextMenu>** *"submitMode"* attribute can be set to three possible parameters:

- `Server` — default value, uses regular form submition request;
- `Ajax` — Ajax submission is used for switching;
- `None` — neither `Server` nor `Ajax` is used.

The *"action"* and *"actionListener"* item's attributes are ignored. Menu items don't fire any submits themselves. The behavior is fully defined by the components nested inside items.

Notes:

- When nesting **<rich:contextMenu>** into JSF **<h:outputText>** , specify an `id` for **<h:outputText>** , otherwise, do not nest the **<rich:contextMenu>** to make it work properly.
- As the **<rich:contextMenu>** component doesn't provide its own form, use it between **<h:form>** and **</h:form>** tags.

6.8.1.4. Reference Data

Table of <rich:contextMenu> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/contextMenu.html].

Table 6.76. Component Identification Parameters

Name	Value
component-type	org.richfaces.ContextMenu
component-class	org.richfaces.component.html.ContextMenu
component-family	org.richfaces.ContextMenu
renderer-type	org.richfaces.DropDownMenuRenderer
tag-class	org.richfaces.taglib.ContextMenuTagHandler

Table 6.77. JavaScript API

Function	Description	Apply to
hide()	Hides component or group	Component, group
show(event, context)	Shows component or group	Component, group

Table 6.78. Classes names that define the contextMenu element

Class name	Description
rich-menu-list-border	Defines styles for borders
rich-menu-list-bg	Defines styles for a general background list
rich-menu-list-strut	Defines styles for a wrapper element for a strut of a popup list

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.8.1.5. Relevant Resources Links

Visit the *ContextMenu page* [http://livedemo.exadel.com/richfaces-demo/richfaces/contextMenu.jsf?c=contextMenu] at RichFaces LiveDemo for examples of component usage and their sources.

6.8.2. < rich:dropDownMenu > available since 3.0.0

6.8.2.1. Description

The **<rich:dropDownMenu>** component is used for creating multilevel drop-down menus.

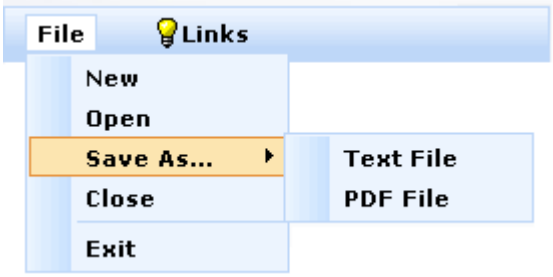


Figure 6.57. <rich:dropDownMenu> component

6.8.2.2. Key Features

- Highly customizable look-and-feel

- Pop-up appearance event customization
- Different submission modes
- Ability to define a complex representation for elements
- Support for disabling
- Smart user-defined positioning

6.8.2.3. Details of Usage

All attributes except *"value"* are optional. The *"value"* attribute defines text to be represented. If you can use the *"label"* facet, you can even not use the *"value"* attribute.

Here is an example:

Example:

```
...
<f:facet name="label">
   <h:graphicImage value="/images/img1.png"/>
</f:facet>
...
```

Use the *"event"* attribute to define an event for the represented element that triggers a menu appearance. An example of a menu appearance on a click can be seen below.

Example:

```
...
<rich:dropDownMenu event="onclick" value="Item1">
   <!--Nested menu components-->
</rich:dropDownMenu>
...
```

The **<rich:dropDownMenu>** *"submitMode"* attribute can be set to three possible parameters:

- `Server` (default)

Regular form submission request is used.

- `Ajax`

Ajax submission is used for switching.

- None

The *"action"* and *"actionListener"* item's attributes are ignored. Menu items don't fire any submits themselves. The behavior is fully defined by the components nested into items.

Note:

As the **<rich:dropDownMenu>** component doesn't provide its own form, use it between **<h:form>** and **</h:form>** tags.

The *"direction"* and *"jointPoint"* attributes are used for defining aspects of menu appearance.

Possible values for the *"direction"* attribute are:

- "top-left" - a menu drops to the top and left
- "top-right" - a menu drops to the top and right
- "bottom-left" - a menu drops to the bottom and left
- "bottom-right" - a menu drops to the bottom and right
- "auto" - smart positioning activation

Possible values for the *"jointPoint"* attribute are:

- "tr" - a menu is attached to the top-right point of the button element
- "tl" - a menu is attached to the top-left point of the button element
- "br" - a menu is attached to the bottom-right point of the button element
- "bl" - a menu is attached to the bottom-left point of the button element
- "auto" - smart positioning activation

By default, the *"direction"* and *"jointPoint"* attributes are set to "auto".

Here is an example:

Example:

```
...
<rich:dropDownMenu value="File" direction="bottom-right" jointPoint="bl">
```

```
    <rich:menuItem submitMode="ajax" value="New" action="#{ddmenu.doNew}"/>
    <rich:menuItem  submitMode="ajax"  value="Open" action="#{ddmenu.doOpen}"/>
    <rich:menuGroup value="Save As...">
      <rich:menuItem  submitMode="ajax" value="Text File"  action="#{ddmenu.doSaveText}"/>
      <rich:menuItem  submitMode="ajax" value="PDF File"  action="#{ddmenu.doSavePDF}"/>
    </rich:menuGroup>
    <rich:menuItem  submitMode="ajax" value="Close" action="#{ddmenu.doClose}"/>
    <rich:menuSeparator id="menuSeparator11"/>
    <rich:menuItem  submitMode="ajax" value="Exit"  action="#{ddmenu.doExit}"/>
</rich:dropDownMenu>
...
```

This is the result:

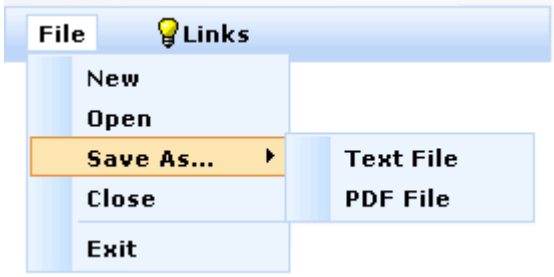


Figure 6.58. Using the "direction" and *"joinPoint"* attributes

You can correct an offset of the pop-up list relative to the label using the following attributes: *"horizontalOffset"* and *"verticalOffset"* .

Here is an example:

Example:

```
...
<rich:dropDownMenu value="File" direction="bottom-right" jointPoint="tr" horizontalOffset="-
15" verticalOffset="0">
    <rich:menuItem submitMode="ajax" value="New" action="#{ddmenu.doNew}"/>
    <rich:menuItem  submitMode="ajax"  value="Open" action="#{ddmenu.doOpen}"/>
    <rich:menuGroup value="Save As...">
      <rich:menuItem  submitMode="ajax" value="Text File"  action="#{ddmenu.doSaveText}"/>
      <rich:menuItem  submitMode="ajax" value="PDF File"  action="#{ddmenu.doSavePDF}"/>
    </rich:menuGroup>
    <rich:menuItem  submitMode="ajax" value="Close" action="#{ddmenu.doClose}"/>
    <rich:menuSeparator id="menuSeparator11"/>
    <rich:menuItem  submitMode="ajax" value="Exit"  action="#{ddmenu.doExit}"/>
</rich:dropDownMenu>
```

```
...
```

This is the result:

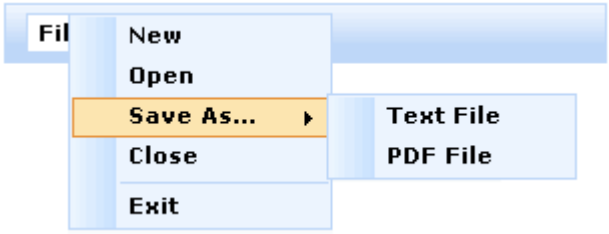


Figure 6.59. Using the *"horizontalOffset"* and *"verticalOffset"* attributes

The *"disabled"* attribute is used for disabling whole **<rich:dropDownMenu>** component. In this case it is necessary to define *"disabled"* attribute as "true". An example is placed below.

Example:

```
...
<rich:dropDownMenu value="File"  disabled="true">
    ...
</rich:dropDownMenu>
...
```

6.8.2.4. Reference Data

Table of <rich:dropDownMenu> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/dropDownMenu.html].

Table 6.79. Component Identification Parameters

Name	Value
component-type	org.richfaces.DropDownMenu
component-class	org.richfaces.component.html.HtmlDropDownMenu
component-family	org.richfaces.DropDownMenu
renderer-type	org.richfaces.DropDownMenuRenderer
tag-class	org.richfaces.taglib.DropDownMenuTag

Table 6.80. Facets

Facet	Description
label	Redefines the content set of label

Facet	Description
labelDisabled	Redefines the content set of disabled label

Table 6.81. Classes names that define a label

Class name	Description
rich-label-text-decor	Defines text style for a representation element
rich-ddmenu-label	Defines styles for a wrapper element of a representation element
rich-ddmenu-label-select	Defines styles for a wrapper element of a selected representation element
rich-ddmenu-label-unselect	Defines styles for a wrapper element of an unselected representation element
rich-ddmenu-label-disabled	Defines styles for a wrapper element of a disabled representation element

Table 6.82. Classes names that define a popup element

Class name	Description
rich-menu-list-border	Defines styles for borders
rich-menu-list-bg	Defines styles for a general background list
rich-menu-list-strut	Defines styles for a wrapper element for a strut of a popup list

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.8.2.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dropDownMenu.jsf?c=dropDownMenu] you can see the example of **<rich:dropDownMenu>** usage and sources for the given example.

6.8.3. < rich:menuGroup > available since 3.0.0

6.8.3.1. Description

The **<rich:menuGroup>** component is used to define an expandable group of items inside a pop-up list or another group.

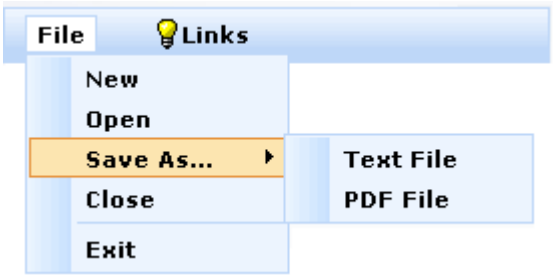


Figure 6.60. <rich:menuGroup> component

6.8.3.2. Key Features

- Highly customizable look-and-feel
- Grouping of any menu's items
- Pop-up appearance event customization
- Support for disabling
- Smart user-defined positioning

6.8.3.3. Details of Usage

The *"value"* attribute defines the text representation of a group element in the page.

The *"icon"* attribute defines an icon for the component. The *"iconDisabled"* attribute defines an icon for when the group is disabled. Also you can use the *"icon"* and *"iconDisabled"* facets. If the facets are defined, the corresponding *"icon"* and *"iconDisabled"* attributes are ignored and the facets' contents are used as icons. This could be used for an item check box implementation.

Here is an example:

```
...
<f:facet name="icon">
      <h:selectBooleanCheckbox value="#{bean.property}"/>
</f:facet>
...
```

The *"iconFolder"* and *"iconFolderDisabled"* attributes are defined for using icons as folder icons. The *"iconFolder"* and *"iconFolderDisabled"* facets use their contents as folder icon representations in place of the attribute values.

The *"direction"* attribute is used to define which way to display the menu as shown in the example below:

Possible values are:

- "left - down" - a submenu is attached to the left side of the menu and is dropping down
- "left - up" - a submenu is attached to the left side of the menu and is dropping up
- "right - down" - a submenu is attached to the right side of the menu and is dropping down
- "right - up" - a submenu is attached to the right side of the menu and is dropping up
- "auto - smart" positioning activation

By default, the *"direction"* attribute is set to "auto".

Here is an example:

```
...
<rich:menuGroup value="Save As..." direction="left-down">
    <rich:menuItem submitMode="ajax" value="Text File" action="#{ddmenu.doSaveText}"/>
    <rich:menuItem submitMode="ajax" value="PDF File" action="#{ddmenu.doSavePDF}"/>
</rich:menuGroup>
...
```

This would be the result:

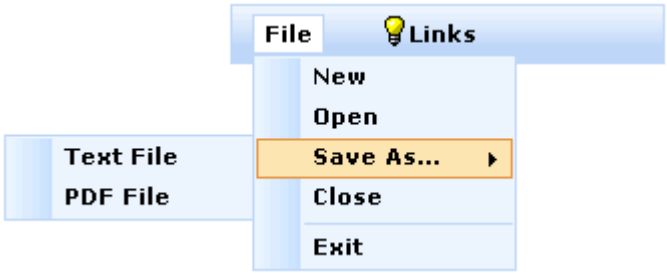


Figure 6.61. Using the *"direction"* attribute

Note:

The **<rich:menuGroup>** component was designed to be used only for pop-up menu list creation.

6.8.3.4. Reference Data

Table of <rich:menuGroup> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/menuGroup.html].

Table 6.83. Component Identification Parameters

Name	Value
component-type	org.richfaces.MenuGroup
component-class	org.richfaces.component.html.HtmlMenuGroup
component-family	org.richfaces.DropDownMenu
renderer-type	org.richfaces.MenuGroupRenderer
tag-class	org.richfaces.taglib.MenuGroupTag

Table 6.84. Facets

Facet	Description
icon	Redefines the icon for the enabled item state. Related attribute is "icon"
iconFolder	Redefines the folder icon for the enabled item state. Related attribute is "iconFolder"

Table 6.85. Classes names that define an appearance of group elements

Class name	Description
rich-menu-group	Defines styles for a wrapper element for a group
rich-menu-item-label	Defines styles for a label of an item
rich-menu-item-icon	Defines styles for the left icon of an item
rich-menu-item-folder	Defines styles for the right icon of an item

Table 6.86. Classes names that define different states

Class name	Description
rich-menu-item-label-disabled	Defines styles for a label of a disabled item
rich-menu-item-icon-disabled	Defines styles for the left icon of a disabled item
rich-menu-item-folder-disabled	Defines styles for the right icon of a disabled item
rich-menu-group-hover	Defines styles for a wrapper element of a hover group
rich-menu-item-icon-enabled	Defines styles for the left icon of an enabled item
rich-menu-item-icon-selected	Defines styles for the left icon of a selected item

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.8.3.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dropDownMenu.jsf?c=menuGroup] you can see the example of **<rich:menuGroup>** usage and sources for the given example.

6.8.4. < rich:menuItem > available since 3.0.0

6.8.4.1. Description

The **<rich:menuItem>** component is used for the definition of a single item inside a pop-up list.

This component can be used not only within **<rich:dropDownMenu>** and **<rich:contextMenu>**, but also it can used as a standalone component. For example, you can use it as nested component of the **<rich:toolBar>** .

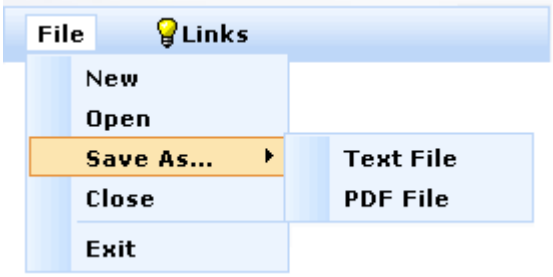


Figure 6.62. <rich:menuItem> component

6.8.4.2. Key Features

- Highly customizable look-and-feel
- Different submission modes
- Support for disabling
- Custom content support

6.8.4.3. Details of Usage

The *"value"* attribute defines the text representation for an item element.

There are two icon-related attributes. The *"icon"* attribute defines an icon. The *"iconDisabled"* attribute defines an icon for a disabled item. Also you can use the *"icon"* and *"iconDisabled"* facets. If the facets are defined, the corresponding *"icon"* and *"iconDisabled"* attributes are ignored and the facets content is shown as an icon. It could be used for an item check box implementation.

Here is an example:

```
...
<f:facet name="icon">
      <h:selectBooleanCheckbox value="#{bean.property}"/>
</f:facet>
...
```

The **<rich:menuItem>** *"submitMode"* attribute can be set to three possible parameters:

- `Server` (default)

Regular form submission request is used.

- `Ajax`

Ajax submission is used for switching.

- `None`

The *"action"* and *"actionListener"* item's attributes are ignored. Menu items don' fire any submits themselves. The behavior is fully defined by the components nested into items.

For example, you can put any content into an item, but, in this case, you should set the *"submitMode"* attribute as *"none"* .

Here is an example:

```
...
<rich:dropDownMenu>
      ...
     <rich:menuItem submitMode="none">
           <h:outputLink value="www.jboss.org"/>
      </rich:menuItem>
      ...
<rich:dropDownMenu>
...
```

You can use the *"disabled"* attribute to set the item state.

Here is an example:

```
...
<rich:dropDownMenu>
```

```
        <rich:menuItem value="Disable" disabled="true"/>
<rich:dropDownMenu>
...
```

Note:

The **<rich:menuItem>** component was designed to be used only for pop-up menu list creation.

Information about the *"process"* attribute usage you can find *RichFaces Developer Guide section about "process" attribute* .

6.8.4.4. Reference Data

Table of <rich:menuItem> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/menuItem.html].

Table 6.87. Component Identification Parameters

Name	Value
component-type	org.richfaces.MenuItem
component-class	org.richfaces.component.html.HtmlMenuItem
component-family	org.richfaces.DropDownMenu
renderer-type	org.richfaces.MenuItemRenderer
tag-class	org.richfaces.taglib.MenuItemTag

Table 6.88. Facets

Facet	Description
icon	Redefines the icon for the enabled item state. Related attribute is "icon"
iconDisabled	Redefines the folder icon the disabled item state. Related attribute is "iconDisabled"

Table 6.89. Classes names that define an appearance of item elements

Class name	Description
rich-menu-item	Defines styles for a wrapper element for an item
rich-menu-item-label	Defines styles for a label of an item
rich-menu-item-icon	Defines styles for the left icon of an item

Table 6.90. Classes names that define different states

Class name	Description
rich-menu-item-disabled	Defines styles for a wrapper element of an item
rich-menu-item-enabled	Defines styles for a wrapper element of an enabled item
rich-menu-item-hover	Defines styles for a wrapper element of a hover item
rich-menu-item-label-disabled	Defines styles for a label of a disabled item
rich-menu-item-icon-disabled	Defines styles for the left icon of a disabled item
rich-menu-item-label-enabled	Defines styles for a label of an enabled item
rich-menu-item-icon-enabled	Defines styles for the left icon of an enabled item
rich-menu-item-label-selected	Defines styles for a label of a selected item
rich-menu-item-icon-selected	Defines styles for the left icon of a selected item

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.8.4.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dropDownMenu.jsf?c=menuItem] you can see the example of **<rich:menuItem>** usage and sources for the given example.

6.8.5. < rich:menuSeparator > available since 3.0.0

6.8.5.1. Description

The **<rich:menuSeparator>** component is used for the definition of a horizontal separator that can be placed between groups or items.

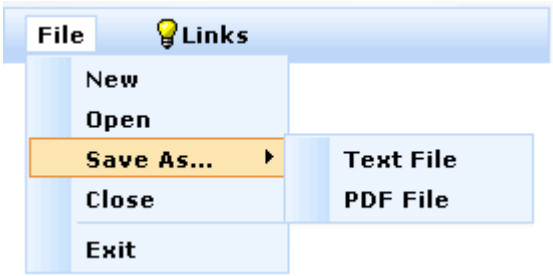


Figure 6.63. <rich:menuSeparator> component

6.8.5.2. Reference Data

Table of <rich:menuSeparator> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/menuSeparator.html].

Table 6.91. Component Identification Parameters

Name	Value
component-type	org.richfaces.MenuSeparator
component-class	org.richfaces.component.html.HtmlMenuSeparator
component-family	org.richfaces.DropDownMenu
renderer-type	org.richfaces.MenuSeparatorRenderer
tag-class	org.richfaces.taglib.MenuSeparatorTag

Table 6.92. Classes names that define separator element appearance.

Class name	Description
rich-menu-separator	Defines styles for a wrapper element for a separator

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.8.5.3. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/dropDownMenu.jsf?c=menuSeparator] you can see the example of **<rich:menuSeparator>** usage and sources for the given example.

6.9. Rich Trees

In this section you will learn how to build hierarchical data presentation using the **<rich:tree>** component.

6.9.1. < rich:tree > available since 3.0.0

6.9.1.1. Description

The component is designed for hierarchical data presentation and is applied for building a tree structure with a drag-and-drop capability.

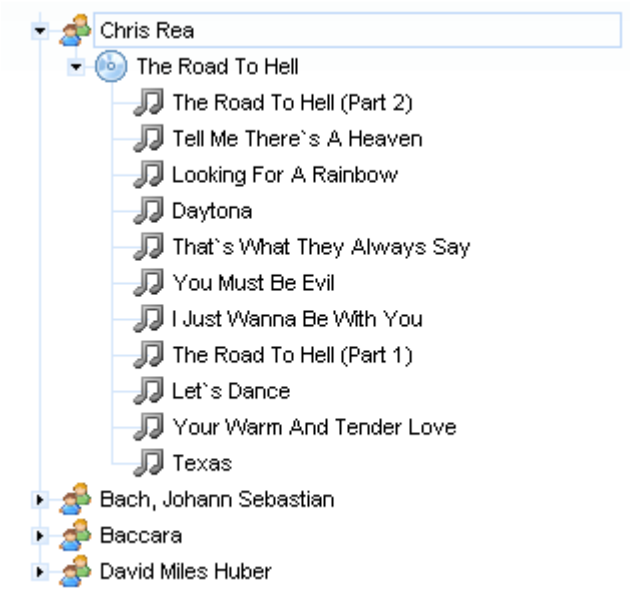


Figure 6.64. Expanded <rich:tree> with child elements

6.9.1.2. Key Features

- Highly customizable look-and-feel
- Built-in drag and drop capability, than enable relocating tree nodes within the tree
- Built-in Ajax processing
- Possibility to define a visual representation by node type
- Support of several root elements in a tree

6.9.1.3. Details of Usage

As it has been mentioned *above* the **<rich:tree>** component allows rendering any tree-like data model.

You can build your **<rich:tree>** using model (`org.richfaces.model.TreeNode` or `javax.swing.tree.TreeNode`). In this case the **<rich:tree>** component interacts with data model via `"TreeNode"` interface (*org.richfaces.model.TreeNode* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/model/TreeNode.html]) that is used for the **<rich:tree>** nodes representation.

Actually you can develop and use your own implementation of the `"TreeNode"` interface or use a default one, which is defined with a default class `"TreeNodeImpl"` (*org.richfaces.model.TreeNodeImpl* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/model/TreeNodeImpl.html]).

The *"value"* attribute of the **<rich:tree>** component contains a nodes structure defined in a bean property.

When the **<rich:tree>** component is being rendered it iterates over the model nodes and renders them using one of its immediate **<rich:treeNode>** children. Data property of the current model `TreeNode` is exposed using *"var"* attribute, so if `var="station"` you can refer to that data using `#{station}` syntax.

In the following example the **<rich:tree>** is built from a simple `org.richfaces.model.TreeNode` model:

```
...
private TreeNodeImpl<String> stationRoot = new TreeNodeImpl<String>();
private TreeNodeImpl<String> stationNodes = new TreeNodeImpl<String>();
private String[] kickRadioFeed = { "Hall & Oates - Kiss On My List",
    "David Bowie - Let's Dance", "Lyn Collins - Think (About It)",
    "Kim Carnes - Bette Davis Eyes",
    "KC & the Sunshine Band - Give It Up" };
    ...
stationRoot.setData("KickRadio");
stationNodes.addChild(0, stationRoot);
for (int i = 0; i < kickRadioFeed.length; i++){
    TreeNodeImpl<String> child = new TreeNodeImpl<String>();
    child.setData(kickRadioFeed[i]);
    stationRoot.addChild(i, child);
}
...
```

As it is mentioned before you need to pass `#{stations.stationNodes}` property to the *"value"* attribute and define the *"var"* attribute in order to refer to the data:

```
...
<rich:tree value="#{stations.stationNodes}" var="station">
    <rich:treeNode>
        <h:outputText value="#{station}" />
    </rich:treeNode>
</rich:tree>
...
```

This is a result:

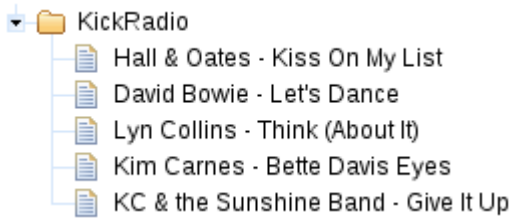


Figure 6.65. A simple <rich:tree> from a `org.richfaces.model.TreeNode`

Implementation of the **<rich:tree>** component provides another way to build a tree. This approach implies using a `"XmlTreeDataBuilder"` class (*org.richfaces.component.xml.XmlTreeDataBuilder* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc/org/richfaces/component/xml/XmlTreeDataBuilder.html]) that allows to transform XML into structures of objects containing `"XmlNodeData"` (*org.richfaces.component.xml.XmlNodeData* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/component/xml/XmlNodeData.html]) instances as data, which could be represented by the **<rich:tree>** component.

Let's try to build a simple **<rich:tree>** from a local XML file. In the following example a simple XML file (stations.xml) is used as a radio station playlist:

```
<?xml version="1.0"?>
<station name="KickRadio">
      <feed date="today">
         <song time="07:00">Hall & Oates - Kiss On My List</song>
         <song time="07:03">David Bowie - Let's Dance</song>
         <song time="07:06">Lyn Collins - Think (About It)</song>
         <song time="07:10">Kim Carnes - Bette Davis Eyes</song>
         <song time="07:15">KC & the Sunshine Band - Give It Up</song>
      </feed>
</station>
```

Now you need to create a bean that holds a model nodes:

```
...
private TreeNode data;
   ...
FacesContext context = FacesContext.getCurrentInstance();
data = XmlTreeDataBuilder.build(new
 InputSource(getClass().getResourceAsStream("stations.xml")));
...
```

Finally you should set the *"value"* attribute to the `data` bean property and define the *"var"* attribute in order to refer to the data of nodes:

```
...
<rich:tree id="treeXML" value="#{stations.data}" var="vardata">
   <rich:treeNode>
      <h:outputText value="#{vardata.attributes['name']}" />
      <h:outputText value="#{vardata.attributes['date']}" />
      <h:outputText value="#{vardata.attributes['time']}" />
      <h:outputText value=" #{vardata.text}" />
   </rich:treeNode>
</rich:tree>
...
```

This is a result:

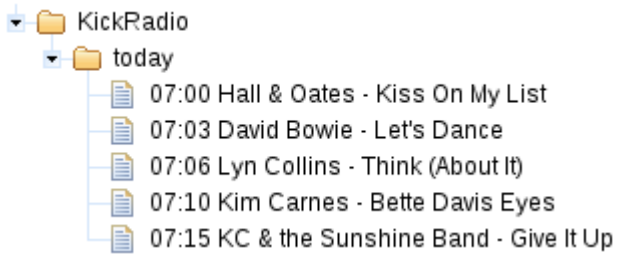


Figure 6.66. A simple <rich:tree> from a local XML file

It's possible to define a visual representation of a node data model (to define a node icon) and its behavior in correspondence with the data contained in this node (with a value of the *"var"* attribute). The node behavior is defined by the components nested into the **<rich:treeNode>** (e.g. links or buttons). For these purposes you should use *"nodeFace"* attribute. For each tree node a value of *"nodeFace"* attribute is evaluated and **<rich:treeNode>** with a value of *"type"* attribute equal to a value of *"nodeFace"* is used for node representation. See an example below.

Example:

```
...
<h:form>
   <rich:tree style="width:300px" value="#{library.data}" var="item" nodeFace="#{item.type}">
          <rich:treeNode type="artist" iconLeaf="/images/tree/singer.png" icon="/images/tree/
singer.png">
         <h:outputText value="#{item.name}" />
      </rich:treeNode>
          <rich:treeNode type="album" iconLeaf="/images/tree/disc.png" icon="/images/tree/
disc.png">
```

```
        <h:outputText value="#{item.title}" />
      </rich:treeNode>
          <rich:treeNode type="song" iconLeaf="/images/tree/song.png" icon="/images/tree/
song.png">
        <h:outputText value="#{item.title}" />
      </rich:treeNode>
   </rich:tree>
</h:form>
...
```

This is a result:

Figure 6.67. The *"nodeFace"* attribute usage

In the example above, when each node of data model is processed, data contained in the `"data"` property of "TreeNode" interface is assigned to a request scope variable, which name is defined with *"var"* attribute. The value of the *"nodeFace"* attribute is evaluated in correspondence with the data assigned to the *"var"* attribute. The corresponding **<rich:treeNode>** component (with a value of *"type"* attribute equal to a value of *"nodeFace"*) is used for the node representation. For example, during data model processing, an object with a name "Chris Rea" was inserted in the *"var"* attribute. Then the value of *"nodeFace"* attribute was evaluated as `"artist"`. Thus, for the node representation the **<rich:treeNode>** with *"type"* equal to `"artist"` was used.

You can also assign an EL-expression as value of the *"nodeFace"* attribute. See an example below:

Example:

```
nodeFace="#{data.name != 'param-value' ? 'artist' : 'album'}"
```

There are some essential points in a *"nodeFace"* attribute usage: you need to define notions for typeless and a default nodes.

The typeless node is the first **<rich:treeNode>** component (from all children nodes nested to the **<rich:tree>** component) with not defined *"type"* attribute and defined *"rendered"* attribute. The typeless node is used for representation when *"nodeFace"* attribute is null.

Default node has the following interior presentation:

Example:

```
...
<h:outputText value="#{varAttributeName}">
...
```

"varAttributeName" is a value for *"var"* attribute.

Default node is used in the following cases:

- *"nodeFace"* attribute is defined, but its value isn't equal to any *"type"* attribute value from all children nodes;
- *"nodeFace"* attribute is defined and its value is equal to a value of some *"type"* attribute from all children nodes, but the value of *"rendered"* attribute for this node is "false".

There is also one thing that has to be remembered using *"type"* and *"rendered"* attributes: it's possible to define several **<rich:treeNode>** components with equal values of *"type"* attribute and different values of *"rendered"* attribute. It provides a possibility to define different representation styles for the same node types. In the example with artists and their albums (see *above [244]*) it's possible to represent albums that are available for sale and albums that are not available. Please study the example below:

Example:

```
...
<h:form>
   <rich:tree style="width:300px" value="#{library.data}" var="item" nodeFace="#{item.type}">
       ...
           <rich:treeNode  type="album"  iconLeaf="/images/tree/album.gif"  icon="/images/tree/
album.gif"
                   rendered="#{item.exist}">
         <h:outputText value="#{item.name}" />
      </rich:treeNode>
    <rich:treeNode type="album" iconLeaf="/images/tree/album_absent.gif" icon="/images/tree/
album_absent.gif"
                   rendered="#{not item.exist}">
         <h:outputText value="#{item.name}" />
```

```
        </rich:treeNode>
        ...
    </rich:tree>
</h:form>
...
```

This is a result of the code:

Figure 6.68. The *"type"* and the *"rendered"* attributes usage

In the example the **<rich:treeNode>** components has equal values of the *"type"* attribute. Depending on value of the *"rendered"* attribute the corresponding **<rich:treeNode>** component is selected for node representation. If an album is available for sale the value of the *"rendered"* for the first *<rich:treeNode>* component is "true", for the second one is "false". Thus, the first **<rich:treeNode>** is selected for node representation.

Tree node can be run in tree modes. Modes can be specified with *"switchType"* attribute for **<rich:tree>** component.

- `Ajax` (default value) - Ajax submission is used performing the functionality. Note, that for collapse/expand operations an Ajax request is sent to the server and it can cause a short delay.
- `Server` - regular form of submission request is used.
- `Client` – all operations are performed totally on the client; no interaction with a server is involved. Full page content is reloaded after every action.

The *"icon"*, *"iconCollapsed"*, *"iconExpanded"*, *"iconLeaf"* attributes set the icons' images for the component. You can also define icons using facets with the same names. If the facets are defined, the corresponding attributes are ignored and facets' content is used as icons. By default the width of a rendered facet area is 16px.

Example:

```
...
<rich:tree value="#{library.data}" var="item">
   ...
   <f:facet name="icon">
      <h:graphicImage value="/images/tree/singer.png "/>
   </f:facet>
   <f:facet name="iconCollapsed">
      <h:graphicImage value="/images/tree/singer.png" />
   </f:facet>
   <f:facet name="iconExpanded">
      <h:graphicImage value="/images/tree/singer.png" />
   </f:facet>
   <f:facet name="iconLeaf">
      <h:graphicImage value="/images/tree/song.png" />
   </f:facet>
   ...
</rich:tree>
...
```

The **<rich: tree>** component can be used together with **<rich: treeNodeAdaptor>** . In this case there is no need to specify the attributes *"value"* and *"var"* . Besides, visual representation shouldn't be defined right in the tree. In this case a **<rich: tree>** tag is applied mainly for defining common attributes such as *"ajaxSubmitSelection"* etc.

Information about the *"process"* attribute usage you can find in the *"Decide what to process"* guide section.

As it's mentioned before, the **<rich:tree>** component uses a data model to represent the tree-like nodes structure on the page. To identify a particular node during a client request, the model provides a set of unique keys for tree nodes. The **<rich:tree>** can use strings as keys values which may contain special characters not allowed by browsers, such as the left angle bracket (<), ampersand (&), ant etc. Thus, to have a possibility to use unallowed characters in the tree nodes keys, the following converters are provided:

- `org.richfaces.TreeRowKeyConverter` that is used for "TreeNode" based trees. The key should be of a `java.lang.String` type.
- `org.richfaces.TreeAdaptorRowKeyConverter` that is used for adaptor-based trees (see ***<rich:treeNodesAdaptor>*** , ***<rich:recursiveTreeNodesAdaptor>***). The key should be of a `java.lang.String` type.
- `org.richfaces.TreeAdaptorIntegerRowKeyConverter` which is provided for adaptor-based trees. The key should be of a `java.lang.Integer` type.

The converters can be extended in order to have a possibility for implementing custom converters.

To apply a converter to the **<rich:tree>** component, you should define it as a value of the *"rowKeyConverter"* attribute.

Have a look at the example of a tree which contains the RichFaces components as its nodes and the components attributes as the nodes child elements. As the components have unallowed characters (< and >) in their names, the `org.richfaces.TreeRowKeyConverter` is used here.

Example:

```
...
<rich:tree value="#{treeBean.data}" var="node" switchType="ajax"
 rowKeyConverter="org.richfaces.TreeRowKeyConverter">
    <rich:treeNode ajaxSingle="true">
        <h:outputText value="#{node}"/>
    </rich:treeNode>
</rich:tree>
...
```

In the example the tree uses the following data model:

```
...
String[ ] components = {"< a4j:ajaxListener >", "< a4j:keepAlive >", "< a4j:actionparam >" };
String[ ][ ] attributes = {{"type"},
                           {"ajaxOnly", "beanName"},
                          {"actionListener", "assignTo", "binding", "converter", "id", "name", "noEscape",
 "value"}};

data = new TreeNodeImpl<String>();

for (int i = 0; i < components.length; i++) {
    TreeNode<String> child = new TreeNodeImpl<String>();
    child.setData(components[i]);
    data.addChild(components[i], child);

    for (int j = 0; j < attributes[i].length; j++) {
        TreeNode<String> grandChild = new TreeNodeImpl<String>();
        grandChild.setData(attributes[i][j]);
        child.addChild(attributes[i][j], grandChild);
    }
}
...
```

6.9.1.4. Built-in Drag and Drop

Words "built-in" in this context mean, that **<rich:tree>** component has its own attributes, that provide drag-and-drop capability. These attributes can be divided into two groups: those ones which provide drag and those which provide drop operations (see the tables below).

Table 6.93. Drag group

Attribute Name	Description
dragValue	Element value drag passed into processing after a Drop event
dragListener	A listener that processes a Drag event
dragIndicator	Id of a component that is used as a drag pointer during the drag operation
dragType	Defines a drag zone type that is used for definition of a dragged element, which can be accepted by a drop zone

Table 6.94. Drop group

Attribute Name	Description
dropValue	Element value drop passed into processing after Drop events
dropListener	A listener that processes a Drop event.
acceptedTypes	Drag zone names are allowed to be processed with a Drop zone
typeMapping	Drag zones names mapping on the corresponding drop zone parameters

Consider drag-and-drop inside a tree. All zones, which are assumed to be dragged, must be marked. In terms of **<rich:tree>** these zones completely correspond to tree nodes. So, all dragging nodes should be marked with *"dragType"* attribute. Then, to mark zone(-s), where the dragging node could be dropped, pass the type of dragging node to the *"acceptedTypes"* attribute of the drop zone. It would be good to itemize, that each tree node in the **<rich:tree>** component's structure has its own *key*. Depending on how the component is used, these keys can be generated by the component itself or can be taken from the component's data model. Keys help to identify each node in a tree; key is what exactly being passing from one node to another in drag-and-drop operations. Finally, the method binding, that will process drag-and-drop operation, should be pointed via *"dropListener"* attribute of the **<rich:tree>** .

Chapters "*6.40 <dragIndicator>*" and "*6.39 <dndParam>*" describes how to apply visual element, that show some additional information (e.g. dragging item name) while operating with drag-and-drop.

Page code, that describes a tree with built in drag-and-drop in the way it is considered, is shown below.

Example:

```
...
<h:form>
                        <rich:tree      style="width:300px"      value="#{libraryAjaxTree.data}"
            nodeFace="#{item.type}"              var="item"              dragIndicator=":treeDragIndicator"
 dropListener="#{libraryAjaxTree.processDrop}">
          <rich:treeNode  type="artist"  icon="/images/tree/group.png"  iconLeaf="/images/tree/
group.png" acceptedTypes="album">
            <h:outputText value="#{item.name}" />
        </rich:treeNode>
        <rich:treeNode type="album" icon="/images/tree/cd.png" iconLeaf="/images/tree/cd.png"
 dragType="album" acceptedTypes="song">
            <h:outputText value="#{item.title}" />
            <rich:dndParam name="label" type="drag" value="Album: #{item.title}" />
        </rich:treeNode>
          <rich:treeNode  type="song"  icon="/images/tree/music.png"  iconLeaf="/images/tree/
music.png" dragType="song">
            <h:outputText value="#{item.title}" />
            <rich:dndParam name="label" type="drag" value="Song: #{item.title}" />
        </rich:treeNode>
    </rich:tree>
</h:form>
...
```

This code renders following tree:

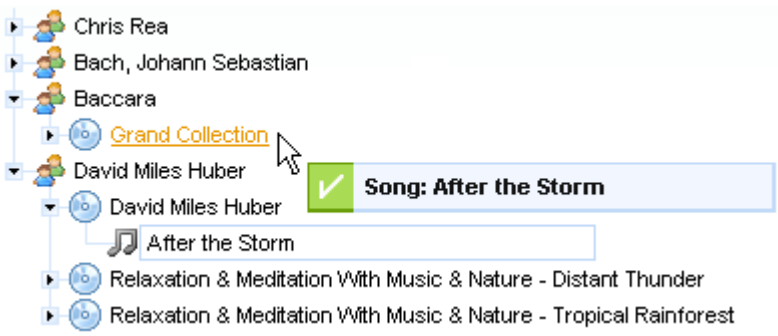


Figure 6.69. Drag-and-drop operations

6.9.1.5. Events Handling

Listeners classes that process events on the server side are defined with the help of:

- changeExpandListener processes expand/collapse event of a treeNode
- dropListener processes a Drop event
- dragListener processes a Drag event
- nodeSelectListener is called during request sending on a node selecting event (if request sending on this event is defined)

Listener methods can be defined using the *following attributes* or using nested tags.

Client event attributes are:

- *"onexpand"* is a script expression to invoke when a node is expanded
- *"oncollapse"* is a script expression to invoke when a node is collapsed
- *"ondragexit"* is a script expression to invoke when an element passing out from a tree zone
- *"ondragstart"* is a script expression to invoke when dragging starts
- *"ondragend"* is a script expression to invoke when dragging ends (a drop event)
- *"ondragenter"* is a script expression to invoke when a dragged element appears on a tree

They can be used to add some JavaScript effects.

Standart HTML event attributes like *"onclick"*, *"onmousedown"*, *"onmouseover"* etc. can be also used. Event handlers of a **<rich:tree>** component capture events occured on any tree part. But event handlers of treeNode capture events occured on treeNode only, except for children events.

6.9.1.6. Reference Data

Table of <rich:tree> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/tree.html].

Table 6.95. Component Identification Parameters

Name	Value
component-type	org.richfaces.Tree
component-class	org.richfaces.component.html.HtmlTree
component-family	org.richfaces.Tree
renderer-type	org.richfaces.TreeRenderer
tag-class	org.richfaces.taglib.TreeTag

Table 6.96. Facets

Facet name	Description
icon	

Facet name	Description
	Redefines the icon for node. Related attribute is "icon"
iconCollapsed	Redefines the icon for collapsed node. Related attribute is "iconCollapsed"
iconExpanded	Redefines the icon for expanded node. Related attribute is "iconExpanded"
iconLeaf	Redefines the icon for component leaves. Related attribute is "iconLeaf"

Table 6.97. Classes names that define a component appearance

Class name	Description
rich-tree	Defines styles for a wrapper element of a tree

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.9.1.7. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/tree.jsf?c=tree] you can see the example of **<rich:tree>** usage and sources for the given example.

How to Expand/Collapse Tree Nodes from code, see in this*wiki article* [http://labs.jboss.com/wiki/ExpandCollapseTreeNodes].

6.9.2. < rich:treeNode > available since 3.0.0

6.9.2.1. Description

The **<rich:treeNode>** component is designed for creating sets of tree elements within a **<rich:tree>** component.

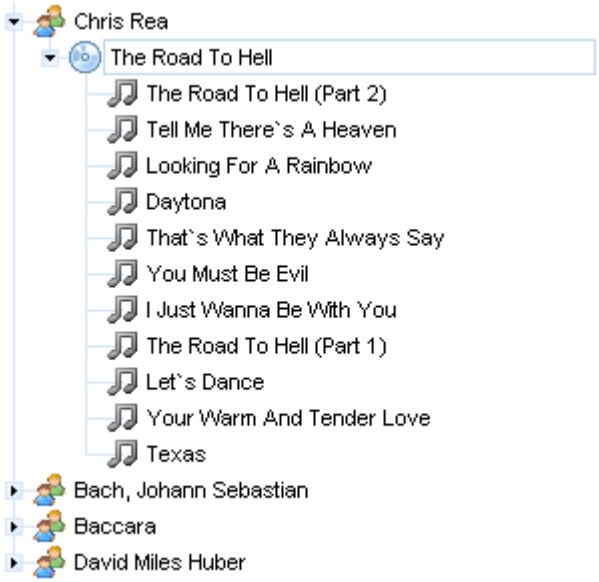


Figure 6.70. <rich:treeNode> component

6.9.2.2. Key Features

- Possibility to assign different icon images for each node within a tree
- Drag and Drop support
- Look-and-Feel customization

6.9.2.3. Details of Usage

The *"icon"*, *"iconCollapsed"*, *"iconExpanded"*, *"iconLeaf"* attributes define icons for the component. Also you can define icons using facets with the same names. If the facets are defined, the corresponding attributes are ignored and facets contents are used as icons. The width of a rendered facet area is 16px.

```
...
<rich:tree ...>
      ...
      <rich:treeNode ...>
            <f:facet name="icon">
               <outputText value="A"/>
            </f:facet>
            <f:facet name="iconCollapsed">
               <outputText value="B"/>
            </f:facet>
            <f:facet name="iconExpanded">
               <outputText value="C"/>
```

```
            </f:facet>
            <f:facet name="iconLeaf">
               <outputText value="D"/>
            </f:facet>
      </rich:treeNode>
      ...
</rich:tree>
...
```

As it has been mentioned *above*, **<rich:treeNode>** defines a template for nodes rendering in a tree. Thus, during XML document rendering (a web.xml application) as a tree, the following nodes output (passed via `var="data"` on a tree) happens:

Example:

```
...
<rich:tree ... faceNode="simpleNode" ... value="#{bean.data}" var="data">
      <rich:treeNode type="simpleNode">
            <h:outputText value="context-param:"/>
            <h:inputText value="#{data.name}"/>
      </rich:treeNode>
</rich:tree>
...
```

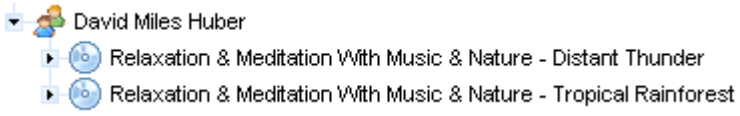


Figure 6.71. Nodes output

Hence, **<h:outputText />** tag outputs the `"context-param"` string and then the **<h:inputText />** outputs the `data.name` element of this node.

Different nodes for rendering could be defined depending on some conditions on the tree level. Each condition represents some rendering template. To get more information on various treeNodesAdaptorAdaptor definition for nodes, *see the tree component chapter*.

Switching between expanded/collapsed modes is also managed on the tree level and defined in *the corresponding section*.

Default nodes of the tree level as well as the ones defined with the treeNodesAdaptorAdaptor component could send Ajax requests when selected with the mouse, it's managed with the *"ajaxSubmitSelection"* attribute (true/false).

Information about the *"process"* attribute usage you can find *" Decide what to process "* guide section.

6.9.2.4. Built-in Drag and Drop

The main information on Drag and Drop operations is given in *the corresponding paragraph* of the tree component chapter. It's only necessary to mention that each node could also be a Drag element as well as a Drop container, i.e. the container and the element have all attributes, listeners and ways of behavior similar to the ones of the **<rich:dragSupport >** and **<rich:dropSupport >** components simultaneously.

6.9.2.5. Events Handling

Just as Drag and Drop operations it corresponds to the one described on *the tree component level* for a default Node.

6.9.2.6. Reference Data

Table of <rich:treeNode> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/treeNode.html].

Table 6.98. Component Identification Parameters

Name	Value
component-type	org.richfaces.TreeNode
component-class	org.richfaces.component.html.HtmlTreeNode
component-family	org.richfaces.TreeNode
renderer-type	org.richfaces.TreeNodeRenderer
tag-class	org.richfaces.taglib.TreeNodeTag

Table 6.99. Facets

Facet name	Description
icon	Redefines the icon for node. Related attribute is "icon"
iconCollapsed	Redefines the icon for collapsed node. Related attribute is "iconCollapsed"
iconExpanded	Redefines the icon for expanded node. Related attribute is "iconExpanded"
iconLeaf	Redefines the icon for component leaves. Related attribute is "iconLeaf"

Table 6.100. Classes names that define a node element

Class name	Description
rich-tree-node	Defines styles for a tree node
rich-tree-node-handle	Defines styles for a tree node handle
rich-tree-node-handleicon	Defines styles for a tree node handle icon
rich-tree-node-children	Defines styles for all tree node subnodes
rich-tree-node-text	Defines styles for a tree node text
rich-tree-node-icon	Defines styles for a tree node icon
rich-tree-h-ic-img	Defines styles for an image of a tree node
rich-tree-node-icon-leaf	Defines styles for a tree node icon leaf

Table 6.101. Classes names that define states for a node element

Class name	Description
rich-tree-node-selected	Defines styles for a selected tree node
rich-tree-node-highlighted	Defines styles for a highlighted tree node
rich-tree-node-handleicon-collapsed	Defines styles for a collapsed tree node handleicon
rich-tree-node-handleicon-expanded	Defines styles for a expanded tree node handleicon

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.9.2.7. Relevant Resources Links

How to Expand/Collapse Tree Nodes from code see in this*wiki article* [http://labs.jboss.com/wiki/ExpandCollapsetreeNodesAdaptor].

6.9.3. < rich:treeNodesAdaptor > available since 3.1.0

6.9.3.1. Description

The **<rich:treeNodesAdaptor>** provides the possibility to define data models and create representations for them.

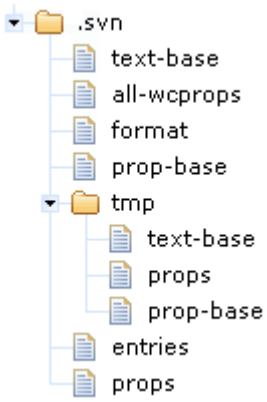


Figure 6.72. Expanded tree with <rich:treeNodesAdaptor>

6.9.3.2. Key Features

- Allows to define combined data models
- Possibility to define nodes for processing via attributes

6.9.3.3. Details of Usage

The **<rich:treeNodesAdaptor>** component has a *"nodes"* attribute that defines a collection of elements to iterate through.

Collections are allowed to include lists, arrays, maps, XML NodeList and NamedNodeMap either as a single object.

The *"var"* attribute is used to access to the current collection element.

The **<rich:treeNodesAdaptor>** component can be nested without any limitations. See the following example.

Example:

```
...
<rich:tree adviseNodeOpened="#{treeModelBean.adviseNodeOpened}" switchType="client">
   <rich:treeNodesAdaptor id="project" nodes="#{loaderBean.projects}" var="project">
      <rich:treeNode>
         <h:commandLink action="#{project.click}" value="Project: #{project.name}" />
      </rich:treeNode>
   <rich:treeNodesAdaptor id="srcDir" var="srcDir" nodes="#{project.srcDirs}">
      <rich:treeNode>
         <h:commandLink action="#{srcDir.click}" value="Source directory: #{srcDir.name}" />
      </rich:treeNode>
```

```
    <rich:treeNodesAdaptor id="pkg" var="pkg" nodes="#{srcDir.packages}">
      <rich:treeNode>
        <h:commandLink action="#{pkg.click}" value="Package: #{pkg.name}" />
      </rich:treeNode>
    <rich:treeNodesAdaptor id="class" var="class" nodes="#{pkg.classes}">
      <rich:treeNode>
        <h:commandLink action="#{class.click}" value="Class: #{class.name}" />
      </rich:treeNode>
    </rich:treeNodesAdaptor>
    </rich:treeNodesAdaptor>
    </rich:treeNodesAdaptor>
    </rich:treeNodesAdaptor>
</rich:tree>
...
```

6.9.3.4. Reference Data

Table of <rich:treeNodesAdaptor> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/treeNodesAdaptor.html].

Table 6.102. Component Identification Parameters

Name	Value
component-type	org.richfaces.TreeNodesAdaptor
component-class	org.richfaces.component.html.HtmlTreeNodesAdaptor
component-family	org.richfaces.TreeNodesAdaptor
tag-class	org.richfaces.taglib.TreeNodesAdaptorTag

6.9.3.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/treeNodesAdaptor.jsf?c=treeNodesAdaptor] you can see the example of **<rich:treeNodesAdaptor >** usage and sources for the given example.

6.9.4. < rich:recursiveTreeNodesAdaptor > available since 3.1.0

6.9.4.1. Description

The **<rich:recursiveTreeNodesAdaptor>** is an extension of a **<rich:treeNodesAdaptor>** component that provides the possibility to define data models and process nodes recursively.

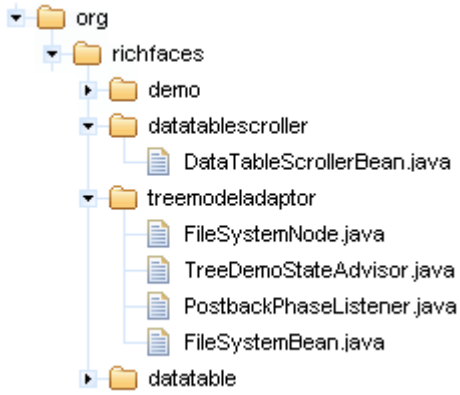


Figure 6.73. Expanded tree with <rich:recursiveTreeNodesAdaptor>

6.9.4.2. Key Features

- Allows to define combined data models
- Possibility to define nodes for processing via attributes
- Allows to process nodes recursively

6.9.4.3. Details of Usage

The **<rich:recursiveTreeNodesAdaptor>** component has a *"roots"* attribute that defines collection to use at the top of recursion.

The *"nodes"* attribute defines collection to use on another recursion levels.

The *"var"* attribute is used to access to the current collection element.

The **<rich:recursiveTreeNodesAdaptor>** component can be nested without any limitations. See the following example.

Example:

```
...
<rich:tree adviseNodeOpened="#{treeModelBean.adviseNodeOpened}" switchType="client">
   <rich:treeNodesAdaptor id="project" nodes="#{loaderBean.projects}" var="project">
      <rich:treeNode>
         <h:commandLink action="#{project.click}" value="Project: #{project.name}" />
      </rich:treeNode>
                  <rich:recursiveTreeNodesAdaptor id="dir" var="dir" root="#{project.dirs}"
nodes="#{dir.directories}">
         <rich:treeNode>
```

```
            <h:commandLink action="#{dir.click}" value="Directory: #{dir.name}" />
        </rich:treeNode>
        <rich:treeNodesAdaptor id="file" var="file" nodes="#{dir.files}">
            <rich:treeNode>
                <h:commandLink action="#{file.click}" value="File: #{file.name}" />
            </rich:treeNode>
        </rich:treeNodesAdaptor>
        <rich:treeNodesAdaptor id="file1" var="file" nodes="#{dir.files}">
            <rich:treeNode>
                <h:commandLink action="#{file.click}" value="File1: #{file.name}" />
            </rich:treeNode>
        </rich:treeNodesAdaptor>
        <rich:recursiveTreeNodesAdaptor id="archiveEntry" var="archiveEntry"
                    roots="#{dir.files}" nodes="#{archiveEntry.archiveEntries}"
                    includedRoot="#{archiveEntry.class.simpleName == 'ArchiveFile'}"
                    includedNode="#{archiveEntry.class.simpleName == 'ArchiveEntry'}">
            <rich:treeNode id="archiveEntryNode">
                        <h:commandLink action="#{archiveEntry.click}" value="Archive entry:
 #{archiveEntry.name}" />
            </rich:treeNode>
        </rich:recursiveTreeNodesAdaptor>
    </rich:recursiveTreeNodesAdaptor>
  </rich:treeNodesAdaptor>
</rich:tree>
...
```

6.9.4.4. Reference Data

Table of <rich:recursiveTreeNodesAdaptor> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/recursiveTreeNodesAdaptor.html].

Table 6.103. Component Identification Parameters

Name	Value
component-type	org.richfaces.RecursiveTreeNodesAdaptor
component-class	org.richfaces.component.html.HtmlRecursiveTreeNodesAdaptor
component-family	org.richfaces.RecursiveTreeNodesAdaptor
tag-class	org.richfaces.taglib.RecursiveTreeNodesAdaptorTag

6.9.4.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/treeNodesAdaptor.jsf?c=recursiveTreeNodesAdaptor] you can see the example of **<rich:recursiveTreeNodesAdaptor>** usage.

6.9.5. < rich:changeExpandListener > available since 3.1.0

6.9.5.1. Description

The **<rich:changeExpandListener>** represents an action listener method that is notified on an expand/collapse event on the node.

6.9.5.2. Key Features

- Allows to define some "changeExpand" listeners for the component

6.9.5.3. Details of Usage

The **<rich:changeExpandListener>** is used as a nested tag with **<rich:tree>** and **<rich:treeNode>** components.

Attribute *"type"* defines the fully qualified Java class name for the listener. This class should implement `org.richfaces.event.NodeExpandedListener` [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/event/TreeListenerEventsProducer.html#addChangeExpandListener(org.richfaces.event.NodeExpandedListener)]interfac

The typical variant of using:

```
...
<rich:tree switchType="server" value="#{project.data}" var="item" nodeFace="#{item.type}">
   <rich:changeExpandListener type="demo.ListenerBean"/>
   ...
   <!-- Tree nodes -->
   ...
</rich:tree>
...
```

Java bean source:

```
package demo;
import org.richfaces.event.NodeExpandedEvent;
public class ListenerBean implements org.richfaces.event.NodeExpandedListener{
   ...
   public void processExpansion(NodeExpandedEvent arg0){
      //Custom Developer Code
   }
   ...
```

```
}
...
```

6.9.5.4. Reference Data

Table of <rich:changeExpandListener> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/changeExpandListener.html].

Table 6.104. Component Identification Parameters

Name	Value
listener-class	org.richfaces.event.NodeExpandedListener
event-class	org.richfaces.event.NodeExpandedEvent
tag-class	org.richfaces.taglib.ChangeExpandListenerTag

6.9.6. < rich:nodeSelectListener > available since 3.1.0

6.9.6.1. Description

The **<rich:nodeSelectListener>** represents an action listener method that is notified after selection of a node.

6.9.6.2. Key Features

- Allows to define some "nodeSelect" listeners for the component

6.9.6.3. Details of Usage

The **<rich:nodeSelectListener>** is used as a nested tag with **<rich:tree>** and **<rich:treeNode>** components.

Attribute *"type"* defines the fully qualified Java class name for listener. This class should implement `org.richfaces.event.NodeSelectedListener` [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/event/NodeSelectedListener.html]. interface

The typical variant of using:

```
...
<rich:tree switchType="server" value="#{project.data}" var="item" nodeFace="#{item.type}">
   <rich:nodeSelectListener type="demo.ListenerBean"/>
   ...
   <!-- Tree nodes -->
```

```
    ...
</rich:tree>
...
```

Java bean source:

```
package demo;
import org.richfaces.event.NodeSelectedEvent;
public class ListenerBean implements org.richfaces.event.NodeSelectedListener{
    ...
    public void processSelection(NodeSelectedEvent arg0){
        //Custom Developer Code
    }
    ...
}
```

6.9.6.4. Reference Data

Table of <rich:nodeSelectListener> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/nodeSelectListener.html].

Table 6.105. Component Identification Parameters

Name	Value
listener-class	org.richfaces.event.NodeSelectedListener
event-class	org.richfaces.event.NodeSelectedEvent
tag-class	org.richfaces.taglib.NodeSelectListenerTag

6.10. Rich Output

This section covers the components that are designed to be used as output and UI elements.

6.10.1. < rich:modalPanel > available since 3.0.0

6.10.1.1. Description

The component implements a modal dialog window. All operations in the main application window are locked out while this window is active. Opening and closing the window is done through client JavaScript code.

Figure 6.74. The <rich:modalPanel> component opens in closest to observer layer. All other layers are dimmed by blocking `<div>` element (gray on the picture).

6.10.1.2. Key Features

- Highly customizable look and feel
- Support of draggable operations and size changes by you
- Easy positioning for the modal dialog window
- Possibility to restore of the previous component state on a page (including position on the screen) after submitting and reloading

6.10.1.3. Details of Usage

The component is defined as a panel with some content inside that displays its content as a modal dialog. To call it and to close it, the client API for the window is used.

Table 6.106. Functions description

Function	Description
Richfaces.showModalPanel (client Id)	Opens a window with a specified client Id
Richfaces.hideModalPanel (client Id)	Closes a window with a specified client Id

Function	Description
Richfaces.hideTopModalPanel ()	Closes the current visible window at the top

Important:

To work properly the <rich:modalPanel> should always be placed outside the original <h:form> and must include its own <h:form> for such cases like performing submissions from within the <rich:modalPanel>.

Note:

In order to avoid a bug in IE, the root node of the dialog is moved on the top of a DOM tree.

It's possible to add a *"header"* facet to the component to set the content for the header.

Example:

```
<a onclick="Richfaces.showModalPanel('pnl');" href="#">Show ModalPanel</a>
<a4j:form>
   <rich:modalPanel id="pnl">
      <f:facet name="header">
         <h:outputText value="This is a panel header" />
      </f:facet>
      <p>The &lt;rich:modalPanel&gt; accepts different types of information:
      from simple text to iterative components such as &lt;rich:dataTable&gt;, etc.
      </p>
      <a onclick="Richfaces.hideModalPanel('pnl');" href="#">Hide</a>
   </rich:modalPanel>
</a4j:form>
```

Here is what happening on the page:

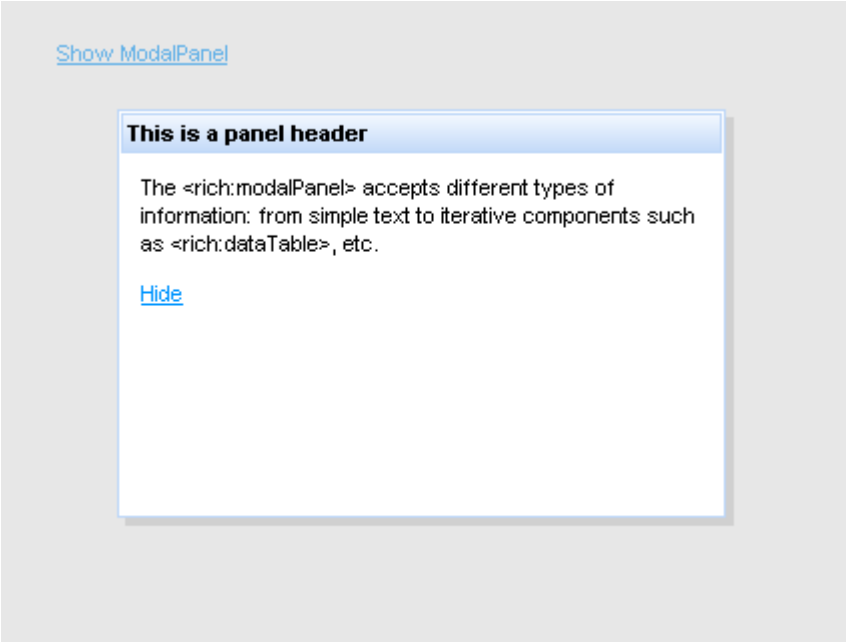


Figure 6.75. <rich:modalPanel> with links

A facet named *"controls"* can be added to the component to place control elements on a header.

Example:

```
<a onclick="Richfaces.showModalPanel('pnl');" href="#">Show ModalPanel</a>
<a4j:form>
   <rich:modalPanel id="pnl">
      <f:facet name="header">
         <h:outputText value="This is a panel header" />
      </f:facet>
      <f:facet name="controls">
                              <h:graphicImage   value="/pages/close.png"   style="cursor:pointer"
 onclick="Richfaces.hideModalPanel('pnl')" />
      </f:facet>
      <p>The &lt;rich:modalPanel&gt; accepts different types of information:
      from simple text to iterative components such as &lt;rich:dataTable&gt;, etc.
      </p>
   </rich:modalPanel>
</a4j:form>
```

The result:

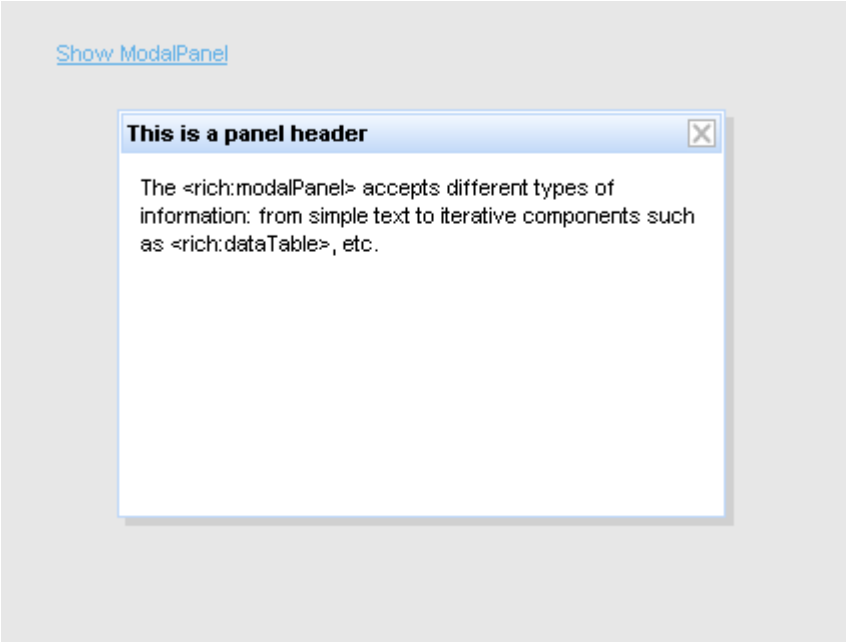


Figure 6.76. <rich:modalPanel> with 'Close' control

To understand the sence of " *domElementAttachment* " attribute you should understand the *stacking context* in the division element (`<div>`) HTML makeup. Since each positioned or `z-index`ed element (in CSS `position: absolute` or `relative` or `z-index: [any integer value different from 0]`) form their own stacking context the **<rich:modalPanel>** nested into such element may be overlapped with another elements, which appear later in HTML hierarchy and assimilated with basic stacking context (HTML <body>). To make the panel rendered in closest to the observer layer and avoid such overlapping, the component was designed in way when it is always being automatically assimilated with `<body>` and with a very high rendering layer (`z-index`). Due to some side effects the **<rich:modalPanel>** should not always be assimilated with `<body>` stacking context. The " *domElementAttachment* " attribute helps to reassign the panel to it '*parent*' or '*form*' element. If '*form*' is used and no parent form is available the panel is functioning as if it is assimilated with `<body>`.

Note:

If " *domElementAttachment* " value is not '*body*' then some overlapping may occur.

To manage window placement relative to the component, there are *"left"* and *"top"* attributes defining a window shifting relative to the top-left corner of the window.

Modal windows can also support resize and move operations on the client side. To allow or disallow these operations, set the *"resizeable"* and *"moveable"* attributes to "true" or "false" values. Window resizing is also limited by *"minWidth"* and *"minHeight"* attributes specifying the minimal window sizes.

Also you can use *"minWidth"* and *"minHeight"* attributes used as `showModalPanel()` arguments in JavaScript options.

You can pass your parameters during modalPanel opening or closing. This passing could be performed in the following way:

Example:

```
Richfaces.showModalPanel('panelId', {left: auto, param1: value1});
```

Thus, except the standard modalPanel parameters you can pass any of your own parameters.

Also modalPanel allows to handle its own opening and closing events on the client side. The *"onshow"* attribute is used in this case.

The following example shows how on the client side to define opening and closing event handling in such a way that your own parameters could also be obtained:

Example:

```
onshow="alert(event.parameters.param1)"
```

Here, during modalPanel opening the value of a passing parameter is output.

More information about this problem could be found on the *RichFaces Development Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&t=111804].

There is a possibility to restore of the previous component state on a page (including position on the screen) after submitting and reloading. The modalPanel has some special attributes like *"showWhenRendered"* and *"keepVisualState"* .

"showWhenRendered" - This boolean attribute is used if modalPanel should be rendered after first page loading.

"keepVisualState" - Used if modalPanel should save state after submission. If `keepVisualState="true"` then parameters which modalPanel has during opening should be submitted and passed to new page.

Example:

```
<a href="javascript:Richfaces.showModalPanel('pnl', {top:'10px', left:'10px', height:'400'});">Show</a>
```

Here, if you open modal dialog window using current link and after submits data then modalPanel destination and height on new loaded page is restored.

if you need the content of the modalPanel to be submitted - you need to remember two important rules:

- modalPanel must have its own form if it has form elements (input or/and command components) inside (as it was shown in the example above)
- modalPanel must not be included into the form (on any level up) if it has the form inside.

Simple example of using commandButton within modalPanel is placed below.

Example:

```
<a4j:form>
<rich:modalPanel>
      <f:facet name="header">
            <h:outputText value="Test" />
      </f:facet>
      <f:facet name="controls">
                                          <h:commandLink   value="Close"   style="cursor:pointer"
 onclick="Richfaces.hideModalPanel('mp')" />
      </f:facet>
      <h:form>
            <h:commandButton value="Test" action="#{TESTCONTROLLER.test}" />
      </h:form>
</rich:modalPanel>
```

See also discussion about this problem on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4064191].

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"`, {2} for `"ShortConverter.SHORT"`.

In RichFaces Cookbook article about *Modal Panel* [http://wiki.jboss.org/auth/wiki/RichFacesCookbook/DetailModalPanelFromTable] there is information for those of you who would like to click on a details link in table and have it show a modal panel with information loaded from the server.

To avoid overlapping of the **<rich:modalPanel>** component on the page by any embed objects (inserted with HTML `<EMBED>` tag) set the *"overlapEmbedObjects"* attribute to "true".

6.10.1.4. Reference Data

Table of <rich:modalPanel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/modalPanel.html].

Table 6.107. Component Identification Parameters

Name	Value
component-type	org.richfaces.ModalPanel
component-class	org.richfaces.component.html.HtmlModalPanel
component-family	org.richfaces.ModalPanel
renderer-type	org.richfaces.ModalPanelRenderer
tag-class	org.richfaces.taglib.ModalPanelTag

Table 6.108. JavaScript API

Function	Description
show()	Opens the corresponding modalPanel
hide()	Closes the corresponding modalPanel

Table 6.109. Facets

Facet	Description
header	Define the header content
controls	Defines the control elements on the header

Table 6.110. Classes names that define a component appearance

Class name	Description
rich-modalpanel	Defines styles for a wrapper element of a modalPanel
rich-mpnl-mask-div	Defines styles for a wrapper element of a mask
rich-mpnl_panel	Defines styles for a modalPanel
rich-mp-container	Defines styles for a modalPanel container
rich-mpnl-resizer	Defines styles for a wrapper element of a resizing element
rich-mpnl-shadow	Defines styles for a modalPanel shadow
rich-mp-content-table	Defines styles for a <table> element of a modalPanel

Class name	Description
rich-mpnl-header	Defines styles for a modalPanel header
rich-mpnl-header-cell	Defines styles for a header cell
rich-mpnl-text	Defines styles for a wrapper element of a header text
rich-mpnl-body	Defines styles for a content inside a modalPanel
rich-mpnl-controls	Defines styles for a wrapper element of a modalPanel control

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.1.5. Relevant Resources Links

Visit *ModalPanel page* [http://livedemo.exadel.com/richfaces-demo/richfaces/modalPanel.jsf?c=modalPanel] at RichFaces Livedemo for examples of component usage and their sources.

Read the " *An Introduction To JBoss RichFaces* [http://eclipse.dzone.com/articles/an-introduction-to-jboss-richf?page=0%2C0]" tutorial by Max Katz to find out how the **<rich:modalPanel>** helps to edit and save changes for table entries.

Some articles at JBoss portal describing different aspects of **<rich:modalPanel>** usage:

- "*ModalPanelWizards* [http://www.jboss.org/community/docs/DOC-11436]" article describes how to create a typical wizard with the help of **<rich:modalPanel>** component (the same could also be found in the " *How to organize wizards using the <rich:modalPanel> component?* [http://www.jboss.org/community/wiki/PanelsandOutput#Organizewizards]" chapter of RichFaces FAQ guide);
- Refer to the "*How to do a detail view modalPanel in a table* [http://www.jboss.org/community/docs/DOC-11853]" article in the RichFaces cookbook at JBoss Portal to find out how to build a table with details link clicking on which will display a modal panel with information loaded from the server.
- "*ModalPanelValidation* [http://www.jboss.org/community/docs/DOC-11435]" article gives examples of validation in **<rich:modalPanel>** (the same in the *corresponding topic* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4061517] at RichFaces Users Forum);
- "*RichFacesPleaseWaitBox* [http://www.jboss.org/community/docs/DOC-11863]" article describes how to show a "Please wait" box and block the input while the Ajax request is being processed using combination of **<a4j:status>** and **<rich:modalPanel>** components.

6.10.2. < rich:paint2D > available since 3.0.0

6.10.2.1. Description

Create image by painting from a managed bean method, same as *"paint"* (Graphics2D) in *"SWING"* components.

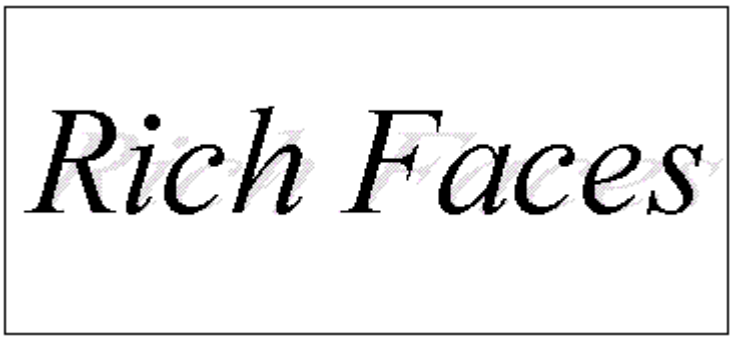


Figure 6.77. <rich:paint2D> component

6.10.2.2. Key Features

- Simple Graphics2D - painting style directly on the Web page
- Supports client/server caching for generated images
- Fully supports *"JPEG"* (24-bit, default), *"GIF"* (8-bit with transparency), and *"PNG"* (32-bit with transparency) formats for sending generated images
- Easily customizable borders and white space to wrap the image
- Dynamically settable paint parameters using tag attributes

6.10.2.3. Details of Usage

The example shows two main attributes of the component:

- *"paint"*

  Specify a method receiving an object specified in data as a parameter and sending graphical information into the stream

- *"data"*

  Specifies a bean class keeping your data for rendering

Note:

Data object should implement serializable interface

The *"format"* attribute of the component defines a format of visual data passing to the server.

Generated data can be used as a cacheable or non-cacheable resource. It's defined with *"cacheable"* attribute. If cache support is turned on, a key is created in URI with a mix of size (width/height), `"paint"` method, *"format"* and *"data"* attributes.

Example:

paintBean.java:

```
public void paint(Graphics2D g2, Object obj) {
      // code that gets data from the data Bean (PaintData)
     PaintData data = (PaintData) obj;
      ...
      // a code drawing a rectangle
      g2.drawRect(0, 0, data.Width, data.Height);
      ...
      // some more code placing graphical data into g2 stream below
}
```

dataBean.java:

```
public class PaintData implements Serializable{
      private static final long serialVersionUID = 1L;
      Integer Width=100;
      Integer Height=50;
     ...
}
```

page.xhtml:

```
...
<rich:paint2D paint="#{paint2D.paint}" data="#{paint2DModel.data}"/>
...
```

6.10.2.4. Reference Data

Table of <rich:paint2D> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/paint2D.html].

Table 6.111. Component Identification Parameters

Name	Value
component-type	org.richfaces.Paint2D

Name	Value
component-class	org.richfaces.component.html.HtmlPaint2D
component-family	javax.faces.Output
renderer-type	org.richfaces.Paint2DRenderer
tag-class	org.richfaces.taglib.Paint2DTag

6.10.2.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/paint2D.jsf?c=paint2d] you can see the example of **<rich:paint2D>** usage and sources for the given example.

6.10.3. < rich:panel > available since 3.0.0

6.10.3.1. Description

A skinnable panel that is rendered as a bordered rectangle with or without a header.

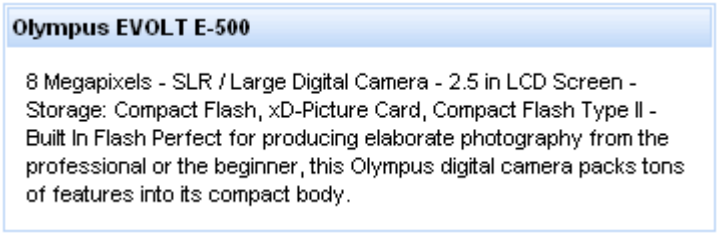


Figure 6.78. <rich:panel> component

6.10.3.2. Key Features

- Highly customizable look and feel
- Support for any content inside
- Header adding feature

6.10.3.3. Details of Usage

The *"header"* attribute defines text to be represented. If you can use the *"header"* facet, you can even not use the *"header"* attribute.

Example:

```
...
<rich:panel>
```

```
        <f:facet name="header">
            <h:graphicImage value="/images/img1.png"/>
        </f:facet>
        ...
        <!--Any Content inside-->
        ...
</rich:panel>
...
```

<rich:panel> components are used to group page content pieces on similarly formatted rectangular panels.

Example:

```
...
<rich:panel>
        ...
</rich:panel>
...
```

It's generating on a page in the following way:

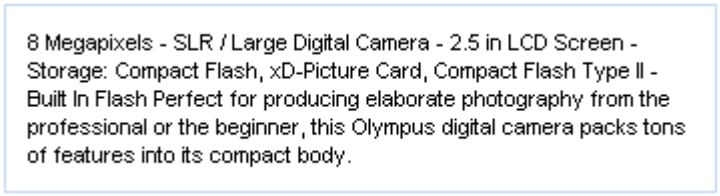


Figure 6.79. <rich:panel> without header

The example shows that similar rectangular areas are formed with a particular style.

When creating a panel with a header element, one more ** ** element is added with content defined for a header.

Example:

```
...
<rich:panel>
        <f:facet name="header">
            <h:outputText value="Olympus EVOLT E-500 "/>
        </f:facet>
        ...
```

```
</rich:panel>
...
```

It's displayed on a page in the following way:

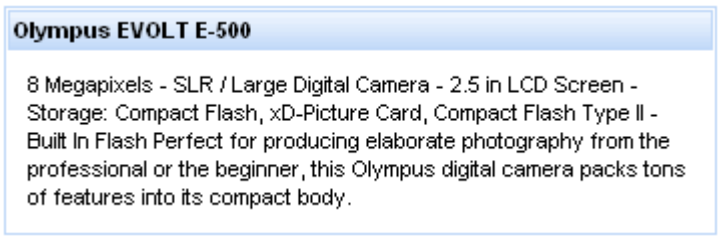


Figure 6.80. <rich:panel> with header

As it has been mentioned *above*, the component is mostly used for a page style definition, hence the main attributes are style ones.

- *"styleClass"*
- *"headerClass"*
- *"bodyClass"*

Moreover, to add e.g. some JavaScript effects, events defined on it are used.

- *"onmouseover"*
- *"onclick"*
- *"onmouseout"*
- etc.

6.10.3.4. Reference Data

Table of <rich:panel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/panel.html].

Table 6.112. Component Identification Parameters

Name	Value
component-type	org.richfaces.panel
component-class	org.richfaces.component.html.HtmlPanel
component-family	org.richfaces.panel
renderer-type	org.richfaces.PanelRenderer

Name	Value
tag-class	org.richfaces.taglib.PanelTag

Table 6.113. Facets

Facet name	Description
header	Defines the header content

Table 6.114. Classes names that define a component appearance

Class name	Class description
rich-panel	Defines styles for a wrapper element of a component
rich-panel-header	Defines styles for a header element
rich-panel-body	Defines styles for a body element

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.3.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/panel.jsf?c=panel] you can see the example of **<rich:panel>** usage and sources for the given example.

6.10.4. < rich:panelBar > available since 3.0.0

6.10.4.1. Description

panelBar is used for grouping any content which is loaded on the client side and appears as groups divided on child panels after the header is clicked.

Figure 6.81. <rich:panelBar> with content inside

6.10.4.2. Key Features

- Skinnable slide panel and child items
- Groups any content inside each panel

6.10.4.3. Details of Usage

As it was mentioned *above*, panelBar is used for grouping any content on the client, thus its customization deals only with specification of sizes and styles for rendering.

"width" and *"height"* (both are 100% on default) attributes stand apart.

Style attributes are described further.

panelBar could contain any number of child panelBarItem components inside, which content is uploaded onto the client and headers are controls to open the corresponding child element.

6.10.4.4. Reference Data

Table of <rich:panelBar> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/panelBar.html].

Table 6.115. Component Identification Parameters

Name	Value
component-type	org.richfaces.PanelBar
component-class	org.richfaces.component.html.HtmlPanelBar
component-family	org.richfaces.PanelBar
renderer-type	org.richfaces.PanelBarRenderer
tag-class	org.richfaces.taglib.PanelBarTag

Table 6.116. Class name that define a component appearance

Class name	Class description
rich-panelbar	Defines styles for a wrapper element of a component

Table 6.117. Style component classes

A class attribute	A component element defined by an attribute
styleClass	Applicable to a whole component (together with headers)
headerClass	Applicable to a header element

A class attribute	A component element defined by an attribute
contentClass	Applicable to a content

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.4.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/panelBar.jsf?c=panelBar] you can see the example of **<rich:panelBar>** usage and sources for the given example.

6.10.5. < rich:panelBarItem > available since 3.0.0

6.10.5.1. Description

panelBarItem is used for grouping any content inside within one panelBar which is loaded on client side and appears as groups divided on child panels after header is clicked.

Figure 6.82. <rich:panelBarItem> component

6.10.5.2. Key Features

- Highly customizable look and feel
- Groups any content inside each Panels

6.10.5.3. Details of Usage

The *"label"* attribute defines text to be represented. If you can use the *"label"* facet, you can even not use the *"label"* attribute.

Example:

```
...
<rich:panelBarItem...>
        <f:facet name="label">
              <h:graphicImage value="/images/img1.png"/>
        </f:facet>
        ...
       <!--Any Content inside-->
        ...
</rich:panelBarItem>
...
```

As it was mentioned *above*, panelBarItem is used for grouping any content inside within one panelBar, thus its customization deals only with specification of sizes and styles for rendering.

panelBar could contain any number of child panelBarItem components inside, which content is uploaded onto the client and headers are controls to open the corresponding child element.

6.10.5.4. Reference Data

Table of <rich:panelBarItem> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/panelBarItem.html].

Table 6.118. Component Identification Parameters

Name	Value
component-type	org.richfaces.PanelBarItem
component-class	org.richfaces.component.html.HtmlPanelBarItem
component-family	org.richfaces.PanelBarItem
renderer-type	org.richfaces.PanelBarItemRenderer
tag-class	org.richfaces.taglib.PanelBarItemTag

Table 6.119. Facets

Facet name	Description
label	defines the label text on the panel item header

Table 6.120. Classes names that define a component appearance

Class name	Class description
rich-panelbar-header	

Class name	Class description
	Defines styles for a wrapper element of a header element
rich-panelbar-header-act	Defines styles for a wrapper element of an active header element
rich-panelbar-content	Defines styles for a content

Table 6.121. Style component classes

A class attribute	A component element defined by an attribute
headerClass	Applicable to a header element
contentClass	Applicable to a content

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.6. < rich:panelMenu > available since 3.1.0

6.10.6.1. Description

The **<rich:panelMenu>** component is used to define an in line vertical menu on a page.

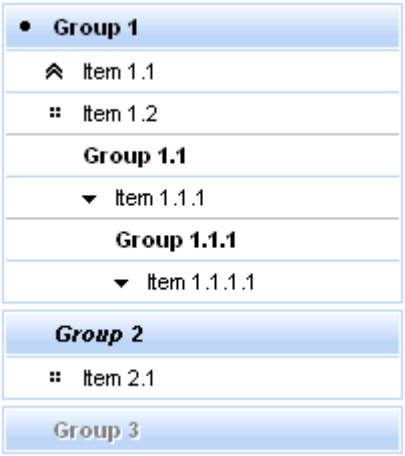


Figure 6.83. <rich:panelMenu> component

6.10.6.2. Key Features

- Highly customizable look and feel

- Different submission modes
- Collapsing/expanding sublevels with optional request sending
- Custom and predefined icons support
- Disablement support

6.10.6.3. Details of Usage

All attributes are not required.

Use *"event"* attribute to define an event for appearance of collapsing/expanding sublevels. Default value is "onclick". An example could be seen below.

Example:

```
...
<rich:panelMenu event="onmouseover">
      <!--Nested panelMenu components-->
</rich:panelMenu>
...
```

Switching mode could be chosen with the *"mode"* attribute for all panelMenu items except ones where this attribute was redefined. By default all items send traditional request.

The *"expandMode"* attribute defines the submission modes for all collapsing/expanding panelMenu groups except ones where this attribute was redefined.

The *"mode"* and *"expandMode"* attributes could be used with three possible parameters. The *"mode"* attribute defines parameters for all included **<rich:panelMenuItem>** elements.

- `Server` (default)

The common submission of the form is performed and a page is completely refreshed.

Example:

```
...
<rich:panelMenu mode="server">
      <rich:panelMenuGroup label="test Group" action="#{bean.action}">
            <rich:panelMenuItem label="test" action="#{capitalsBean.action}">
               <f:param value="test value" name="test"/>
            </rich:panelMenuItem>
      </rich:panelMenuGroup>
```

```
</rich:panelMenu>
...
```

- `Ajax`

An Ajax form submission is performed, and additionally specified elements in the *"reRender"* attribute are reRendered.

Example:

```
...
<rich:panelMenu mode="ajax">
      <rich:panelMenuGroup label="test Group" action="#{bean.action}">
            <rich:panelMenuItem label="test" reRender="test" action="#{capitalsBean.action}">
                  <f:param value="test value" name="test"/>
            </rich:panelMenuItem>
      </rich:panelMenuGroup>
</rich:panelMenu>
...
```

- `None`

"Action" and *"ActionListener"* item's attributes are ignored. Items don't fire any submits itself. Behavior is fully defined by the components nested into items.

Example:

```
...
<rich:panelMenu event="onclick" submitMode="none">
      <rich:panelMenuItem label="Link to external page">
            <h:outputLink ... >
      <rich:panelMenuItem>
</rich:panelMenu>
...
```

Note:

As the **<rich:panelMenu>** component doesn't provide its own form, use it between **<h:form>** and **</h:form>** tags.

The *"expandSingle"* attribute is defined for expanding more than one submenu on the same level. The default value is *"false"* . If it's true the previously opened group on the top level closes before opening another one. See the picture below.

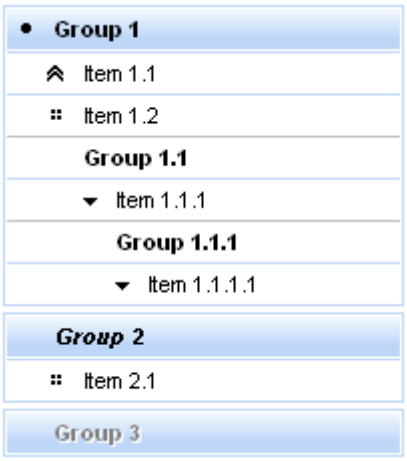


Figure 6.84. Using the *"expandSingle"* attribute

The *"selectedChild"* attribute is used for defining the name of the selected group or item. An example for group is placed below:

Here is an example:

Example:

```
...
<rich:panelMenu selectedChild="thisChild">
      <rich:panelMenuGroup label="Group1" name="thisChild">
            <!--Nested panelMenu components-->
      </rich:panelMenuGroup>
</rich:panelMenu>
...
```

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"`, {2} for `"ShortConverter.SHORT"`.

6.10.6.4. Reference Data

Table of <rich:panelMenu> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/panelMenu.html].

Table 6.122. Component Identification Parameters

Name	Value
component-type	org.richfaces.PanelMenu
component-class	org.richfaces.component.html.HtmlPanelMenu
component-family	org.richfaces.PanelMenu
renderer-type	org.richfaces.PanelMenuRenderer
tag-class	org.richfaces.taglib.PanelMenuTag

Table 6.123. JavaScript API

Function	Description
expand()	Expands group element
collapse()	Collapses group element

Table 6.124. Classes names that define a component appearance

Class name	Class description
rich-pmenu	Defines styles for a wrapper element of a component
rich-pmenu-top-group	Defines styles for a top group element of a component

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.6.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/panelMenu.jsf?c=panelMenu] you can see the example of **<rich:panelMenu>** usage and sources for the given example.

6.10.7. < rich:panelMenuGroup > available since 3.1.0

6.10.7.1. Description

The **<rich:panelMenuGroup>** component is used to define an expandable group of items inside the panel menu or other group.

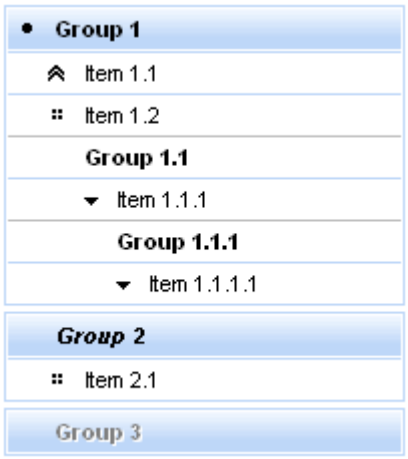


Figure 6.85. <rich:panelMenuGroup> component

6.10.7.2. Key Features

- Highly customizable look-and-feel
- Different submission modes inside every group
- Optional submissions on expand collapse groups
- Custom and predefined icons supported
- Support for disabling

6.10.7.3. Details of Usage

All attributes except *"label"* are optional. The *"label"* attribute defines text to be represented.

Switching mode could be chosen with the *"expandMode"* attribute for the concrete panelMenu group.

The *"expandMode"* attribute could be used with three possible parameters:

- `ServerM` (default)

Regular form submission request is used.

- `Ajax`

Ajax submission is used for switching.

- `None`

"Action" and *"actionListener"* attributes are ignored. Items don't fire any submits itself. Behavior is fully defined by the components nested into items.

There are three icon-related attributes. The *"iconExpanded"* attribute defines an icon for an expanded state. The *"iconCollapsed"* attribute defines an icon for a collapsed state. The *"iconDisabled"* attribute defines an icon for a disabled state.

Default icons are shown on the picture below:

Figure 6.86. Default icons

Here is an example:

Example:

```
...
<rich:panelMenu>
    <rich:panelMenuGroup label="Group1" iconExpanded="disc" iconCollapsed="chevron">
        <!--Nested panelMenu components-->
    </rich:panelMenuGroup>
</rich:panelMenu>
...
```

As the result the pictures are shown below. The first one represents the collapsed state, the second one - expanded state:

Figure 6.87. Collapsed state

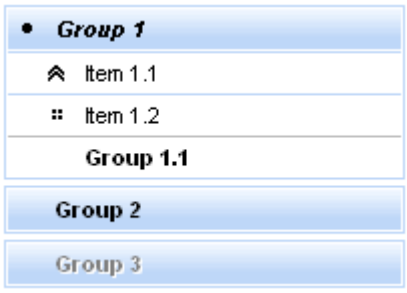


Figure 6.88. Expanded state

It's also possible to define a path to the icon. Simple code is placed below.

```
...
<rich:panelMenu>
                    <rich:panelMenuGroup   label="Group1"   iconExpanded="\images\img1.png"
 iconCollapsed="\images\img2.png">
                <!--Nested menu components-->
        </rich:panelMenuGroup>
</rich:panelMenu>
...
```

Information about the *"process"* attribute usage you can find *" Decide what to process "* guide section.

6.10.7.4. Reference Data

Table of <rich:panelMenuGroup> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/panelMenuGroup.html].

Table 6.125. Component Identification Parameters

Name	Value
component-type	org.richfaces.PanelMenuGroup
component-class	org.richfaces.component.html.HtmlPanelMenuGroup
component-family	org.richfaces.PanelMenuGroup
renderer-type	org.richfaces.PanelMenuGroupRenderer
tag-class	org.richfaces.taglib.PanelMenuGroupTag

Table 6.126. JavaScript API

Function	Description
expand()	Expand group element

Function	Description
collapse()	Collapse group element

Table 6.127. Classes names that define an upper level groups

Class name	Description
rich-pmenu-top-group-self-icon	Defines styles for a top group icon
rich-pmenu-top-group-self-label	Defines styles for a top group label

Table 6.128. Classes names that define a second and lower level groups

Class name	Description
rich-pmenu-group	Defines styles for a group
rich-pmenu-group-self-icon	Defines styles for a group icon
rich-pmenu-group-self-label	Defines styles for a group label

Table 6.129. Classes names that define a group state

Class name	Description
rich-pmenu-hovered-element	Defines styles for a hovered group element
rich-pmenu-disabled-element	Defines styles for a disabled group element

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.7.5. Relevant Resources Links

Some additional information about usage of component can be found *on the component Live Demo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/panelMenu.jsf?c=panelMenu&tab=usage].

6.10.8. < rich:panelMenuItem > available since 3.1.0

6.10.8.1. Description

The **<rich:panelMenuItem>** component is used to define a single item inside popup list.

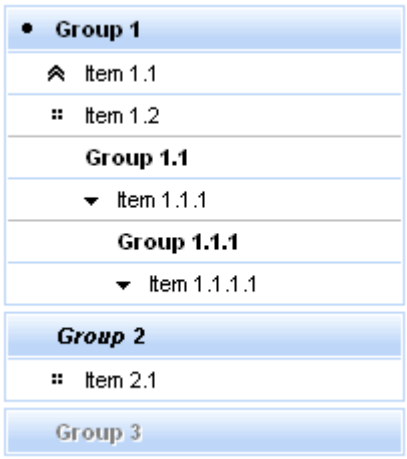


Figure 6.89. <rich:panelMenuItem> component

6.10.8.2. Key Features

- Highly customizable look-and-feel
- Different submission modes
- Optionally supports any content inside
- Custom and predefined icons supported
- Support for disabling

6.10.8.3. Details of Usage

All attributes except *"label"* are optional. The *"label"* attribute defines text to be represented.

The *"mode"* attribute could be used with three possible parameters:

- `Server` (default)

Regular form submission request is used.

- `Ajax`

Ajax submission is used for switching.

- `None`

"Action" and *"actionListener"* attributes are ignored. Items don't fire any submits itself. Behavior is fully defined by the components nested into items.

Here is an example for value "none":

Example:

```
...
<rich:panelMenu>
      ...
    <rich:panelMenuItem mode="none" onclick="document.location.href='http://labs.jboss.com/
jbossrichfaces/'">
            <h:outputLink value="http://labs.jboss.com/jbossrichfaces/">
              <h:outputText value="RichFaces Home Page"></h:outputText>
            </h:outputLink>
     </rich:panelMenuItem>
      ...
</rich:panelMenu>
...
```

There are two icon-related attributes. The *"icon"* attribute defines an icon. The *"iconDisabled"* attribute defines an icon for a disabled item.

Default icons are shown on the picture below:

Figure 6.90. Default icons

Here is an example:

Example:

```
...
    <rich:panelMenu>
        ...
        <rich:panelMenuItem value="Item 1.1" icon="chevronUp" />
        ...
    </rich:panelMenu>
...
```

As the result the picture is shown below:

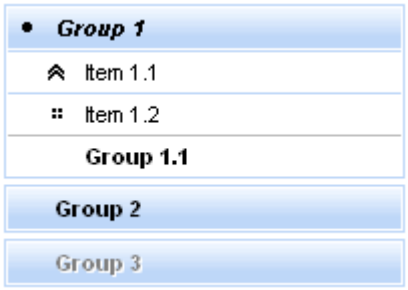


Figure 6.91. Using an *"icon"* attribute

It's also possible to define a path to the icon. Simple code is placed below.

```
...
<rich:panelMenu>
        ...
        <rich:panelMenuItem value="Item 1.1" icon="\images\img1.png" />
        ...
</rich:panelMenu>
...
```

Information about the *"process"* attribute usage you can find in the *"Decide what to process"* guide section.

6.10.8.4. Reference Data

Table of <rich:panelMenuItem> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/panelMenuItem.html].

Table 6.130. Component Identification Parameters

Name	Value
component-type	org.richfaces.PanelMenuItem
component-class	org.richfaces.component.html.HtmlPanelMenuItem
component-family	org.richfaces.PanelMenuItem
renderer-type	org.richfaces.PanelMenuItemRenderer
tag-class	org.richfaces.taglib.PanelMenuItemTag

Table 6.131. Classes names that define the first level items

Class name	Description
rich-pmenu-top-item	Defines styles for a top panel menu item
rich-pmenu-top-item-icon	Defines styles for a top panel menu item icon

Class name	Description
rich-pmenu-top-item-label	Defines styles for a top panel menu item label

Table 6.132. Classes names that define the second and lower level items

Class name	Description
rich-pmenu-item	Defines styles for a panel menu item
rich-pmenu-item-icon	Defines styles for a panel menu item icon
rich-pmenu-item-label	Defines styles for a panel menu item label

Table 6.133. Classes names that define items state

Class name	Description
rich-pmenu-item-selected	Defines styles for a panel menu selected item
rich-pmenu-disabled-element	Defines styles for a disabled panel menu item
rich-pmenu-hovered-element	Defines styles for a hovered panel menu item

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.8.5. Relevant Resources Links

Some additional information about usage of component can be found on this *LiveDemo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/panelMenu.jsf?c=panelMenu&tab=usage].

6.10.9. < rich:progressBar > available since 3.2.0

6.10.9.1. Description

The **<rich:progressBar>** component is designed for displaying a progress bar which shows the current status of the process.

Figure 6.92. <rich:progressBar> component

6.10.9.2. Key Features

- Ajax or Client modes
- Option to control rerendering frequency
- Customizable status information label

- Highly customizable look and feel

6.10.9.3. Details of Usage

As it was mentioned above, the **<rich:progressBar>** component displays the status of the ongoing process.

The **<rich:progressBar>** component can run in two modes: `Ajax` (default) and `Client`.

- `Ajax` - In this mode the component works the same way as **<a4j:poll/>** which gets the current progress value from the sever, repeating after a set time interval.
- `Client` - The current progress value in Client mode is set using JavaScript API

In order to define the mode you need to use *"mode"* attribute.

One of the key attributes of the component is *"interval"* which defines the frequency of status polling and rerenders the component when the value is updated.

Polling is active while the *"enabled"* attribute is "true".

Example:

```
...
<rich:progressBar value="#{bean.incValue}" id="progrs" interval="900" enabled="true"/>
...
```

With the help of *"timeout"* attribute you can define the waiting time on a particular request. If a response is not received during this time the request is aborted.

Status of the process is calculated basing on values of the following attributes:

- *"value"* is a value binding to the current progress value
- *"minValue"* (default value is "0") sets minimal progress value
- *"maxValue"* (default value is "100") sets maximum progress value

Example:

```
...
<rich:progressBar value="#{bean.incValue}"  minValue="50"  maxValue="400"/>
...
```

This is the result

Figure 6.93. Progress bar

There are two ways to display information on a progress bar:

- Using *"label"* attribute

  Example:

```
...
<rich:progressBar value="#{bean.incValue}" id="progrs" label="#{bean.incValue}"/>
...
```

- Using any child(nested) components. One of the components that can be used is **<h:outputText />**

  Example:

```
...
<rich:progressBar value="#{bean.incValue}">
   <h:outputText value="#{bean.incValue} %"/>
</rich:progressBar>
...
```

The **<rich:progressBar>** component provides 3 predefined macrosubstitution parameters:

- `{value}` contains the current value
- `{minValue}` contains min value
- `{maxValue}` contains max value

You can use them as follows:

Example:

```
...
<rich:progressBar value="#{bean.incValue1}" minValue="400" maxValue="900">
        <h:outputText value="Min value is {minValue}, current value is {value}, max value is
 {maxValue}"/>
</rich:progressBar>
...
```

This is the result:

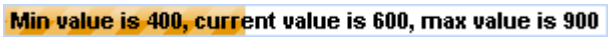


Figure 6.94. Macrosubstitution

The *"parameters"* is also a special attribute which defines parameters that can be to get additional data from server (e.g. additional info about process status). All you need is to define the value of your own parameter (e.g `parameters="param:'#{bean.incValue1}'"`) and you can use it to pass the data.

Example:

```
...
<rich:progressBar value="#{bean.incValue}" parameters="param:'#{bean.dwnlSpeed}'">
   <h:outputText value="download speed {param} KB/s"/>
</rich:progressBar>
...
```

This is the result:

Figure 6.95. Usage of parameters

The *"progressVar"* attribute (deprecated) defines request scoped variable that could be used for substitution purpose. This variable contains the data taken from *"value"* attribute. Please, study carefully the following example.

Example:

```
...
<rich:progressBar value="#{bean.incValue1}" enabled="#{bean.enabled1}" id="progrs1"
 progressVar="progress">
   <h:outputText value="{progress}%"/>
</rich:progressBar>
...
```

In the shown example *"progressVar"* attribute defines a variable "progress" with the value taken from *"value"* attribute of the **<rich:progressBar>** component. The "progress" variable performs substitution passing the current progress value to the *"value"* attribute of the **<h:outputText>** . This is how the current value of a progress appears on the label of **<rich:progressBar>** .

As the *"progressVar"* attribute is deprecated, it's better to use the predefined macrosubstitution parameter `{value}` instead. See how you can rewrite the above example with the help of `{value}`.

Example:

```
...
<rich:progressBar value="#{bean.incValue1}" enabled="#{bean.enabled1}" id="progrs1">
   <h:outputText value="{value}%"/>
</rich:progressBar>
...
```

The component can also employ *"initial"* and *"complete"* facets to display the states of the process: *"initial"* facet is displayed when the progress value is less or equal to *"minValue"* , and the *"complete"* facet is shown when the value is greater or equal to *"maxValue"* . Please see an example below.

Example:

```
...
<rich:progressBar value="#{bean.incValue1}">
   <f:facet name="initial">
      <h:outputText value="Process not started"/>
   </f:facet>
   <f:facet name="complete">
      <h:outputText value="Process completed"/>
   </f:facet>
</rich:progressBar>
 ...
```

Information about the *"process"* attribute usage you can find *" Decide what to process "* guide section.

6.10.9.4. Reference Data

Table of <rich:progressBar> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/progressBar.html].

Table 6.134. Component Identification Parameters

Name	Value
component-type	org.richfaces.ProgressBar
component-class	org.richfaces.component.html.HtmlProgressBar
component-family	org.richfaces.ProgressBar

Name	Value
renderer-type	org.richfaces.renderkit.ProgressBarRenderer
tag-class	org.richfaces.taglib.ProgressBarTag

Table 6.135. JavaScript API

Function	Description
enable()	Begins polling for Ajax mode
disable()	Stops polling for Ajax mode
setValue(value)	Updates the progress of the process
setLabel(label)	Update the label for the process

Table 6.136. Facets

Facet name	Description
initial	Defines the information content about the state of the process if the progress value is less or equal to "minValue"
complete	Defines the information content about the state of the process if the value is greater or equal to "maxValue"

Table 6.137. Classes names for the progressBar without a label

Class name	Description
rich-progress-bar-shell	Defines styles for a wrapper element of a progressBar
rich-progress-bar-uploaded	Defines styles for the completed progress area
rich-progress-bar-height	Defines height for a progressBar
rich-progress-bar-width	Defines width for a progressBar

Table 6.138. Classes names for the progressBar with a label

Class name	Description
rich-progress-bar-shell-dig	Defines styles for a wrapper element of a progressBar
rich-progress-bar-uploaded-dig	Defines styles for the label
rich-progress-bar-remained	Defines styles for the remained progress area
rich-progress-bar-completed	Defines styles for the completed progress area
rich-progress-bar-height-dig	Defines height for a progressBar
rich-progress-bar-width	Defines width for a progressBar

Note:

It's necessary to define width of the component in pixels only.

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.9.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/progressBar.jsf?c=progressBar] you can see the example of **<rich:progressBar>** usage and sources for the given example.

6.10.10. < rich:separator > available since 3.0.0

6.10.10.1. Description

A horizontal line to use as a separator in a layout. The line type can be customized with the `"lineType"` parameter.

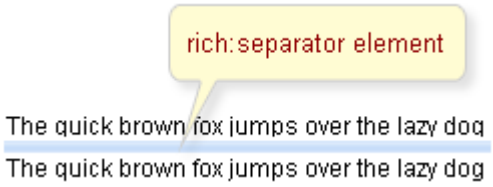


Figure 6.96. <rich:separator> component

6.10.10.2. Key Features

- Highly customizable look and feel
- Leveraging layout elements creation

6.10.10.3. Details of Usage

<rich:separator> is a simple layout component, which represents a separator stylized as a skin. Thus, the main attributes that define its style are *"style"* and *"styleClass".* In addition there are *"width"* and *"height"* attributes that should be specified in pixels. On the HTML page the component is transposed into HTML ** ** tag.

The line type can be customized with the `"lineType"` parameter. For example, different line types are shown after rendering with the following initial settings `lineType="double"`and `lineType="solid"`.

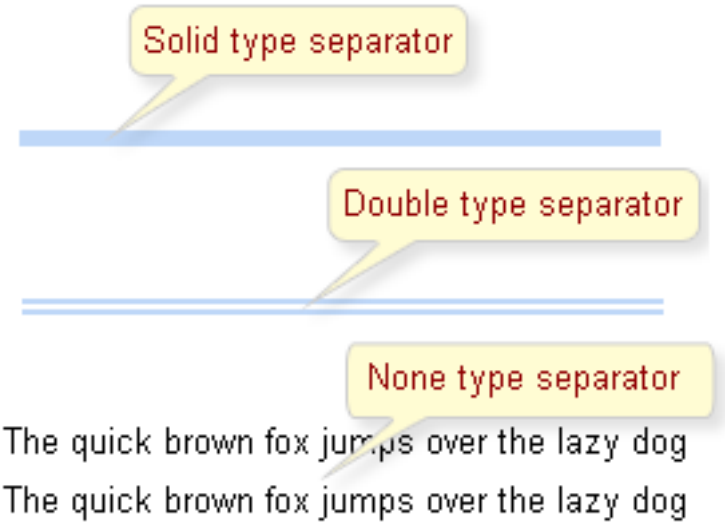


Figure 6.97. Different line types of <rich:separator>

Except style attributes, there are also event definition attributes:

- *"onmouseover"*
- *"onclick"*
- *"onmouseout"*
- etc.

6.10.10.4. Reference Data

Table of <rich:separator> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/separator.html].

Table 6.139. Component Identification Parameters

Name	Value
component-type	org.richfaces.separator
component-class	org.richfaces.component.html.HtmlSeparator
component-family	org.richfaces.separator
renderer-type	org.richfaces.SeparatorRenderer
tag-class	org.richfaces.taglib.SeparatorTag

Table 6.140. Classes names that define a component appearance

Class name	Description
rich-separator	Defines styles for a component appearance

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.10.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/separator.jsf?c=separator] you can see the example of **<rich:separator>** usage and sources for the given example.

6.10.11. < rich:simpleTogglePanel > available since 3.0.0

6.10.11.1. Description

A collapsible panel, which content shows/hides after activating a header control.

Figure 6.98. <rich:simpleTogglePanel> component

6.10.11.2. Key Features

- Highly customizable look and feel
- Support for any content inside
- Collapsing expanding content
- Three modes of collapsing/expanding
  - `Server`
  - `Client`
  - `Ajax`

6.10.11.3. Details of Usage

The component is a simplified version of toggle panel that initially has a defined layout as a panel with a header playing a role of a mode switching control. On a component header element, it's possible to define a label using an attribute with the same name.

Switching mode could be defined with the *"switchType"* attribute with three possible parameters.

- `Server` (DEFAULT)

  The common submission is performed around simpleTogglePanel and a page is completely rendered on a called panel. Only one at a time panel is uploaded onto the client side.

- `Ajax`

  AJAX form submission is performed around the panel, content of the called panel is uploaded on Ajax request and additionally specified elements in the *"reRender"* attribute are rendered. Only one at a time panel is uploaded on the client side.

- `Client`

  All panels are uploaded on the client side. Switching from the active to the hidden panel is performed with client JavaScript.

The **<rich:simpleTogglePanel>** component also has an *"opened"* attribute responsible for keeping a panel state. It gives an opportunity to manage state of the component from a model. If the value of this attribute is"true" the component is expanded.

- *"onmouseover "*
- *"onclick "*
- *"onmouseout "*
- etc.

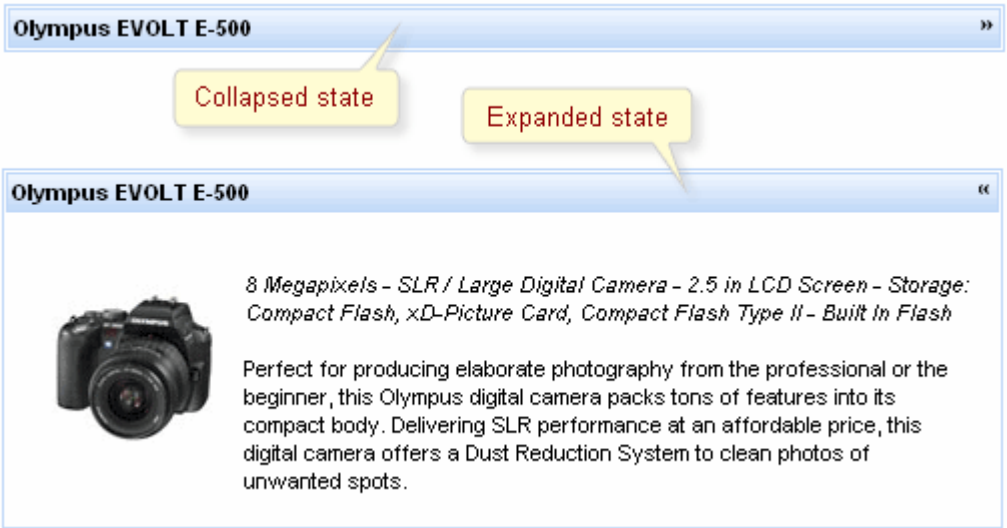


Figure 6.99. <rich:simpleTogglePanel> states

With help of *"openMarker"* and *"closeMarker"* facets you can set toggle icon for simpleTogglePanel .
Information about the *"process"* attribute usage you can find *" Decide what to process "* guide section.

6.10.11.4. Reference Data

Table of <rich:simpleTogglePanel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/simpleTogglePanel.html].

Table 6.141. Component Identification Parameters

Name	Value
component-type	org.richfaces.SimpleTogglePanel
component-class	org.richfaces.component.html.HtmlSimpleTogglePanel
component-family	org.richfaces.SimpleTogglePanel
renderer-type	org.richfaces.SimpleTogglePanelRenderer
tag-class	org.richfaces.taglib.SimpleTogglePanelTag

Table 6.142. Facets

Facet name	Description
openMarker	Redefines the icon for expanding the panel
closeMarker	Redefines the icon for collapsing the panel

Table 6.143. Classes names that define a component appearance

Class name	Class description
rich-stglpanel	Defines styles for a wrapper element of a component
rich-stglpanel-header	Defines styles for header element of a component
rich-stglpnl-marker	Defines styles for a wrapper element of a marker
rich-stglpanel-body	Defines styles for a component content

Table 6.144. Style component classes

Class name	Class description
styleClass	The class defines panel common style. It's used in the outside ** ** element
bodyClass	applicable to panels body elements
headerClass	applicable to header elements

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.11.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/simpleTogglePanel.jsf?c=simpleTogglePanel] you can see the example of **<rich:simpleTogglePanel>** usage and sources for the given example.

6.10.12. < rich:spacer > available since 3.0.0

6.10.12.1. Description

A spacer that is used in layout and rendered as a transparent image.

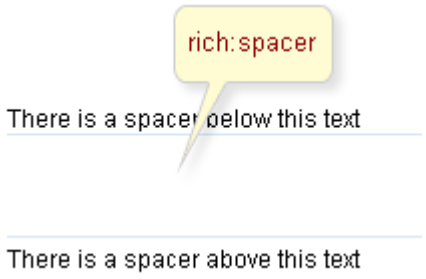


Figure 6.100. <rich:spacer> component

6.10.12.2. Key Features

- Easily used as a transparent layout spacer
- Horizontal or vertical spacing is managed by an attribute
- Easily customizable sizes parameters

6.10.12.3. Details of Usage

<rich:spacer> is a simple layout component which represents a transparent spacer. Thus, the main attributes that define its style are *"style"* and *"styleClass".*

In addition, the attributes are responsible for the component size: *"width"* and *"height".*

Moreover, to add e.g. some JavaScript effects, events defined on it are used.

- *"onmouseover "*
- *"onclick "*
- *"onmouseout "*

- etc.

6.10.12.4. Reference Data

Table of <rich:spacer> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/spacer.html].

Table 6.145. Component Identification Parameters

Name	Value
component-type	org.richfaces.spacer
component-class	org.richfaces.component.html.HtmlSpacer
component-family	org.richfaces.spacer
renderer-type	org.richfaces.SpacerRenderer
tag-class	org.richfaces.taglib.SpacerTag

6.10.12.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/spacer.jsf?c=spacer] you can see the example of **<rich:spacer>** usage and sources for the given example.

6.10.13. < rich:tabPanel > available since 3.0.0

6.10.13.1. Description

A tab panel displaying tabs for grouping content of the panel.

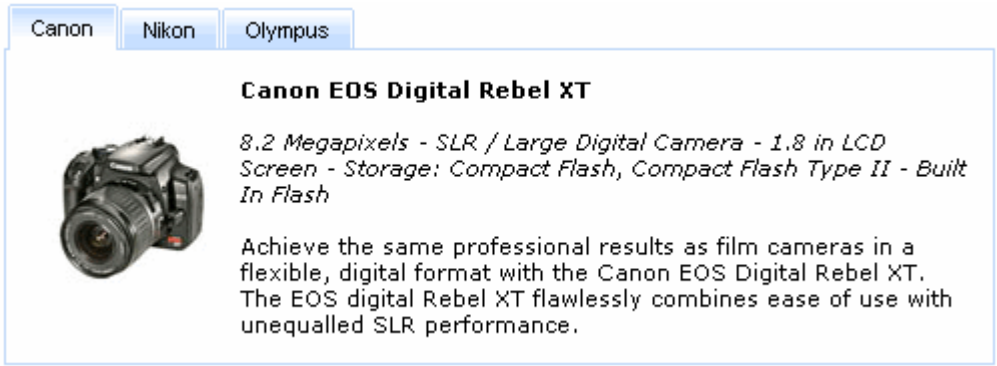


Figure 6.101. <rich:tabPanel> component

6.10.13.2. Key Features

- Skinnable tab panel and child items
- Disabled/enabled tab options

- Customizable headers
- Group any content inside a tab
- Each tab has a unique name for direct access (e.g. for switching between tabs)
- Switch methods can be easily customized with attribute to:
  - `Server`
  - `Client`
  - `AJAX`
- Switch methods can be selected for the whole tab panel and for the each tab separately

6.10.13.3. Details of Usage

As it was mentioned *above*, tabPanel groups content on panels and performs switching from one to another. Hence, modes of switching between panels are described first of all.

Note:

All tabPanels should be wrapped into a form element so as content is correctly submitted inside. If a form is placed into each tab, the Action elements of Tab controls appear to be out of the form and content submission inside the panels could be performed only for Action components inside tabs.

Switching mode could be chosen with the tabPanel attribute *"switchType"* with three possible parameters.

- `Server` (DEFAULT)

  The common submission is performed around tabPanel and a page is completely rendered on a called panel. Only one at a time tabPanel is uploaded onto the client side.

- `Ajax`

  AJAX form submission is performed around the tabPanel, content of the called tabPanel is uploaded on Ajax request. Only one at a time tabPanel is uploaded on the client.

- `Client`

  All tabPanels are uploaded on the client side. The switching from the active to the hidden panel is performed with client JavaScript.

As a result, the tabPanel is switched to the second tab according to the action returning outcome for moving onto another page and switching from the second to the first tab is performed.

There is also the *"selectedTab"* attribute. The attribute keeps an active tab name; therefore, an active tabPanel could be changed with setting a name of the necessary tab to this attribute.

There is also the *"headerAlignment"* attribute responsible for rendering of tabPanel components. The attribute has several values: "left" (Default), "right", "center", which specify Tabs components location on the top of the tabPanel.

Example:

```
...
<rich:tabPanel width="40%" headerAlignment="right">
        <rich:tab label="Canon">
                ...
        </rich:tab>
        <rich:tab label="Nikon">
                ...
        </rich:tab>
        <rich:tab label="Olympus">
                ...
        </rich:tab>
</rich:tabPanel>
...
```

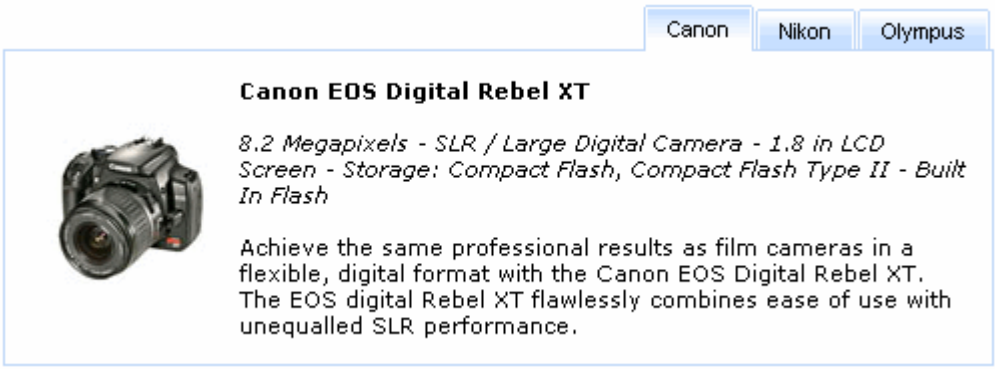


Figure 6.102. <rich:tabPanel> with right aligned tabs

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"`, {2} for `"ShortConverter.SHORT"`.

Except the specific attributes, the component has all necessary attributes for JavaScript events definition.

- *"onmouseover"*
- *"onmouseout"*
- etc.

6.10.13.4. Reference Data

Table of <rich:tabPanel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/tabPanel.html].

Table 6.146. Component Identification Parameters

Name	Value
component-type	org.richfaces.tabPanel
component-class	org.richfaces.component.html.HtmltabPanel
component-family	org.richfaces.tabPanel
renderer-type	org.richfaces.tabPanelRenderer
tag-class	org.richfaces.taglib.tabPanelTag

Table 6.147. Classes names that define a component appearance

Class name	Description
rich-tabpanel	Defines styles for all tabPanel
rich-tabpanel-content	Defines styles for an internal content
rich-tabpanel-content-position	Defines styles for a wrapper element of a tabPanel content. It should define a shift equal to borders width in order to overlap panel tabs
rich-tabhdr-side-border	Defines styles for side elements of a tabPanel header
rich-tabhdr-side-cell	Defines styles for a header internal element
rich-tab-bottom-line	Defines styles for a tab bottom line element of a tabPanel

Table 6.148. Classes names that define different tab header states (corresponds to rich-tabhdr-side-cell)

Class name	Description
rich-tabhdr-cell-active	Defines styles for an internal element of an active header
rich-tabhdr-cell-inactive	Defines styles for an internal element of an inactive label

Class name	Description
rich-tabhdr-cell-disabled	Defines styles for an internal element of a disabled label

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.13.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/tabPanel.jsf?c=tabPanel] you can see the example of **<rich:tabPanel>** usage and sources for the given example.

6.10.14. < rich:tab > available since 3.0.0

6.10.14.1. Description

A tab section within a tab panel.

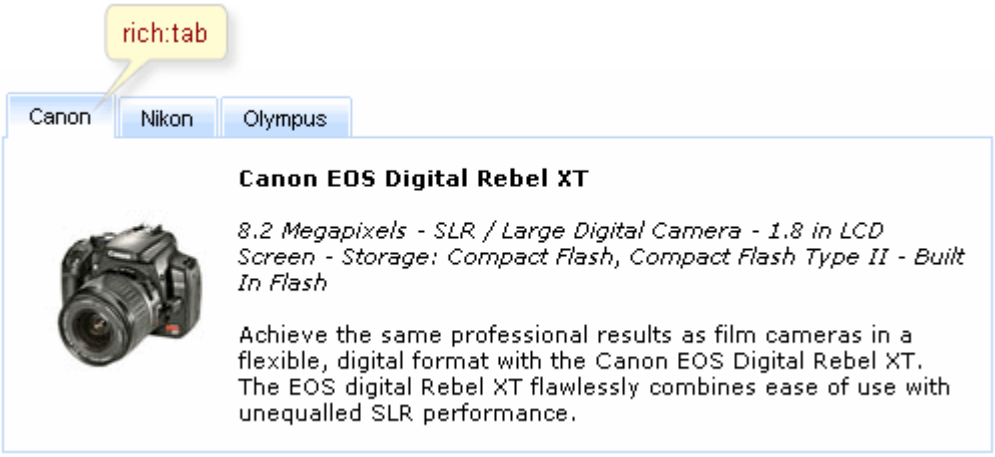


Figure 6.103. <rich:tab> component

6.10.14.2. Key Features

- Fully skinnable tabs content
- Disabled/enabled tab options
- Groups any content inside a tab
- Each tab has a unique name for a direct access (e.g. for switching between tabs)
- Switch methods can be easily customized for every tab separately with attribute to:
  - `Server`
  - `Client`

- AJAX

6.10.14.3. Details of Usage

The main component function is to define a content group that is rendered and processed when the tab is active, i.e. click on a tab causes switching onto a tab containing content corresponded to this tab.

The *"label"* attribute defines text to be represented. If you can use the *"label"* facet, you can even not use the *"label"* attribute.

Example:

```
...
<rich:tab>
      <f:facet name="label">
            <h:graphicImage value="/images/img1.png"/>
      </f:facet>
      ...
      <!--Any Content inside-->
      ...
</rich:tab>
...
```

A marker on a tab header defined with the *"label"* attribute. Moreover, each tab could be disabled (switching on this tab is impossible) with the *"disable"* attribute.

Example:

```
...
<rich:tabPanel width="20%">
      <tabs:tab  label="Canon">
            <h:outputText value="Canon EOS Digital Rebel XT" />
            ...
      </tabs:tab>
      <tabs:tab  label="Nikon">
            <h:outputText value="Nikon D70s" />
            ...
      </tabs:tab>
      <tabs:tab label="Olympus">
            <h:outputText value="Olympus EVOLT E-500" />
            ...
      </tabs:tab>
      <tabs:tab disabled="true" name="disabled" label="Disabled"/>
```

```
</rich:tabPanel>
...
```

With this example it's possible to generate the tab panel with the last disabled and three active tabs (see the picture).

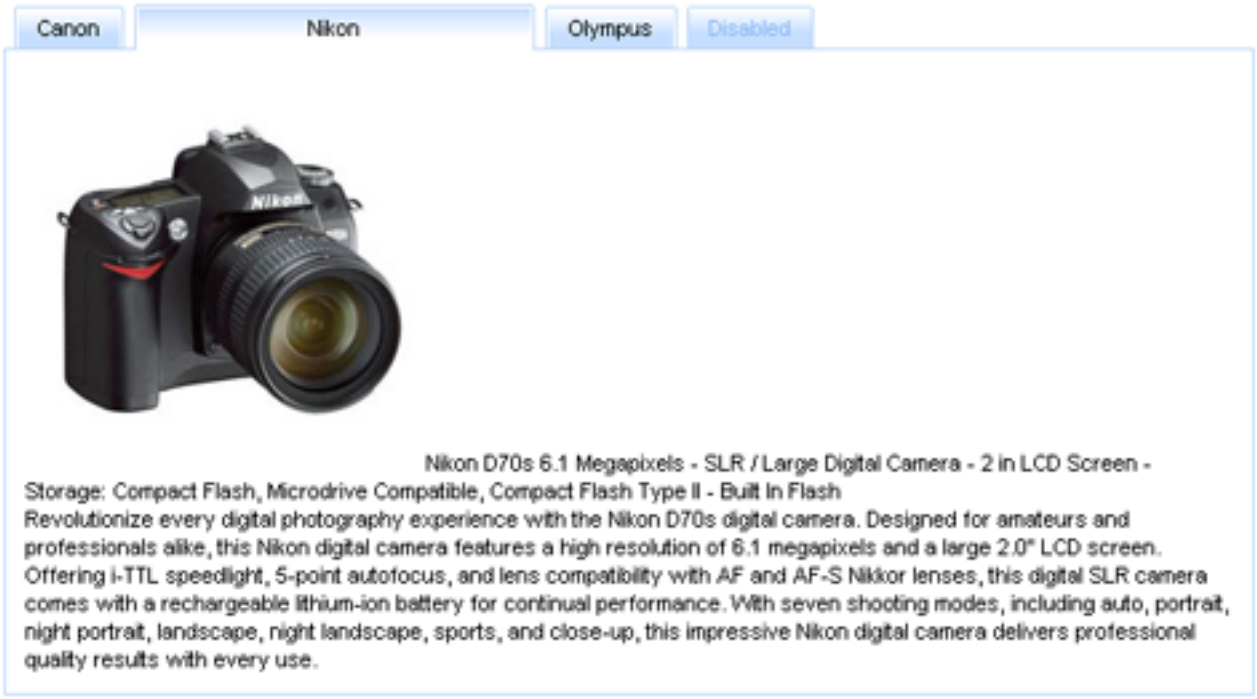


Figure 6.104. <rich:tabPanel> with disabled <rich:tab>

Switching mode could be defined not only for the whole panel tab, but also for each particular tab, i.e. switching onto one tab could be performed right on the client with the corresponding JavaScript and onto another tab with an Ajax request on the server. Tab switching modes are the same as tabPanel ones.

Each tab also has an attribute name (alias for *"id"* attribute). Using this attribute value it's possible e.g. to set an active tab on a model level specifying this name in the corresponding attribute of the whole tab.

Except the specific component attributes it has all necessary attributes for JavaScript event definition.

- *"onmouseover"*
- *"onmouseout"*
- etc.

Some event could be performed on the tab which has been entered/left using *"ontabenter"* / *"ontableave"* attributes. See the example below.

Example:

```
...
<rich:tabPanel>
      <rich:tab label="Tab1" ontabenter="alert()">
            ...
      </rich:tab>
     ...
</rich:tabPanel>
...
```

The following example shows how on the client side to get the names of `entered`/`left` tabs.

```
ontabenter="alert(leftTabName)"
```

Information about the *"process"* attribute usage you can find in the *"Decide what to process"* guide section.

6.10.14.4. Reference Data

Table of <rich:tab> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/tab.html].

Table 6.149. Component Identification Parameters

Name	Value
component-type	org.richfaces.Tab
component-class	org.richfaces.component.html.HtmlTab
component-family	org.richfaces.Tab
renderer-type	org.richfaces.TabRenderer
tag-class	org.richfaces.taglib.TabTag

Table 6.150. Facets

Facet name	Description
label	Defines the text for the actual "tab" in a tab section

Table 6.151. Classes names that define a tab

Class name	Description
rich-tab-header	Defines styles for a tab header

Class name	Description
rich-tab-label	Defines styles for a tab label

Table 6.152. Classes names that define a tab states

Class name	Description
rich-tab-active	Defines styles for an active tab
rich-tab-inactive	Defines styles for an inactive tab
rich-tab-disabled	Defines styles for a disabled tab

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.15. < rich:togglePanel > available since 3.0.0

6.10.15.1. Description

A wrapper component with named facets, where every facet is shown after activation of the corresponding toggleControl (the other is hidden).

Figure 6.105. <rich:togglePanel> component

6.10.15.2. Key Features

- Support for any content inside
- Three modes of facets switching
  - `Server`

- `Client`
- `Ajax`

- Controls for togglePanel can be everywhere in layout

6.10.15.3. Details of Usage

As it was mentioned *above*, togglePanel splits content into named facets that become rendered and processed when a click performed on controls linked to this togglePanel (either switched on the client or send requests on the server for switching).

The initial component state is defined with *"initialState"* attribute, where a facet name that is shown at first is defined.

Note:

It's also possible to define an *"empty"* facet to implement the functionality as drop-down panels have and make the facet active when no content is required to be rendered.

Switching mode could be defined with the *"switchType"* attribute with three possible parameters:

- `Server` (DEFAULT)

  The common submission is performed around togglePanel and a page is completely rendered on a called panel. Only one at a time the panel is uploaded onto the client side.

- `Ajax`

  AJAX form submission is performed around the panel, content of the called panel is uploaded on an Ajax request . Only one at a time the panel is uploaded on the client side.

- `Client`

  All panels are uploaded on the client side. The switching from the active to the hidden panel is performed with client JavaScript.

"Facets" switching order could be defined on the side of **<rich:toggleControl>** component or on the panel. On the side of the togglePanel it's possible to define facets switching order with the *"stateOrder"* attribute. The facets names are enumerated in such an order that they are rendered when a control is clicked, as it's not defined where to switch beforehand.

Example:

```
...
<rich:togglePanel id="panel" initialState="panelB" switchType="client"
```

```
                stateOrder="panelA,panelB,panelC">
    <f:facet name="panelA">
        ...
    </f:facet>
    <f:facet name="panelB">
        ...
    </f:facet>
    <f:facet name="panelC">
        ...
    </f:facet>
</rich:togglePanel>
<rich:toggleControl for="panel" value="Switch"/>
...
```

The example shows a togglePanel initial state when the second facet (`panelB`) is rendered and successive switching from the first to the second happens.

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"`, {2} for `"ShortConverter.SHORT"`.

6.10.15.4. Reference Data

Table of <rich:togglePanel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/togglePanel.html].

Table 6.153. Component Identification Parameters

Name	Value
component-type	org.richfaces.TogglePanel
component-class	org.richfaces.component.html.HtmlTogglePanel
component-family	org.richfaces.TogglePanel
renderer-type	org.richfaces.TogglePanelRenderer
tag-class	org.richfaces.Taglib.togglePanelTag

Table 6.154. Classes names that define a component appearance

Class name	Description
rich-toggle-panel	Defines styles for all component
rich-tglctrl	Defines styles for a toggle control

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.15.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/togglePanel.jsf?c=togglePanel] you can see the example of **<rich:togglePanel>** usage and sources for the given example.

6.10.16. < rich:toggleControl > available since 3.0.0

6.10.16.1. Description

A link type control for switching between togglePanel facets. Target Panel is specified with *"for"* attribute. It can be located inside or outside the togglePanel. As the result of switching between facets previous facet is hidden and another one (specified with *"switchToState"* or panel *"stateOrder"* attributes) is shown.

Figure 6.106. <rich:toggleControl> component

6.10.16.2. Key Features

- Highly customizable look and feel
- Can be located anywhere in a page layout
- Switching is provided in the three modes
  - `Server`
  - `Client`

- Ajax

6.10.16.3. Details of Usage

As it was mentioned *above*, the control could be in any place in layout and linked to a switching panel that is managed with *"for"* attribute (in the *"for"* attribute the full component *"id"* is specified according to naming containers).

The togglePanel could be also switched from the side of the control instead of being strictly defined in *"switchOrder"* attribute of **<rich:togglePanel>.**

Example:

```
...
<rich:togglePanel id="panel" initialState="empty" switchType="client">
      <f:facet name="first">
            <h:panelGroup>
              <rich:toggleControl for="helloForm:panel" value="Empty" switchToState="empty"/>
             <rich:toggleControl for="helloForm:panel" value=" Second" switchToState="second"/
>
                  <!--Some content-->
            </h:panelGroup>
      </f:facet>
      <f:facet name="second">
            <h:panelGroup>
              <rich:toggleControl for="helloForm:panel" value="Empty" switchToState="empty"/>
                  <rich:toggleControl for="helloForm:panel" value=" first" switchToState="first"/>
                  <!--Some content-->
            </h:panelGroup>
      </f:facet>
      <f:facet name="empty">
            <h:panelGroup>
               <rich:toggleControl for="helloForm:panel" value="first" switchToState="first"/>
             <rich:toggleControl for="helloForm:panel" value=" second" switchToState="second"/
>
            </h:panelGroup>
      </f:facet>
</rich:togglePanel>
...
```

In this example the switching is performed on facets specified in the *"switchToState"* attribute.

Information about the *"process"* attribute usage you can find *" Decide what to process "* guide section.

6.10.16.4. Reference Data

Table of <rich:toggleControl> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/toggleControl.html].

Table 6.155. Component Identification Parameters

Name	Value
component-type	org.richfaces.ToggleControl
component-class	org.richfaces.component.html.HtmlToggleControl
component-family	org.richfaces.ToggleControl
renderer-type	org.richfaces.ToggleControlRenderer
tag-class	org.richfaces.taglib.ToggleControlTag

Table 6.156. Classes names that define a component appearance

Class name	Description
rich-tglctrl	Defines styles for a toggle control

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.17. < rich:toolBar > available since 3.0.0

6.10.17.1. Description

A horizontal bar with Action items on it that accepts any JSF components as children.

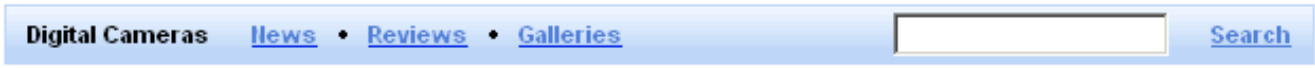


Figure 6.107. <rich:toolBar> with action items

6.10.17.2. Key Features

- Skinnable menu panel and child items
- Standard top menu bar that can be used in accordance with a menu component
- Grouping bar content
- Easily place content on any side of a menu bar using predefined group layout
- Predefined separators for menu items and groups

- Any content inside

6.10.17.3. Details of Usage

A toolBar is a wrapper component that facilitates creation of menu and tool bars. All components defined inside are located on a stylized bar with possibility to group, arrange on the both bar sides, and place predefined separators between them.

Grouping and an input side definition is described for toolBarGroup that defines this functionality.

Separators are located between components with the help of the *"itemSeparator"* attribute with four predefined values:

- "none"
- "line"
- "square"
- "disc"

For example, when setting a separator of a disc type, the following result is produced:

Figure 6.108. <rich:toolBar> with a *"disc"* separator

Moreover, for toolBar style *"width"* and *"height"* attributes are placed above all.

A custom separator can be added with the help of *"itemSeparator"* facet.

Example:

```
...
<f:facet name="itemSeparator">
   <rich:separator width="2" height="14" />
</f:facet>
...
```

Custom separator can be also specified by URL to the separator image in the attribute *"itemSeparator"* of the **<rich:toolBar>** .

Example:

```
...
<rich:toolBar id="toolBar" width="#{bean.width}" height="#{bean.height}" itemSeparator="/
images/separator_img.jpg"/>
...
```

This is a result:

Figure 6.109. <rich:toolBar> with *"itemSeparator"* attribute.

6.10.17.4. Reference Data

Table of <rich:toolBar> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/toolBar.html].

Table 6.157. Component Identification Parameters

Name	Value
component-type	org.richfaces.ToolBar
component-class	org.richfaces.component.html.HtmlToolBar
component-family	org.richfaces.ToolBar
renderer-type	org.richfaces.ToolBarRenderer
tag-class	org.richfaces.taglib.ToolBarTag

Table 6.158. Facets

Facet name	Description
itemSeparator	Defines the custom separator. Related attribute is "itemSeparator"

Table 6.159. Classes names that define a component appearance

Class name	Description
rich-toolbar	Defines styles for a toolbar element
rich-toolbar-item	Defines styles for a toolbar item

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.17.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/toolBar.jsf?c=toolBar] you can see the example of **<rich:toolBar>** usage and sources for the given example.

6.10.18. < rich:toolBarGroup > available since 3.0.0

6.10.18.1. Description

A group of items inside a tool bar.

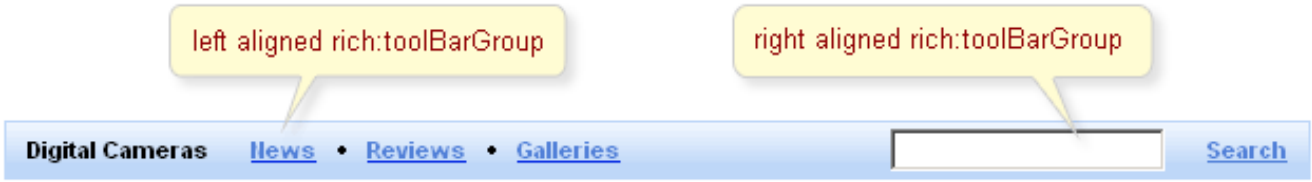


Figure 6.110. <rich:toolbarGroup> with items on it

6.10.18.2. Key Features

- Fully skinnable with its child items
- Grouping bar content
- Easily place content on either side of tool bar using a predefined group layout
- Predefined separators for menu items and groups
- Any content inside

6.10.18.3. Details of Usage

A toolBarGroup is a wrapper component that groups toolBar content and facilitates creation of menu and tool bars. All components defined inside are located on a stylized bar with a possibility to group, arrange on the both bar sides, and place predefined separators between them.

Separators are located between components with the help of the *"itemSeparator"* attribute with four predefined values:

- "none"

- "line"
- "square"
- "disc"

To control the group location inside, use the *"location"* attribute with "left" (DEFAULT) and "right" values.

Example:

```
...
<rich:toolBar itemSeparator="disc" width="500">
        <rich:toolBarGroup itemSeparator="line">
                <h:commandLink value="Command 1.1"/>
                <h:commandLink value="Command 2.1"/>
        </rich:toolBarGroup>
        <rich:toolBarGroup itemSeparator="line" location="right">
                <h:commandLink value="Command 1.2"/>
                <h:commandLink value="Command 2.2"/>
        </rich:toolBarGroup>
</rich:toolBar>
...
```

The code result is the following:

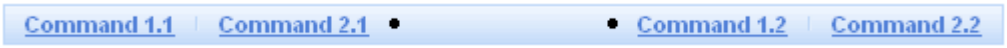


Figure 6.111. Stylized <rich:toolbarGroup> with *"location"* , *"itemSeparator"* attributes

6.10.18.4. Reference Data

Table of <rich:toolBarGroup> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/toolBarGroup.html].

Table 6.160. Component Identification Parameters

Name	Value
component-type	org.richfaces.ToolBarGroup
component-class	org.richfaces.component.html.HtmlToolBarGroup
component-family	org.richfaces.ToolBarGroup
renderer-type	org.richfaces.ToolBarGroupRenderer
tag-class	org.richfaces.taglib.ToolBarGroupTag

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.18.5. Relevant Resources Links

Some additional information about usage of component can be found *on the component Live Demo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/toolBar.jsf?c=toolBar].

6.10.19. < rich:toolTip > available since 3.1.0

6.10.19.1. Description

The **<rich:toolTip>** component is used for creation of event-triggered non modal popup, that contains information regarding the page element, that event was applied to.

Figure 6.112. <rich:toolTip> component

6.10.19.2. Key Features

- Highly customizable look and feel
- Different ways of data loading to toolTip
- Disablement support

6.10.19.3. Details of Usage

Text information, labeled on the **<rich:toolTip>** , is specified with *"value"* attribute. Text that is put between tooltip start and end tags will also be rendered as tooltip content and could be marked with HTML tags. Images, links, buttons and other RichFaces components are also may be put and composed inside the **<rich:toolTip>** . The **<rich:toolTip>** borders are stretched automatically to enclose the contents.

There are three ways to attach the **<rich:toolTip>** to a page element. The first and simplest one is when the **<rich:toolTip>** is nested into a page element the tooltip is applied to. This way is shown on example in the *Creating the Component with a Page Tag* section. The *"attached"* attribute is "true" by default in this case, which means that the tolltip will be invoked automatically when the mouse cursor is hovered above the parent component.

The second one uses **<rich:toolTip>** *"for"* attribute. In this case the **<rich:toolTip>** is defined separately from a component it is applied to.

Example:

```
<rich:panel id="panelId">
...
</rich:panel>
<rich:toolTip value="This is a tooltip." for="panelId"/>
```

These two ways are also applicable for HTML elements that are not presented in components tree built by facelets. Use *"for"* attribute to attach the **<rich:toolTip>** in both cases.

Example:

```
<!-- The <rich:toolTip> is nested into the parent HTML element -->
<div id="para1">
    <p>This paragraph and tooltip are nested into the same <div> element.</p>
    <rich:toolTip for="para1">This is a tooltip.</rich:toolTip>
</div>

<!-- The <rich:toolTip> is defined separately -->
<div id="para2">
    <p>The tooltip for this paragraph is defined separately.</p>
</div>
<rich:toolTip for="para2">This is a tooltip.</rich:toolTip>
```

The third way to invoke the **<rich:toolTip>** uses JS API function. List of JS API functions available for **<rich:toolTip>** is listed *below*. JS API functions are defined for a component the **<rich:toolTip>** is applied to. The **<rich:toolTip>** *"attached"* attribute should be set to "false" in this case.

Example:

```
<rich:panel id="panelId" onclick="#{rich:component('tooltipId')}.show(event);" />
<a4j:form>
    <rich:toolTip id="tooltipId" attached="false" value="This is a tooltip."/>
</a4j:form>
```

Notes:

To provide **<rich:toolTip>** component proper work in complex cases do the following:

- specify *"id's"* for both **<rich:toolTip>** and component it is applied to;

- define the **<rich:toolTip>** as last child, when nesting it into the component the **<rich:toolTip>** is applied to;
- put the **<rich:toolTip>** into **<a4j:form>** when invoking it with JS API function.

The *"mode"* attribute is provided you to control the way of data loading to **<rich:toolTip>** . The component works properly in client and Ajax modes. In client mode **<rich:toolTip>** content is rendered once on the server and could be rerendered only via external submit. In Ajax mode **<rich:toolTip>** content is requested from server for every activation. For Ajax mode there is possibility to define a facet *"defaultContent"* , which provides default **<rich:toolTip>** content to be displayed, while main content is loading into the **<rich:toolTip>** (see the example below).

Example:

```
...
<h:commandLink value="Simple Link" id="link">
                    <rich:toolTip followMouse="true" direction="top-right" mode="ajax"
 value="#{bean.toolTipContent}" horizontalOffset="5"
      verticalOffset="5" layout="block">
      <f:facet name="defaultContent">
        <f:verbatim>DEFAULT TOOLTIP CONTENT</f:verbatim>
      </f:facet>
   </rich:toolTip>
</h:commandLink>
...
```

This is the result:

Figure 6.113. <rich:toolTip> component with default content

And after **<rich:toolTip>** loaded it is changed to next one:

Figure 6.114. <rich:toolTip> component with loaded content

<rich:toolTip> appears attached to the corner dependent on the *"direction"* attribute. By default it is positioned bottom-right. **<rich:toolTip>** activation occurs after an event, defined on the

parent component, takes into consideration the "delay" attribute or after calling JS API function `show()`. *"hideEvent"* attribute defines the way how **<rich:toolTip>** disappears. It default value is "none", so the **<rich:toolTip>** does not disappears. Deactivation may be set for example on *mouseout* event on the parent component (excepting the situation when the mouse is hovered onto the **<rich:toolTip>** itself) or after calling JS API function `hide()`.

By default, **<rich:toolTip>** appears smart positioned. But as you can see from the previous example, you can define an appearance direction via the corresponding attribute *"direction"* . And also it's possible to define vertical and horizontal offsets relatively to a mouse position.

Disabled **<rich:toolTip>** is rendered to a page as usual but JS that responds for its activation is disabled until `enable()` is called.

Moreover, to add some JavaScript effects, client events defined on it are used:

Standart:

- *"onclick"*
- *"ondblclick"*
- *"onmouseout"*
- *"onmousemove"*
- *"onmouseover"*

Special:

- *"onshow"* - Called after the tooltip is called (some element hovered) but before its request
- *"oncomplete"* - Called just after the tooltip is shown
- *"onhide"* - Called after the tooltip is hidden

6.10.19.4. Reference Data

Table of <rich:toolTip> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/toolTip.html].

Table 6.161. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.toolTip
component-class	org.richfaces.component.html.HtmlToolTip
component-family	org.richfaces.component.toolTip
renderer-type	org.richfaces.renderkit.html.toolTipRenderer

Name	Value
tag-class	org.richfaces.taglib.HtmlToolTipTag

Table 6.162. JavaScript API

Function	Description
show()	Shows the corresponding toolTip
hide()	Hides the corresponding toolTip
enable()	Enables the corresponding toolTip
disable()	Disables the corresponding toolTip

Table 6.163. Facets

Facet name	Description
defaultContent	Defines the default content for toolTip. It is used only if mode = "ajax"

Table 6.164. Classes names that define a component appearance

Class name	Description
rich-tool-tip	Defines styles for a wrapper or element of a toolTip

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.10.19.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/toolTip.jsf?c=toolTip] you can see the example of **<rich:toolTip>** usage and sources for the given example.

6.11. Rich Input

In this section you will find the components that help you deal with various kinds of user inputs from picking a date, WYSIWYG text editing to uploading a file.

6.11.1. < rich:calendar > available since 3.1.0

6.11.1.1. Description

The **<rich:calendar>** component is used to create inputs for date and time and enter them inline or using pup-up calendar that allows to navigate through monthes and years.

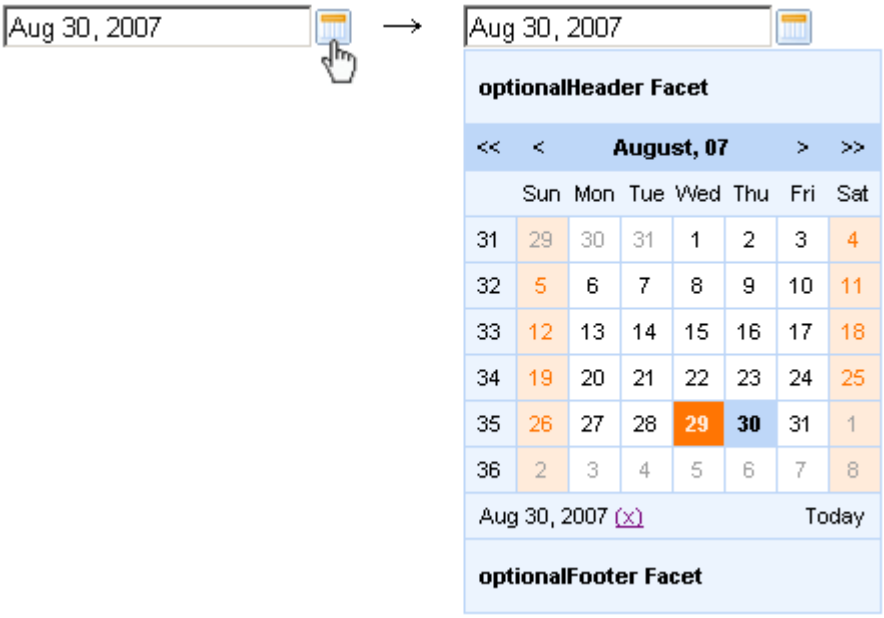


Figure 6.115. <rich:calendar> component

6.11.1.2. Key Features

- Highly customizable look and feel
- Popup representation
- Disablement support
- Smart and user-defined positioning
- Cells customization
- Macro substitution based on tool bars customization

6.11.1.3. Details of Usage

The **<rich:calendar>** component can work properly in two ways of data loading defined by the *"mode"* attribute. The attribute has two possible values:

- `client` — the default mode. In this mode calendar loads an initial portion of data within a definite date range. The range is specified with the help of *"preloadDateRangeBegin"* and *"preloadDateRangeEnd"* attributes that are designed for this mode only! Additional data requests are not sent.

- `ajax` — in this mode the **<rich:calendar>** requests portions of data for element rendering from special Data Model. The default calendar Data Model could be redefined with the help of *dataModel* attribute that points to the object that

implements *CalendarDataModel* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc_framework/org/richfaces/model/CalendarDataModel.html] interface. If *"dataModel"* attribute has *"null"* value, data requests are not sent. In this case the "ajax" mode is equal to the "client".

The **<rich:calendar>** could be represented on a page in two ways (a) the calendar itself without input field and button and (b) date input with button and popping-up calendar. This is defined with *"popup"* attribute, which is *"true"* by default. For popup rendering a "lazy" loading is implemented: a client side script method builds the popup after request is completed. Such improvement speeds up page loading time.

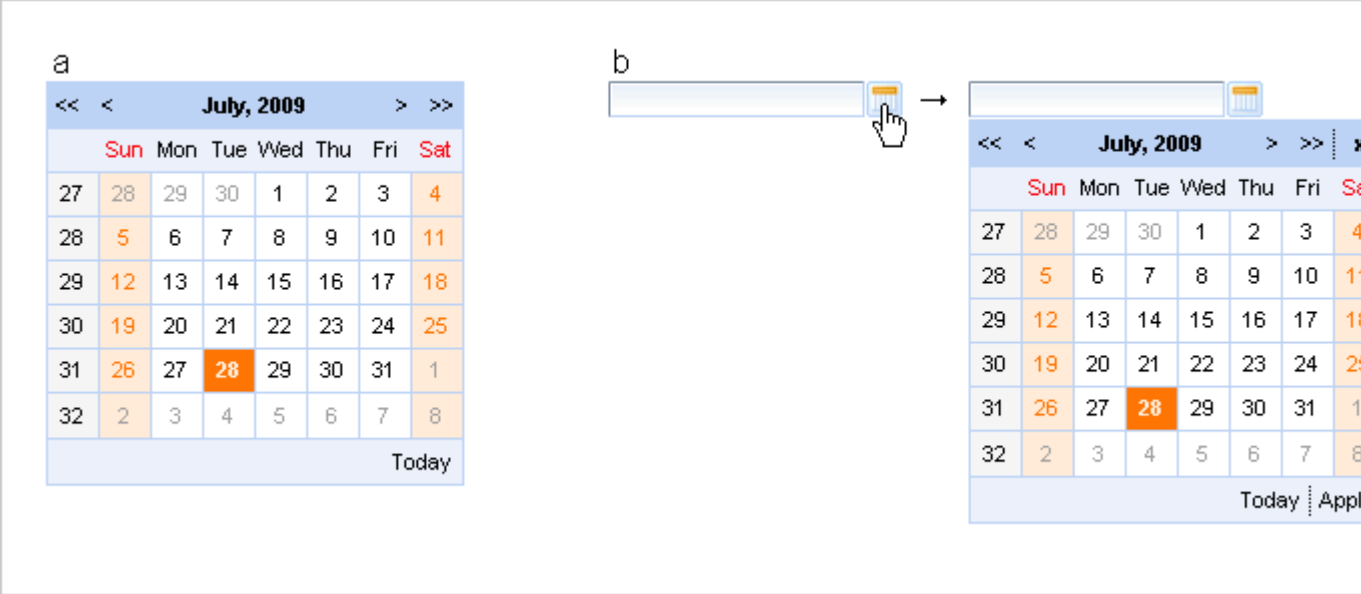


Figure 6.116. The <rich:calendar> with *popup="false"* (a) and default representation (b)

By default the **<rich:calendar>** is rendered as input filed with a button and calendar hidden in a pop-up. The button is represented with calendar pictogramm. This pictogramm could be easily changed with the help of *"buttonIcon"* and *"buttonIconDisabled"* attributes, which specify the icon for button enabled and disabled states respectively. To change the button appearance from icon to usual button define the value for the *"buttonLabel"* attribute. In this case *"buttonIcon"* and *"buttonIconDisabled"* attributes are ignored.

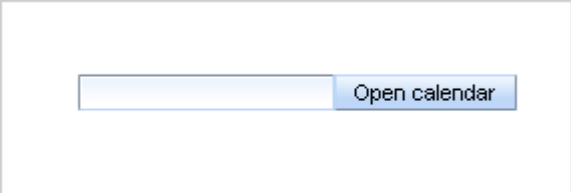


Figure 6.117. The <rich:calendar> with *buttonLabel="Open calendar"* attribute

There are two attributes that specify the place where the popup calendar is rendered relative to the input field and icon: *"jointPoint"* and *"direction"* attributes. By default the pop-up calendar appears under input and aligned with it left border (see Fig. 6.211, b). Speaking in terms of RichFaces it means that **<rich:calendar>** *jointPoint="bottom-left"* and *direction="bottom-right".* There are four possible joint-points and four possible directions for each joint-point. Besides that, the values of *"jointPoint"* and *"direction"* could be set to *"auto"* that activates smart pop-up positioning.

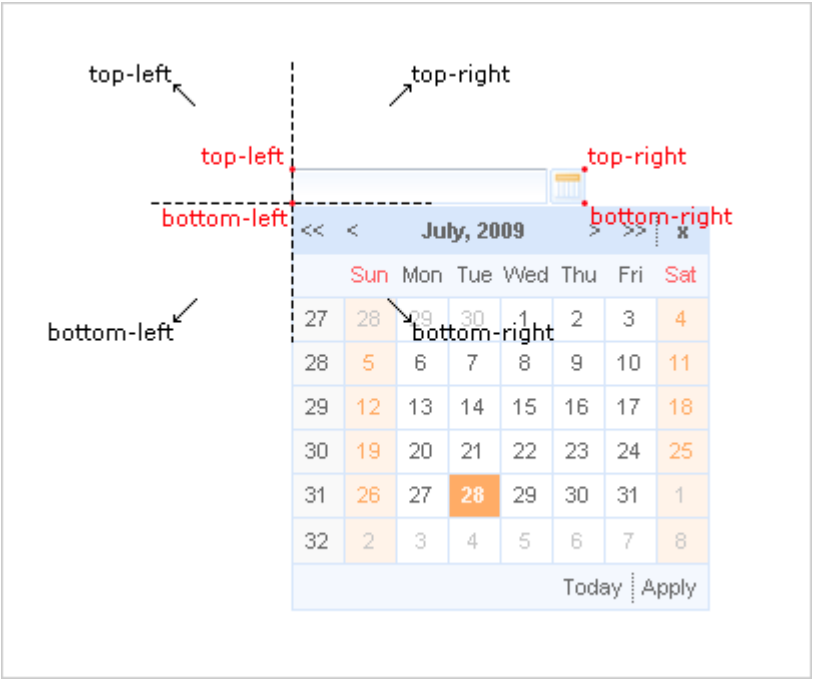


Figure 6.118. Four possible positions of joint-points (red) and four possible directions (black) shown for bottom-left joint-point.

Usage *"currentDate"* attribute isn't available in the popup mode.

With help of the *"currentDate"* attribute you can define month and year which will be displayed currently.

The *"value"* attribute stores selected date currently.

The difference between the value and currentDate attributes

The *"todayControlMode"* attribute defines the mode for "today" control. Possible values are:

- "hidden" - in this mode "Today" button will not be displayed
- "select" - (default) in this state "Today" button activation will scroll the calendar to the current date and it become selected date
- "scroll" - in this mode "Today" activation will simply scroll the calendar to current month without changing selected day.

With the help of the *"readonly"* attribute you can make date, time and input field unavailable, but you can look through the next/previous month or the next/previous year.

In order to disable the component, use the *"disabled"* attribute. With its help both controls are disabled in the *"popup"* mode.

Figure 6.119. Using the *"disabled"* attribute.

"ondateselect" attribute is used to define an event that is triggered before date selection.

The "ondateselected" attribute is used to define an event that is triggered after date selection.

For example, to fire some event after date selection you should use **<a4j:support>** . And it should be bound to *"ondateselected"* event as it's shown in the example below:

```
...
<rich:calendar id="date" value="#{bean.dateTest}">
        <a4j:support event="ondateselected" reRender="mainTable"/>
</rich:calendar>
...
```

Note:

When a timePicker was fulfilled, the *"ondateselected"* attribute does not allow you to submit a selected date. It happens because this event rose when the date is selected but the input hasn't been updated with new value yet.

"ondateselect" could be used for possibility of date selection canceling. See an example below:

```
...
<rich:calendar id="date" value="#{bean.dateTest}" ondateselect="if (!confirm('Are you sure to
 change date?')){return false;}"/>
...
```

"oncurrentdateselected" event is fired when the "next/previous month" or "next/previous year" button is pressed, and the value is applied.

"oncurrentdateselect" event is fired when the "next/previous month" or "next/previous year" button is pressed, but the value is not applied yet (you can change the logic of applying the value). Also

this event could be used for possibility of "next/previous month" or "next/previous year" selection canceling. See an example below:

Example:

```
...
<rich:calendar id="date" value="#{bean.dateTest}" oncurrentdateselect="if (!confirm('Are you
 sure to change month(year)?')){return false;}"
        oncurrentdateselected="alert('month(year) select:'+event.rich.date.toString());"/>
...
```

How to use these attributes see also on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4092275#4092275].

Information about the *"process"* attribute usage you can find *in the corresponding section* .

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"`, {2} for `"ShortConverter.SHORT"`.

The *"defaultTime"* attribute to set the default time value for the current date in two cases:

- If time is not set
- If another date is selected and the value of the *"resetTimeOnDateSelect"* attribute is set to "true"

The *"enableManualInput"* attribute enables/disables input field, so when `enableManualInput = "false"` , user can only pick the date manually and has no possibility to type in the date (default value is "false").

The **<rich:calendar>** component allows to use *"header"* , *"footer"* , *"optionalHeader"* , *"optionalFooter"* facets. The following elements are available in these facets: `{currentMonthControl}`, `{nextMonthControl}`, `{nextYearControl}`, `{previousYearControl}`, `{previousMonthControl}`, `{todayControl}`, `{selectedDateControl}`. These elements could be used for labels output.

Also you can use *"weekNumber"* facet with available `{weekNumber}`, `{elementId}` elements and *"weekDay"* facet with `{weekDayLabel}`, `{weekDayLabelShort}`, `{weekDayNumber}`, `{isWeekend}`, `{elementId}` elements. `{weekNumber}`, `{weekDayLabel}`, `{weekDayLabelShort}`, `{weekDayNumber}` elements could be used for labels output, `{isWeekend}`, `{elementId}` - for additional processing in JavaScript code.

These elements are shown on the picture below.

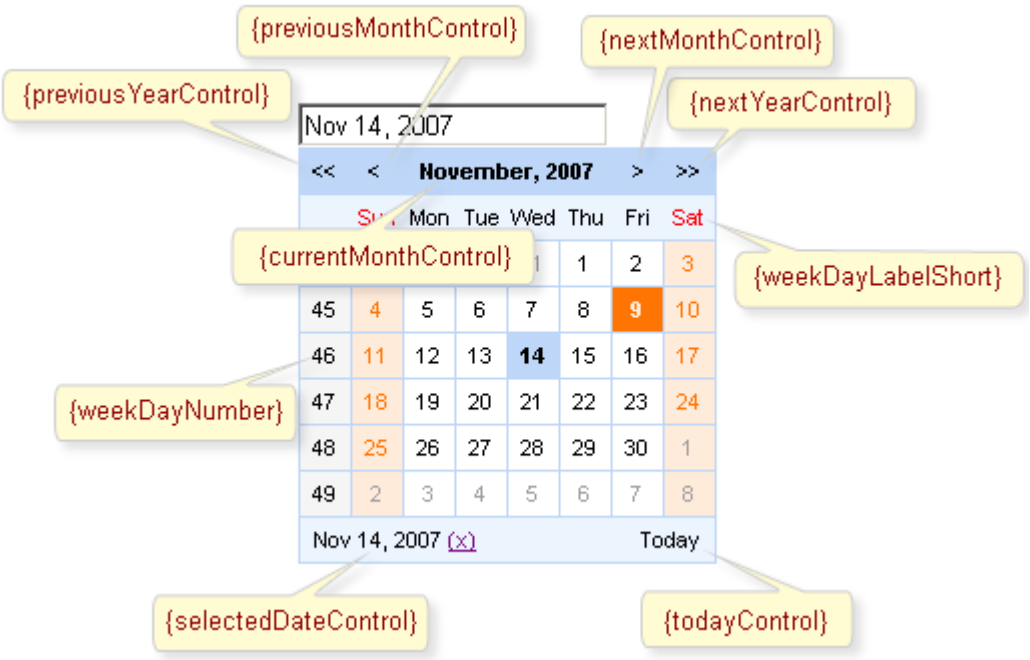


Figure 6.120. Available elements

Simple example of usage is placed below.

Example:

```
...
<!-- Styles for cells -->
<style>
    .width100{
        width:100%;
    }
    .talign{
        text-align:center;
    }
</style>
...
```

```
...
<rich:calendar id="myCalendar" popup="true" locale="#{calendarBean.locale}"
 value="#{bean.date}"
                preloadRangeBegin="#{bean.date}" preloadRangeEnd="#{bean.date}"
 cellWidth="40px" cellHeight="40px">

    <!-- Customization with usage of facets and accessible elements -->
```

```
    <f:facet name="header">
        <h:panelGrid columns="2" width="100%" columnClasses="width100, fake">
            <h:outputText value="{selectedDateControl}" />
            <h:outputText value="{todayControl}"  style="font-weight:bold; text-align:left"/>
        </h:panelGrid>
    </f:facet>
    <f:facet name="weekDay">
        <h:panelGroup style="width:60px; overflow:hidden;" layout="block">
            <h:outputText value="{weekDayLabelShort}"/>
        </h:panelGroup>
    </f:facet>
    <f:facet name="weekNumber">
         <h:panelGroup>
            <h:outputText value="{weekNumber}" style="color:red"/>
        </h:panelGroup>
     </f:facet>
     <f:facet name="footer">
        <h:panelGrid columns="3" width="100%" columnClasses="fake, width100 talign">
            <h:outputText value="{previousMonthControl}" style="font-weight:bold;"/>
            <h:outputText value="{currentMonthControl}" style="font-weight:bold;"/>
            <h:outputText value="{nextMonthControl}" style="font-weight:bold;"/>
        </h:panelGrid>
    </f:facet>
    <h:outputText value="{day}"></h:outputText>
</rich:calendar>
...
```

This is a result:

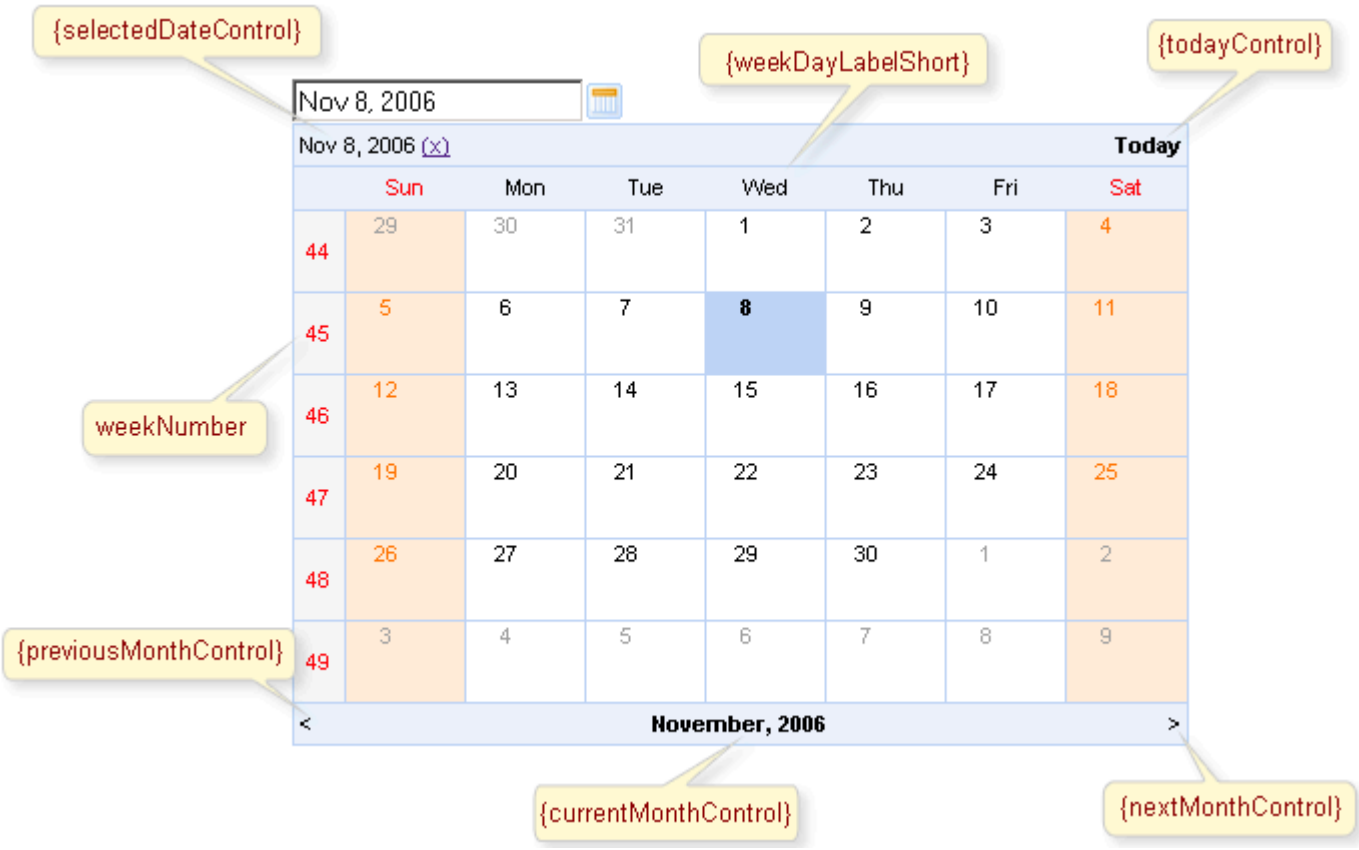


Figure 6.121. Facets usage

As it's shown on the picture above `{selectedDateControl}`, `{todayControl}` elements are placed in the *"header"* facet, `{previousMonthControl}`, `{currentMonthControl}`, `{nextMonthControl}` - in the *"footer"* facet, `{weekDayLabelShort}` - in the *"weekDay"* facet, `{nextYearControl}`, `{previousYearControl}` are absent. Numbers of weeks are red colored.

It is possible to show and manage date. Except scrolling controls you can use quick month and year selection feature. It's necessary to click on its field, i.e. current month control, and choose required month and year.

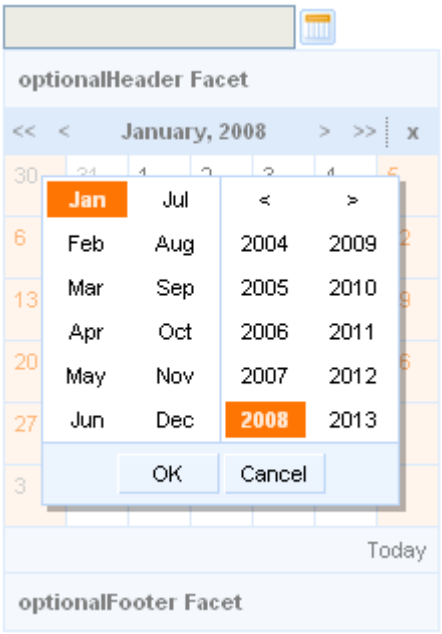


Figure 6.122. Quick month and year selection

Also the **<rich:calendar>** component allows to show and manage time. It's necessary to define time in a pattern (for example, it could be defined as "`d/M/yy HH:mm`"). Then after you choose some data in the calendar, it becomes possible to manage time for this date. For time editing it's necessary to click on its field (see a picture below). To clean the field click on the "Clean".

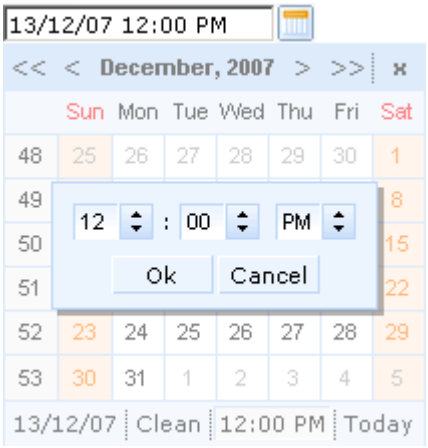


Figure 6.123. Timing

It's possible to handle events for calendar from JavaScript code. A simplest example of usage JavaScript API is placed below:

Example:

```
...
```

```
<rich:calendar value="#{calendarBean.selectedDate}" id="calendarID"
               locale="#{calendarBean.locale}"
               popup="#{calendarBean.popup}"
               datePattern="#{calendarBean.pattern}"
               showApplyButton="#{calendarBean.showApply}" style="width:200px"/>
<a4j:commandLink                onclick="$('formID:calendarID').component.doExpand(event)"
 value="Expand"/>
...
```

Also the discussion about this problem can be found on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4078301#4078301].

The **<rich:calendar>** component provides the possibility to use internationalization method to redefine and localize the labels. You could use application resource bundle and define `RICH_CALENDAR_APPLY_LABEL`, `RICH_CALENDAR_TODAY_LABEL`, `RICH_CALENDAR_CLOSE_LABEL`, `RICH_CALENDAR_OK_LABEL`, `RICH_CALENDAR_CLEAN_LABEL`, `RICH_CALENDAR_CANCEL_LABEL` there.

You could also pack `org.richfaces.renderkit.calendar` *resource* [http://docs.jboss.org/richfaces/3.3.1.GA/en/apidoc/org/richfaces/renderkit/CalendarRendererBase.html#CALENDAR_BUNDLE] bundle with your JARs defining the same properties.

Note:

Only for Internet Explorer 6 and later. To make **<rich:calendar>** inside **<rich:modalPanel>** rendered properly, enable the standards-compliant mode. Explore *!DOCTYPE reference at MSDN* [http://msdn.microsoft.com/en-us/library/ms535242(VS.85).aspx] to find out how to do this.

6.11.1.4. Reference Data

Table of <rich:calendar> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/calendar.html].

Table 6.165. Component Identification Parameters

Name	Value
component-type	org.richfaces.Calendar
component-class	org.richfaces.component.html.HtmlCalendar
component-family	org.richfaces.Calendar
renderer-type	org.richfaces.CalendarRenderer
tag-class	org.richfaces.taglib.CalendarTag

Table 6.166. JavaScript API

Function	Description
selectDate(date)	Selects the date specified. If the date isn't in current month - performs request to select
isDateEnabled(date)	Checks if given date is selectable (to be implemented)
enableDate(date)	Enables date cell control on the calendar (to be implemented)
disableDate(date)	Disables date cell control on the calendar (to be implemented)
enableDates(date[])	Enables dates cell controls set on the calendar (to be implemented)
disableDates(date[])	Disables dates cell controls set on the calendar (to be implemented)
nextMonth()	Navigates to next month
nextYear()	Navigates to next year
prevMonth()	Navigates to previous month
prevYear()	Navigates to previous year
today()	Selects today date
getSelectedDate()	Returns currently selected date
Object getData()	Returns additional data for the date
getCurrentMonth()	Returns number of the month currently being viewed
getCurrentYear()	Returns number of the year currently being viewed
doCollapse()	Collapses calendar element
doExpand()	Expands calendar element
resetSelectedDate()	Clears a selected day value
doSwitch()	Inverts a state for the popup calendar

Table 6.167. Facets

Facet	Description
header	Redefines calendar header. Related attribute is "showHeader"
footer	Redefines calendar footer. Related attribute is "showFooter"
optionalHeader	Defines calendar's optional header

Facet	Description
optionalFooter	Defines calendar's optional footer
weekNumber	Redefines week number
weekDay	Redefines names of the week days. Related attributes are "weekDayLabels" and "weekDayLabelsShort"

Table 6.168. Classes names that define an input field and a button appearance

Class name	Description
rich-calendar-input	Defines styles for an input field
rich-calendar-button	Defines styles for a popup button

Table 6.169. Classes names that define a days appearance

Class name	Description
rich-calendar-days	Defines styles for names of working days in a header
rich-calendar-weekends	Defines styles for names of weekend in a header
rich-calendar-week	Defines styles for weeks numbers
rich-calendar-today	Defines styles for cell with a current date
rich-calendar-cell	Defines styles for cells with days
rich-calendar-holly	Defines styles for holiday
rich-calendar-select	Defines styles for a selected day
rich-calendar-hover	Defines styles for a hovered day

Table 6.170. Classes names that define a popup element

Class name	Description
rich-calendar-popup	Defines styles for a popup element
rich-calendar-exterior	Defines styles for a popup element exterior
rich-calendar-tool	Defines styles for toolbars
rich-calendar-month	Defines styles for names of months
rich-calendar-header-optional	Defines styles for an optional header
rich-calendar-footer-optional	Defines styles for an optional footer
rich-calendar-header	Defines styles for a header
rich-calendar-footer	Defines styles for a footer

Class name	Description
rich-calendar-boundary-dates	Defines styles for an active boundary button
rich-calendar-btn	Defines styles for an inactive boundary date
rich-calendar-toolfooter	Defines styles for a today control date

Table 6.171. Classes names that define a popup element during quick month and year selection

Class name	Description
rich-calendar-date-layout	Defines styles for a popup element during quick year selection
rich-calendar-editor-layout-shadow	Defines styles for a shadow
rich-calendar-editor-btn	Defines styles for an inactive boundary date
rich-calendar-date-layout-split	Defines styles for a wrapper <td> element for month items near split line
rich-calendar-editor-btn-selected	Defines styles for an selected boundary date
rich-calendar-editor-btn-over	Defines styles for a boundary date when pointer was moved onto
rich-calendar-editor-tool-over	Defines styles for a hovered toolbar items
rich-calendar-editor-tool-press	Defines styles for a pressed toolbar items
rich-calendar-date-layout-ok	Defines styles for a "ok" button
rich-calendar-date-layout-cancel	Defines styles for a "cancel" button

Table 6.172. Classes names that define a popup element during time selection

Class name	Description
rich-calendar-time-layout	Defines styles for a popup element during time selection
rich-calendar-editor-layout-shadow	Defines styles for a shadow
rich-calendar-time-layout-fields	Defines styles for a wrapper <td> element for input fields and buttons
rich-calendar-spinner-input-container	Defines styles for a wrapper <td> element for an input field
rich-calendar-spinner-input	Defines styles for an input field
rich-calendar-spinner-buttons	Defines styles for a wrapper <td> element for spinner buttons
rich-calendar-spinner-up	Defines styles for a "up" button
rich-calendar-spinner-down	Defines styles for a "down" button

Class name	Description
rich-calendar-time-layout-ok	Defines styles for a "ok" button
rich-calendar-time-layout-cancel	Defines styles for a "cancel" button

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.1.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/calendar.jsf?c=calendar] you can see the example of **<rich:calendar>** usage and sources for the given example.

How to use JavaScript API see on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4078301#4078301].

6.11.2. < rich:colorPicker > available since 3.3.1

6.11.2.1. Description

The **<rich:colorPicker>** component lets you visually choose a color or define it in hex, RGB, or HSB input fields.

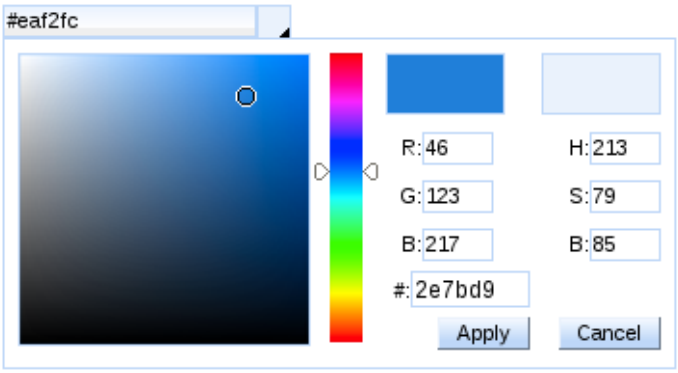


Figure 6.124. Simple <rich:colorPicker> component

6.11.2.2. Key Features

- Possibility to get color in hex, or RGB color models
- Flat/inline representation
- Highly customizable look and feel

6.11.2.3. Details of Usage

The **<rich:colorPicker>** component allows you easily select a color or define it in hex, RGB, or HSB input fields. There are two squares in the widget that help you to compare the currently selected color and the already selected color.

The *"value"* attribute stores the selected color.

The value of the **<rich:colorPicker>** component could be saved in hex or RGB color models. You can explicitly define a color model in the *"colorMode"* attribute.

Example:

```
...
<rich:colorPicker value="#{bean.color}" colorMode="rgb" />
...
```

This is the result:

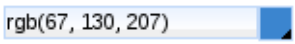


Figure 6.125. Usage of the *"colorMode"* attribute.

The **<rich:colorPicker>** component has two representation states: flat and inline. With the help of the *"flat"* attribute you can define whether the component is rendered flat.

Example:

```
...
<rich:colorPicker value="#{bean.color}" flat="true" />
...
```

The component specific event handler *"onbeforeshow"* captures the event which occurs before the **<rich:colorPicker>** widget is opened. The *"onbeforeshow"* attribute could be used in order to cancel this event. See the example below:

```
...
```

```
<rich:colorPicker value="#{bean.color}" onbeforeshow="if (!confirm('Are you sure you want to
 change a color?')){return false;}" />
...
```

The *"showEvent"* attribute defines the event that shows **<rich:colorPicker>** widget. The default value is "onclick".

The **<rich:colorPicker>** component allows to use the *"icon"* facet.

You can also customize **<rich:colorPicker>** rainbow slider (
) with the help of the *"arrows"* facet.

```
...
<rich:colorPicker value="#{bean.color}">
   <f:facet name="icon">
      <h:graphicImage value="/pages/colorPicker_ico.png" />
   </f:facet>
   <f:facet name="arrows">
      <f:verbatim>
         <div style="width: 33px; height: 5px; border: 1px solid #bed6f8; background:none;" />
      </f:verbatim>
   </f:facet>
</rich:colorPicker>
...
```

This is the result:

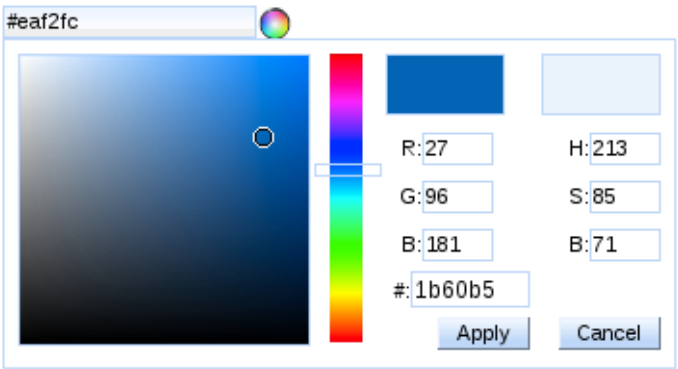


Figure 6.126. Usage of the *"icon"* , and *"arrows"* facets

6.11.2.4. Reference Data

Table of <rich:colorPicker> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/colorPicker.html].

Table 6.173. Component Identification Parameters

Name	Value
component-type	org.richfaces.ColorPicker
component-class	org.richfaces.component.html.HtmlColorPicker
component-family	org.richfaces.ColorPicker
renderer-type	org.richfaces.ColorPickerRenderer
tag-class	org.richfaces.taglib.ColorPickerTag

Table 6.174. Facets

Facet	Description
arrows	Redefines colorPicker arrows
icon	Redefines colorPicker icon

Table 6.175. Classes names for the representation of the input field and icon containing selected color

Selector name	Description
.rich-colorpicker-span input	Defines styles for the input field that contains selected color
.rich-colorpicker-icon	Defines styles for the icon

Table 6.176. Classes names for the widget

Class name	Description
.rich-colorpicker-ext	Defines styles for the wrapper element of a widget
.rich-colorpicker-color	Defines styles for the color palette
.rich-colorpicker-current-color	Defines styles for the currently selected color
.rich-colorpicker-new-color	Defines styles for the already selected color
.rich-colorpicker-colors-input	Defines styles for the hex, RGB, and HSB input fileds

Table 6.177. Classes names for the buttons representation

Class name	Description
.rich-colorpicker-submit	Defines styles for the "Apply" button

Class name	Description
.rich-colorpicker-cancel	Defines styles for the "Cancel" button

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.2.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/colorPicker.jsf?c=colorPicker] you can see the example of **<rich:colorPicker>** component usage and sources for the given example.

6.11.3. < rich:comboBox > available since 3.2.0

6.11.3.1. Description

The **<rich:comboBox>** is a component creates combobox element with built-in Ajax capability.

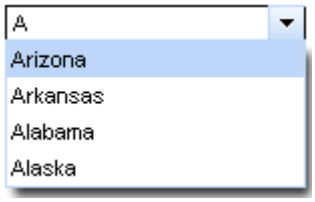


Figure 6.127. <rich:comboBox> component

6.11.3.2. Key Features

- Client-side suggestions
- Browser like selection
- Smart user-defined positioning
- Seam entity converter support
- Highly customizable look and feel
- Disablement support

6.11.3.3. Details of Usage

The **<rich:comboBox>** is a simplified suggestion box component, that provides input with client-side suggestions. The component could be in two states:

- Default - only input and button is shown
- Input, button and a popup list of suggestions attached to input is shown

There are two ways to get values for the popup list of suggestions:

- Using the *"suggestionValues"* attribute, that defines the suggestion collection

```
...
<rich:comboBox value="#{bean.state}" suggestionValues="#{bean.suggestions}" />
...
```

- Using the **<f:selectItem />** or **<f:selectItems />** JSF components.

```
...
<rich:comboBox value="#{bean.state}" valueChangeListener="#{bean.selectionChanged}">
        <f:selectItems  value="#{bean.selectItems}"/>
        <f:selectItem itemValue="Oregon"/>
        <f:selectItem itemValue="Pennsylvania"/>
        <f:selectItem itemValue="Rhode Island"/>
        <f:selectItem itemValue="South Carolina"/>
</rich:comboBox>
...
```

Note:

These JSF components consider only the *"value"* attribute for this component.

Popup list content loads at page render time. No additional requests could be performed on the popup calling.

The *"value"* attribute stores value from input after submit.

The *"directInputSuggestions"* attribute defines, how the first value from the suggested one appears in an input field. If it's "true" the first value appears with the suggested part highlighted.

```
...
<rich:comboBox value="#{bean.state}" suggestionValues="#{bean.suggestions}"
 directInputSuggestions="true" />
...
```

This is a result:

Figure 6.128. <rich:comboBox> with *"directInputSuggestions"* attribute.

The *"selectFirstOnUpdate"* attribute defines if the first value from suggested is selected in a popup list. If it's "false" nothing is selected in the list before a user hovers some item with the mouse.

```
...
<rich:comboBox value="#{bean.state}" suggestionValues="#{bean.suggestions}"
 selectFirstOnUpdate="false" />
...
```

This is a result:

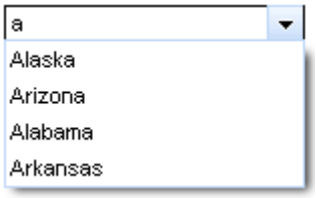


Figure 6.129. <rich:comboBox> with *"selectFirstOnUpdate"* attribute.

The *"defaultLabel"* attribute defines the default label of the input element. Simple example is placed below.

```
...
<rich:comboBox value="#{bean.state}" suggestionValues="#{bean.suggestions}"
 defaultLabel="Select a city..." />
...
```

This is a result:

Figure 6.130. <rich:comboBox> with *"defaultLabel"* attribute.

With the help of the *"disabled"* attribute you can disable the whole **<rich:comboBox>** component. See the following example.

```
...
<rich:comboBox value="#{bean.state}" suggestionValues="#{bean.suggestions}"
 defaultLabel="Select a city..." disabled="true" />
...
```

This is a result:

Figure 6.131. <rich:comboBox> with *"disabled"* attribute.

The *"enableManualInput"* attribute enables/disables input field, so when `enableManualInput = "false"`, user can only pick the value manually and has no possibility to type in the value (default value is "false").

The **<rich:comboBox>** component provides to use specific event attributes:

- *"onlistcall"* which is fired before the list opening and gives you a possibility to cancel list popup/update
- *"onselect"* which gives you a possibility to send Ajax request when item is selected

The **<rich:comboBox>** component allows to use sizes attributes:

- *"listWidth"* and *"listHeight"* attributes specify popup list sizes with values in pixels
- *"width"* attribute customizes the size of input element with values in pixels.

6.11.3.4. Reference Data

Table of <rich:comboBox> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/comboBox.html].

Table 6.178. Component Identification Parameters

Name	Value
component-type	org.richfaces.ComboBox
component-class	org.richfaces.component.html.HtmlComboBox

Name	Value
component-family	org.richfaces.ComboBox
renderer-type	org.richfaces.renderkit.ComboBoxRenderer
tag-class	org.richfaces.taglib.ComboBoxTag

Table 6.179. JavaScript API

Function	Description
showList()	Shows the popup list
hideList()	Hides the popup list
enable()	Enables the control for input
disable()	Disables the control for input

Table 6.180. Classes names that define popup list representation

Class name	Description
rich-combobox-shell	Defines styles for a wrapper element of a list
rich-combobox-list-position	Defines position of a list
rich-combobox-list-decoration	Defines styles for a list
rich-combobox-list-scroll	Defines styles for a list scrolling

Table 6.181. Classes names that define font representation

Class name	Description
rich-combobox-font	Defines styles for a font
rich-combobox-font-inactive	Defines styles for an inactive font
rich-combobox-font-disabled	Defines styles for a disabled font

Table 6.182. Classes names that define input field representation

Class name	Description
rich-combobox-input	Defines styles for an input field
rich-combobox-input-disabled	Defines styles for an input field in disabled state
rich-combobox-input-inactive	Defines styles for an inactive input field

Table 6.183. Classes names that define item representation

Class name	Description
rich-combobox-item	Defines styles for an item

Class name	Description
rich-combobox-item-selected	Defines styles for a selected item

Table 6.184. Classes names that define button representation

Class name	Description
rich-combobox-button	Defines styles for a button
rich-combobox-button-inactive	Defines styles for an inactive button
rich-combobox-button-disabled	Defines styles for a button in disabled state
rich-combobox-button-hovered	Defines styles for a hovered button
rich-combobox-button-background	Defines styles for a button background
rich-combobox-button-background-disabled	Defines styles for a disabled button background
rich-combobox-button-background-inactive	Defines styles for an inactive button background
rich-combobox-button-pressed-background	Defines styles for a pressed button background
rich-combobox-button-icon	Defines styles for a button icon
rich-combobox-button-icon-inactive	Defines styles for an inactive button icon
rich-combobox-button-icon-disabled	Defines styles for a disabled button icon

Table 6.185. Classes names that define shadow representation

Class name	Description
rich-combobox-shadow	Defines styles for a wrapper element of a shadow
rich-combobox-shadow-tl	Defines styles for a top-left element of a shadow
rich-combobox-shadow-tr	Defines styles for a top-right element of a shadow
rich-combobox-shadow-bl	Defines styles for a bottom-left element of a shadow
rich-combobox-shadow-br	Defines styles for a bottom-right element of a shadow

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.3.5. Relevant Resources Links

Visit the *ComboBox page* [http://livedemo.exadel.com/richfaces-demo/richfaces/comboBox.jsf?c=comboBox] at RichFaces LiveDemo for examples of component usage and their sources.

6.11.4. < rich:editor > available since 3.3.0

6.11.4.1. Description

The **<rich:editor>** component is used for creating a WYSIWYG editor on a page.

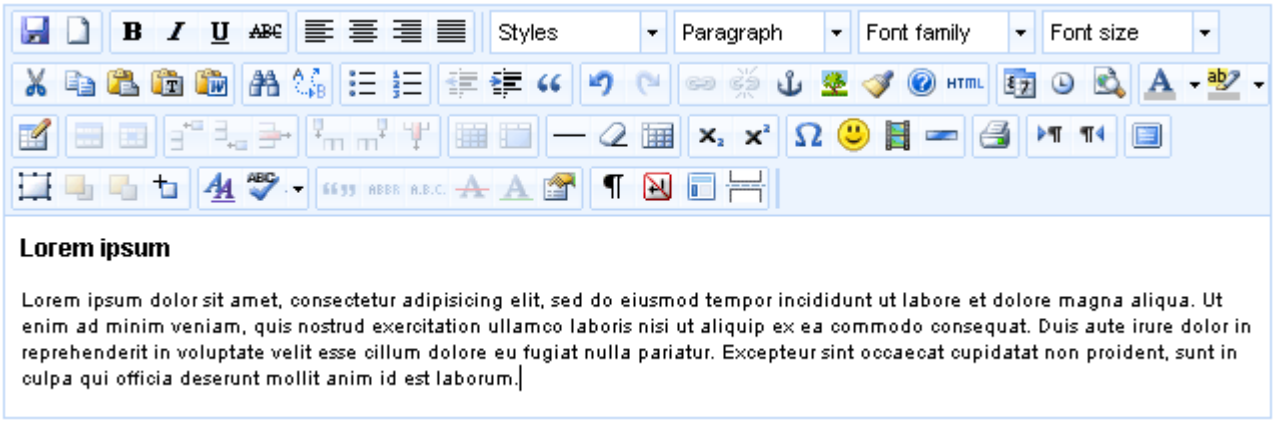


Figure 6.132. <rich:editor> component

6.11.4.2. Key Features

- Seam text support
- Manageable global configurations
- Possibility to use custom plug-ins
- Support of all TinyMCE's parameters through **<f:param>**

6.11.4.3. Details of Usage

The **<rich:editor>** is fully based on TinyMCE web based Javascript HTML WYSIWYG editor control and supports all of the features it has. The **<rich:editor>** adapts the TinyMCE editor for JSF environment and adds some functional capabilities.

The easiest way to place the **<rich:editor>** on a page is as follows:

Example:

```
<rich:editor value="#{bean.editorValue}" />
```

Implementation of **<rich:editor>** provides three ways to define the properties of the component:

1. Using attributes
2. Using using **<f:param>** JSF tag
3. Using configuration files that allow you to set up multiple configurations for all editors in your application and change them in the runtime

The three methods are described in details in the chapter.

The most important properties are implemented as attributes and you can define them as any other attribute. The attributes of the **<rich:editor>** component match the corresponding properties of TinyMCE editor.

For example, a theme for the editor can be defined using the *"theme"* attribute like this:

Example:

```
<rich:editor value="#{bean.editorValue}" theme="advanced" />
```

Setting a different skin for the editor can be done using the *"skin"* attribute.

Another useful property that is implemented at attribute level is *"viewMode"* . The attribute switches between "visual" and "source" modes, toggling between modes is performed setting the attribute to "visual" and "source" respectively. Implementation of **<rich:editor>** also implies that you can change the modes dynamically setting the value of the *"viewMode"* attribute using EL-expression.

Example:

```
...
<rich:editor value="#{editor.submit}" theme="advanced" viewMode="#{editor.viewMode}" >
   ...
   <h:selectOneRadio value="#{editor.viewMode}" onchange="submit();">
      <f:selectItem itemValue="visual" itemLabel="visual" />
      <f:selectItem itemValue="source" itemLabel="source" />
   </h:selectOneRadio>
   ...
</rich:editor>
...
```

Most configuration options that TinyMCE provides can be applied using **<f:param>** JSF tag. The syntax is quite simple: the *"name"* attribute should contain the option, the *"value"* attribute assigns some value to the option.

For example, this code adds some buttons to the editor and positions the toolbar.

Example:

```
...
<rich:editor value="#{bean.editorValue}" theme="advanced" plugins="save,paste" >
                        <f:param   name="theme_advanced_buttons1"   value="bold,italic,underline,
 cut,copy,paste,pasteword"/>
        <f:param name="theme_advanced_toolbar_location" value="top"/>
        <f:param name="theme_advanced_toolbar_align" value="left"/>
</rich:editor>
...
```

This is what you get as a result:

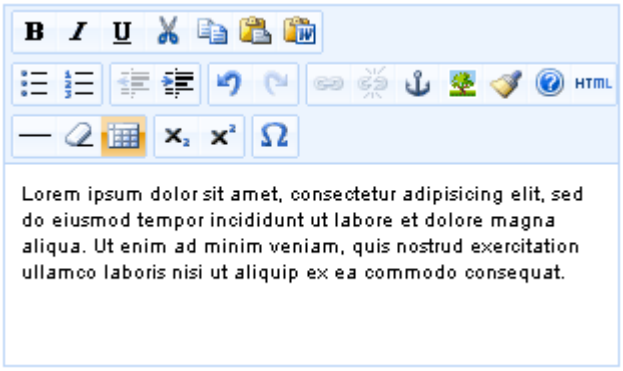


Figure 6.133. Setting configuration options with <f:param>

The third way to configure the **<rich:editor>** is to use configuration file (.properties)

This method eases your life if you need to configure multiple instances of the **<rich:editor>** : you configure the editor once and in one spot and the configuration properties can be applied to any **<rich:editor>** in your application.

To implement this type of configuration you need to take a few steps:

- Create a configuration file (.properties) in the classpath folder and add some properties to it. Use standard syntax for the .properties files: `parameter=value`. Here is an example of configuration file:

  Example:

```
theme="advanced"
plugins="save,paste"
```

```
theme_advanced_buttons1="bold,italic,underline, cut,copy,paste,pasteword"
theme_advanced_toolbar_location="top"
theme_advanced_toolbar_align="left"
```

- The properties stored in configuration file are passed to the **<rich:editor>** via *"configuration"* attribute which takes the name of the configuration file as a value (with out .properties extension).

  For example, if you named the configuration file "editorconfig", you would address it as follows:

  Example:

```
...
<rich:editor value="#{bean.editorValue}" configuration="editorconfig"/>
...
```

- Alternately, you can use a EL-expression to define a configuration file. This way you can dynamically change the sets of configuration properties.

  For example, you have two configuration files "configurationAdvanced" and "configurationSimple" and you want them to be applied under some condition.

  To do this you need to bind *"configuration"* attribute to the appropriate bean property like this.

  Example:

```
...
<rich:editor value="#{bean.editorValue}" configuration="#{editor.configuration}" />
...
```

  Your Java file should look like this.

```
...
String configuration;

if(some condition){//defines some condition
      configuration = "configurationAdvanced"; //the name on the file with advanced properties
}
else{
       configuration= "configurationSimple"; //the name on the file with simplified properties
}
...
```

You also might want to add some custom plug-ins to your editor. You can read about how to create a plugin in *TinyMCE Wiki article* [http://wiki.moxiecode.com/index.php/TinyMCE:Creating_Plugin].

Adding a custom plugin also requires a few steps to take. Though, the procedure is very similar to adding a configuration file.

This is what you need to add a plugin:

- Create a .properties file and put the name of the plug-in and a path to it into the file. The file can contain multiple plug-in declarations. Your .properties file should be like this.

  Example:

```
...
pluginName=/mytinymceplugins/plugin1Name/editor_plugin.js
...
```

- Use the *"customPlugins"* attribute to specify the .properties file with a plugin name and a path to it.

  If your .properties file is named "myPlugins", then your will have this code on the page.

  Example:

```
...
<rich:editor theme="advanced" customPlugins="myPlugins" plugins="pluginName" />
...
```

Note:

Some plug-ins which available for download might have some dependencies on TinyMCE scripts. For example, dialog pop-ups require tiny_mce_popup.js script file. Assuming that you will not plug custom plugins to the RF jar with editor component (standard TinyMCE plugins creation implies that plugins are put into TinyMCE's corresponding directory) you should manually add required TinyMCE scripts to some project folder and correct the js includes.

The implementation of the **<rich:editor>** component has two methods for handling events.

The attributes take some function name as a value with is triggered on the appropriate event. You need to use standard JavaScript function calling syntax.

- Using attributes (*"onchange"* , *"oninit"* , *"onsave"* , *"onsetup"*)

Example:

```
...
<rich:editor value="#{bean.editorValue}" onchange="myCustomOnChangeHandler()" />
...
```

- Using **<f:param>** as a child element defining the *"name"* attribute with one of the TinyMCE's callbacks and the *"value"* attribute takes the function name you want to be called on the corresponding event as the value. Note, that the syntax in this case is a bit different: parentheses are not required.

  Example:

```
...
<rich:editor value="#{bean.editorValue}">
      <f:param name="onchange" value="myCustomOnChangeHandler" />
</rich:editor>
...
```

The **<rich:editor>** component has a build-in converter that renders HTML code generated by the editor to Seam text (you can read more on Seam in *Seam guide* [http://docs.jboss.org/seam/1.1.5.GA/reference/en/html/text.html].), it also interprets Seam text passed to the **<rich:editor>** and renders it to HTML. The converter can be enable with the *"useSeamText"* attribute.

Example:

This HTML code generated by editor

```
...
<p><a href="http://mysite.com">Lorem ipsum</a> <i>dolor sit</i> amet, ea <u>commodo</u>
 consequat.</p>
...
```

will be parsed to the following Seam text:

```
...
[Lorem ipsum=>http://mysite.com] *dolor sit* amet, ea _commodo_ consequat.
...
```

Accordingly, if the Seam text is passed to the component it will be parsed to HTML code.

6.11.4.4. Reference Data

Table of <rich:editor> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/editor.html].

Table 6.186. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.editor
component-class	org.richfaces.component.html.Htmleditor
component-family	org.richfaces.component.editor
renderer-type	org.richfaces.renderkit.html.editorRenderer
tag-class	org.richfaces.taglib.editorTag

Table 6.187. CSS selectors for the layout of the editor

Class name (selector)	Description	Skin Parameter	CSS property
.richfacesSkin .mceButton	Defines styles for the buttons	n/a	background-image
.richfacesSkin .mceButtonDisabled .mceIcon	Defines styles for the icons	n/a	opacity
.richfacesSkin .mceIframeContainer	Defines styles for the container	panelBorderColor	border-top-color, border-bottom-color
.richfacesSkin .mceListBox .mceText	Defines styles for the list box	generalFamilyFont	font-family
		panelBorderColor	border-color
		tableBackgroundColor	background
.richfacesSkin .mceExternalToolbar	Defines styles for the toolbar	panelBorderColor	border-color
.richfacesSkin .mceMenu	Defines styles for the menus	panelBorderColor	border-color
.richfacesSkin .mceMenu .mceMenuItemActive	Defines styles for the active menu items	additionalBackgroundColor	background-color
.richfacesSkin .mceSeparator	Defines styles for the buttons separator	n/a	background-image
.richfacesSkin table.mceLayout	Defines styles for the table layout	panelBorderColor	border-left-color, border-right-color
.richfacesSkin table.mceToolbar		n/a	padding

Class name (selector)	Description	Skin Parameter	CSS property
	Defines styles for the rows of icons within toolbar		

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.4.5. Relevant Resources Links

The **<rich:editor>** is based on TinyMCE editor and supports almost all its features and properties some of which are not described here since you can find more detailed documentation on them on the official *web site.* [http://wiki.moxiecode.com/index.php/TinyMCE:Index]

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/editor.jsf?c=editor] you can see an example of **<rich:editor>** usage and sources for the given example.

6.11.5. < rich:fileUpload > available since 3.2.0

6.11.5.1. Description

The **<rich:fileUpload>** component designed to perform Ajax-ed files upload to server.

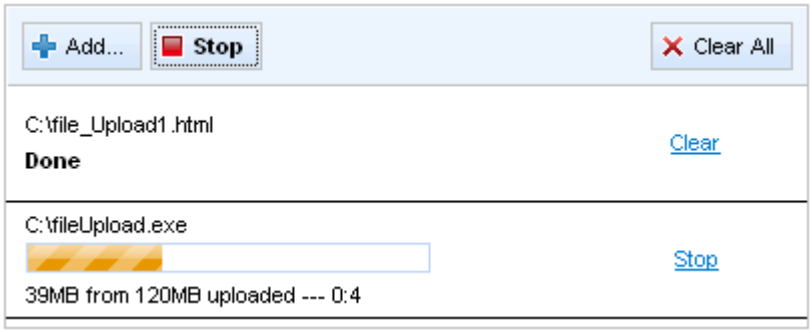


Figure 6.134. <rich:fileUpload> component

6.11.5.2. Key Features

- ProgressBar shows the status of downloads
- Restriction on File type, file size and number of files to be uploaded
- Multiple files upload support

- Embedded Flash module
- Possibility to cancel the request
- One request for every upload
- Automatic uploads
- Supports standard JSF internationalization
- Highly customizable look and feel
- Disablement support

6.11.5.3. Details of Usage

The **<rich:fileUpload>** component consists of two parts:

- List of files which contains the list of currently chosen files to upload with possibility to manage every file
- Component controls - the bar with controls for managing the whole component

There are two places where the uploaded files are stored:

- In the temporary folder (depends on OS) if the value of the `createTempFile` parameter in Ajax4jsf Filter (in web.xml) section is "true" (by Default)

```
...
<init-param>
      <param-name>createTempFiles</param-name>
      <param-value>true</param-value>
</init-param>
...
```

- In the RAM if the value of the `createTempFile` parameter in Ajax4jsf Filter section is "false". This is a better way for storing small-sized files.

The *"uploadData"* attribute defines the collection of files uploaded. See the example below.

Example:

```
...
<rich:fileUpload uploadData="#{bean.data}"/>
```

```
...
```

The *"fileUploadedListener"* is called at server side after every file uploaded and used for the saving files from temporary folder or RAM.

Example:

```
...
<rich:fileUpload uploadData="#{bean.data}" fileUploadListener="#{bean.listener}"/>
 ...
```

The following methods for processing the uploaded files are available:

- `isMultiUpload()`. It returns "true" if several files have been uploaded
- `getUploadItems()`. It returns the list of the uploaded files. If one file was uploaded, the `getUploadItems()` method will return the list consisting of one file
- `getUploadItem()`. It returns the whole list in case of uploading one file only. If several files were uploaded, the `getUploadItem()` method will return the first element of the uploaded files list.

Automatically files uploading could be performed by means of the *"immediateUpload"* attribute. If the value of this attribute is "true" files are uploaded automatically once they have been added into the list. All next files in the list are uploaded automatically one by one. If you cancel uploading process next files aren't started to upload till you press the "Upload" button or clear the list.

Example:

```
...
<rich:fileUpload uploadData="#{bean.data}" fileUploadListener="#{bean.listener}"
 immediateUpload="true"/>
 ...
```

The *"autoclear"* attribute is used to remove automatically files from the list after upload completed. See the simple example below.

Example:

```
...
<rich:fileUpload uploadData="#{bean.data}" autoclear="true"/>
...
```

Each file in list waiting for upload has link "Cancel" opposite its name. Clicking this link invokes JS API `remove()` function, which gets `$('id').component.entries[i]` as a parameter and removes the particular file from list and from the queue for upload. After a file has been uploaded the link "Cancel" changes to "Clear". Clicking "Clear" invokes `clear()` JS API function, which also gets ID of the particular entry and removes it from the list. Uploaded to server file itself is kept untouched.

The **<rich:fileUpload>** component provides following restrictions:

- On file types, use *"acceptedTypes"* attribute to define file types accepted by component. In the example below only files with "html" and "jpg" extensions are accepted to upload.

  Example:

```
...
<rich:fileUpload acceptedTypes="html, jpg"/>
...
```

- On file size, use the `maxRequestSize` parameter(value in bytes) inside Ajax4jsf Filter section in web.xml:

```
...
<init-param>
      <param-name>maxRequestSize</param-name>
      <param-value>1000000</param-value>
</init-param>
...
```

- On max files quantity, use the *"maxFilesQuantity"* attribute to define max number of files allowed to be uploaded. After a number of files in the list equals to the value of this attribute "Add" button is disabled and nothing could be uploaded even if you clear the whole list. In order to upload files again you should rerender the component. As it could be seen in the example below, only 2 files are accepted for uploading.

  Example:

```
...
<rich:fileUpload maxFilesQuantity="2"/>
...
```

  This is the result:

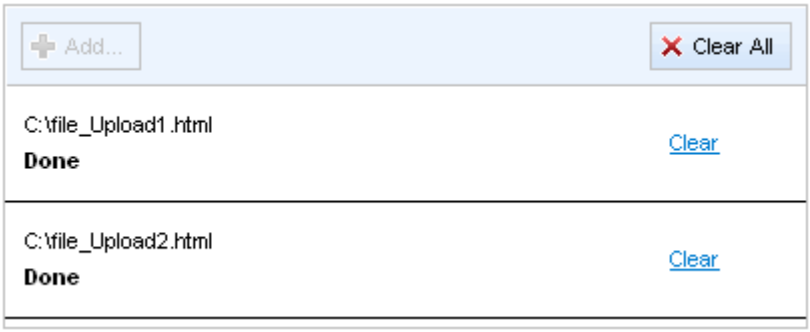


Figure 6.135. <rich:fileUpload> with *"maxFilesQuantity"* attribute

The **<rich:fileUpload>** component provides a number of specific event attributes:

- The *"onadd"* a event handler called on an add file operation
- The *"onupload"* which gives you a possibility to cancel the upload at client side
- The *"onuploadcomplete"* which is called after all files from the list are uploaded
- The *"onuploadcanceled"* which is called after upload has been canceled via cancel control
- The *"onerror"* which is called if the file upload was interrupted according to any errors

The **<rich:fileUpload>** component has an embedded Flash module that adds extra functionality to the component. The module is enabled with *"allowFlash"* attribute set to "true".

These are the additional features that the Flash module provides:

- Multiple files choosing;
- Permitted file types are specified in the "Open File" dialog window;
- A number of additional entry object properties are also available, which can be found *RichFaces Developer Guide section on object properties*.

Apart from uploading files to the sever without using Ajax, the Flash module provides a number of useful API functions that can be used to obtain information about the uploaded file.

There are 2 ways to obtain the data stored in the FileUploadEntry object.

- By means of JavaScript on the client side. Use the following syntax for that `entries[i].propertyName`. For example `entries[0].state` will return the state of the file the is being processed or has just been processed.

- The properties of `FileUploadEntry` object can be retrieved using the `entry.propertyName` expression in the specific event attributes. For example, `onupload="alert(event.memo.entry.fileName);"` will display a message with the name of the file at the very moment when upload operation starts. A full list of properties can be found in *RichFaces Developer Guide section on properties and their attributes*.

The given bellow code sample demonstrates how the properties can be used. Please study it carefully.

```
...
<head>
      <script>
            function _onaddHandler (e) {
               var i = 0;
                  for (; i < e.memo.entries.lenght; i++) {
                        alert(e.memo.entries[i].creator);  //Shows creators of the added files
                  }
            }

            function _onerrorhandle(e) {
                  alert(e.memo.entry.fileName + "file was not uploaded due  transfer error");
            }
      </script>
</head>
 ...
```

Moreover, embedded Flash module provides a smoother representation of progress bar during the uploading process: the polling is performed is not by Ajax, but my means of the flash module.

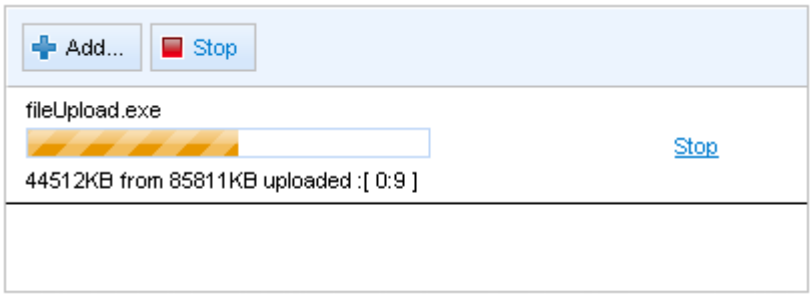


Figure 6.136. Uploading using Flash module <rich:fileUpload>

However, the Flash module doens't perform any visual representation of the component.

In order to customize the information regarding the ongoing process you could use *"label"* facet with the following macrosubstitution:

- `{B}`, `{KB}`, `{MB}` contains the size of file uploaded in bytes, kilobytes, megabytes respectively
- `{_B}`, `{_KB}`, `{_MB}` contains the remain file size to upload in bytes, kilobytes, megabytes respectively
- `{ss}`, `{mm}`, `{hh}` contains elapsed time in seconds, minutes and hours respectively

Example:

```
...
<rich:fileUpload uploadData="#{bean.data}" fileUploadListener="#{bean.listener}">
      <f:facet name="label">
            <h:outputText value="{_KB}KB from {KB}KB uploaded --- {mm}:{ss}" />
      </f:facet>
</rich:fileUpload>
...
```

This is the result:

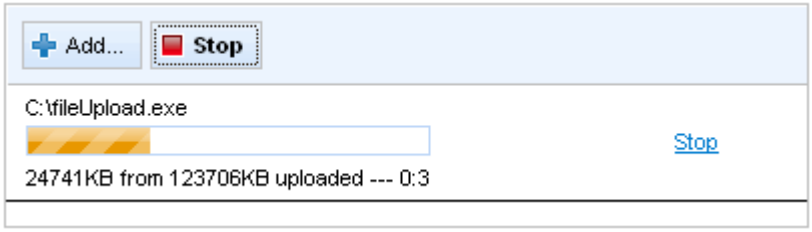


Figure 6.137. <rich:fileUpload> with *"label"* facet

You could define labels of the component controls with the help of *"addControlLabel"*, *"clearAllControlLabel"*, *"clearControlLabel"*, *"stopEntryControlLabel"*, *"uploadControlLabel"* attributes. See the following example.

Example:

```
...
<rich:fileUpload addControlLabel="Add file..." clearAllControlLabel="Clear all"
 clearControlLabel="Clear"
                stopEntryControlLabel="Stop process" uploadControlLabel="Upload file"/>
...
```

This is the result:

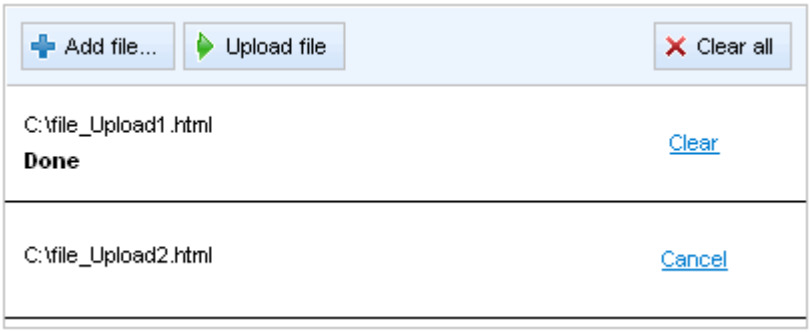


Figure 6.138. <rich:fileUpload> with labels

The **<rich:fileUpload>** component allows to use sizes attributes:

- *"listHeight"* attribute specify height for list of files in pixels
- *"listWidth"* attribute specify width for list of files in pixels

In order to disable the whole component you could use the *"disabled"* attribute. See the following example.

Example:

```
...
<rich:fileUpload disabled="true"/>
...
```

This is the result:

Figure 6.139. <rich:fileUpload> with *"disabled"* attribute

It's possible to handle events for fileUpload using JavaScript code. A simplest example of usage JavaScript API is placed below:

Example:

```
...
```

```
<rich:fileUpload  id="upload" disabled="false"/>
<h:commandButton onclick="${rich:component('upload')}.disable();" value="Disable" />
...
```

<rich:fileUpload> component also provides a number of JavaScript property, that can be used to process uploaded files, file states etc. The given below example illustrates how the `entries[0].state` property can be used to get access to the file state. Full list of JavaScript properties can be found *below*.

```
...
<rich:fileUpload fileUploadListener="#{fileUploadBean.listener}"
            maxFilesQuantity="#{fileUploadBean.uploadsAvailable}"
            id="upload"
            immediateUpload="#{fileUploadBean.autoUpload}"
            acceptedTypes="jpg, gif, png, bmp"/>
      <a4j:support event="onuploadcomplete" reRender="info"  />
</rich:fileUpload>
<h:commandButton          onclick="if($('j_id232:upload').component.entries[0].state          ==
 FileUploadEntry.UPLOAD_SUCCESS) alert ('DONE');" value="Check file state"/>
...
```

The **<rich:fileUpload>** component allows to use internationalization method to redefine and localize the labels. You could use application resource bundle and define `RICH_FILE_UPLOAD_CANCEL_LABEL`, `RICH_FILE_UPLOAD_STOP_LABEL`, `RICH_FILE_UPLOAD_ADD_LABEL`, `RICH_FILE_UPLOAD_UPLOAD_LABEL`, `RICH_FILE_UPLOAD_CLEAR_LABEL`, `RICH_FILE_UPLOAD_CLEAR_ALL_LABEL`, `RICH_FILE_UPLOAD_PROGRESS_LABEL`, `RICH_FILE_UPLOAD_SIZE_ERROR_LABLE`, `RICH_FILE_UPLOAD_TRANSFER_ERROR_LABLE`, `RICH_FILE_UPLOAD_ENTRY_STOP_LABEL`, `RICH_FILE_UPLOAD_ENTRY_CLEAR_LABEL`, `RICH_FILE_UPLOAD_ENTRY_CANCEL_LABEL` there.

To make <rich:fileUpload> component work properly with MyFaces extensions, the order in which filters are defined and mapped in web.xml, is important. See *corresponding FAQ chapter* [http://www.jboss.org/community/docs/DOC-13537].

6.11.5.4. Reference Data

Table of <rich:fileUpload> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/fileUpload.html].

Table 6.188. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.FileUpload

Name	Value
component-class	org.richfaces.component.html.HtmlFileUpload
component-family	org.richfaces.component.FileUpload
renderer-type	org.richfaces.renderkit.html.FileUploadRenderer
tag-class	org.richfaces.taglib.FileUploadTag

Table 6.189. JavaScript API

Function	Description
beforeSubmit()	Sets up necessary request parameters for file uploading and submits form to server by command button. This method should be used together with commands.
clear()	Removes all files from the list. The function can also get the `$('id').component.entries[i]` as a parameter to remove a particular file.
disable()	Disables the component
enable()	Enables the component
remove()	Cancels the request for uploading a file by removing this file from upload list and upload queue. Gets `$('id').component.entries[i]` as a parameter.
stop()	Stops the uploading process
submitForm()	Submits form to server. All added files will be put to model and event.

Table 6.190. Client-side object properties

Property	Description
entries	Returns a array of all files in the list
entries.length	Returns the number of files in the list
entries[i].fileName	Returns the file name, that is retrieved by the array index
entries[i].state	Returns the file state. Possible states are • "initialized" - the file is added, corresponds to FileUploadEntry.INITIALIZED constant • "progress" - the file is being uploaded, corresponds to

Property	Description
	FileUploadEntry.UPLOAD_IN_PROGRESS constant • "ready" - uploading is in process, corresponds to FileUploadEntry.READY constant The file will be uploaded on queue order. • "canceled" - uploading of the file is canceled, corresponds to FileUploadEntry.UPLOAD_CANCELED constant • "done" - the file is uploaded successfully, corresponds to FileUploadEntry.UPLOAD_SUCCESS constant • "transfer_error" - a file transfer error occurred, corresponds to FileUploadEntry.UPLOAD_TRANSFER_ERROR constant • "size_error" - the file exceeded maximum size, corresponds to FileUploadEntry.UPLOAD_SIZE_ERROR constant
entries[i].size	Returns the size of the file. Available in flash enabled version only
entries[i].Type	Returns the mime type of the file. Available in flash enabled version only
entries[i].creator	Returns the name of the author of the file. Available in flash enabled version only
entries[i].creationDate	Returns the date when the file was created. Available in flash enabled version only
entries[i].modificationDate	Returns the date of the last file modification. Available in flash enabled version only

Table 6.191. Client-side object properties available with specific *event attributes [363]*

Property	Description
entry.state	Returns the file state. Possible states are

Property	Description
	• "initialized" - the file is added, corresponds to FileUploadEntry.INITIALIZED constant • "progress" - the file is being uploaded, corresponds to FileUploadEntry.UPLOAD_IN_PROGRESS constant • "ready" - uploading is in process, corresponds to FileUploadEntry.READY constant The file will be uploaded on queue order. • "canceled" - uploading of the file is canceled, corresponds to FileUploadEntry.UPLOAD_CANCELED constant • "done" - the file is uploaded successfully, corresponds to FileUploadEntry.UPLOAD_SUCCESS constant • "transfer_error" - a file transfer error occurred, corresponds to FileUploadEntry.UPLOAD_TRANSFER_ERROR constant • "size_error" - the file exceeded maximum size, corresponds to FileUploadEntry.UPLOAD_SIZE_ERROR constant
entry.fileName	Returns the file's name. This property works with all event handlers except for "onadd".
entry.size	Returns the size of the file. Available in flash enabled version only
entry.Type	Returns the mime type of the file. Available in flash enabled version only
entry.creator	Returns the name of the author of the file. Available in flash enabled version only
entry.creationDate	Returns the date when the file was created. Available in flash enabled version only

Property	Description
entry.modificationDate	Returns the date of the last file modification. Available in flash enabled version only

Table 6.192. Facets

Facet name	Description
label	Defines the information regarding the ongoing process
progress	Defines the information regarding the uploading process

Table 6.193. Classes names that define a component representation

Class name	Description
rich-fileupload-list-decor	Defines styles for a wrapper element of a fileUpload
rich-fileupload-font	Defines styles for a font of buttons and items
rich-fileupload-toolbar-decor	Defines styles for a toolbar
rich-fileupload-list-overflow	Defines styles for a list of files

Table 6.194. Classes names that define buttons representation

Class name	Description
rich-fileupload-button	Defines styles for a buttons
rich-fileupload-button-border	Defines styles for a border of buttons
rich-fileupload-button-light	Defines styles for a highlight of button
rich-fileupload-button-press	Defines styles for a pressed button
rich-fileupload-button-dis	Defines styles for a disabled button
rich-fileupload-button-selection	Defines styles for "Upload", "Clean" buttons

Table 6.195. Classes names that define the representation of the buttons' icons

Class name	Description
rich-fileupload-ico	Defines styles for an icon
rich-fileupload-ico-add	Defines styles for a "Add" button icon
rich-fileupload-ico-start	Defines styles for a "Upload" button icon
rich-fileupload-ico-stop	Defines styles for a "Stop" button icon
rich-fileupload-ico-clear	Defines styles for a "Clear" button icon

Class name	Description
rich-fileupload-ico-add-dis	Defines styles for a disabled "Add" button icon
rich-fileupload-ico-start-dis	Defines styles for a disabled "Upload" button icon
rich-fileupload-ico-clear-dis	Defines styles for a disabled "Clear" button icon

Table 6.196. Classes names that define list items representation

Class name	Description
rich-fileupload-table-td	Defines styles for a wrapper <td> element of a list items
rich-fileupload-anc	Defines styles for "Cancel", "Stop", "Clear" links

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.5.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/fileUpload.jsf?c=fileUpload] you can see an example of **<rich:fileUpload>** usage and sources for the given example.

6.11.6. < rich:inplaceInput > available since 3.2.0

6.11.6.1. Description

The **<rich:inplaceInput>** is an input component used for displaying and editing data inputted.

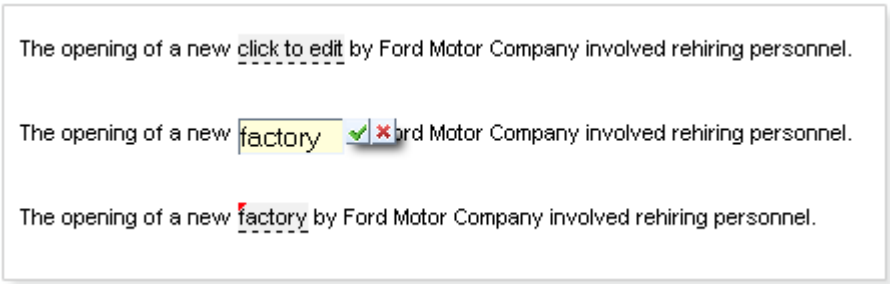


Figure 6.140. <rich:inplaceInput> component

6.11.6.2. Key Features

- View/changed/edit states highly customizable representations
- Changing state event customization

- Possibility to call custom JavaScript function on state changes
- Optional "inline" or "block" element rendering on a page
- Edit mode activation when the component gets focus with the "Tab"
- Sizes synchronizations between modes
- Controls customization

6.11.6.3. Details of Usage

The **<rich:inplaceInput>** component was designed to facilitate displaying and inputting(editing) some data.

The *"value"* attribute is a value-binding expression for the current value of the component.

The component has three functional states:

- View state displays default label with the value taken from *"value"* or *"defaultLabel"* attributes.

  If the initial value of the *"value"* attribute is "null" or empty string the *"defaultLabel"* attribute is used to define default label.

  Example:

```
...
<rich:inplaceInput value="#{bean.value}" defaultLabel="click to edit"/>
...
```

  In the example above the *"value"* attribute is not initialized therefore "`click to edit`" text, that *"defaultLabel"* , contains is displayed.

  This is the result:

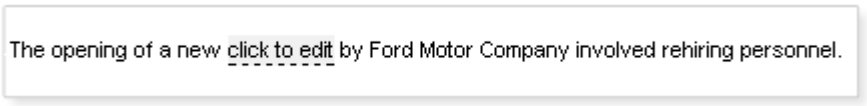


Figure 6.141. View state

- Edit state - input representation to allow value edit

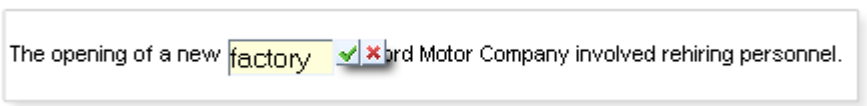


Figure 6.142. Edit state

- Changed state - value representation after it was changed

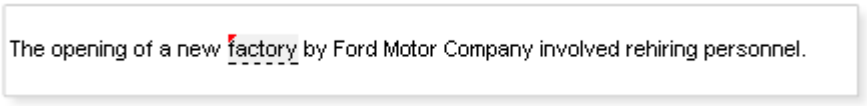


Figure 6.143. Changed state

The *"editEvent"* attribute provides an option to assign a JavaScript action to initiate the change of the state from view/changed to edit. The default value is "onclick".

Example:

```
...
<rich:inplaceInput value="#{bean.value}" editEvent="ondblclick"/>
...
```

The **<rich:inplaceInput>** component provides specific event attributes:

- *"oneditactivation"* which is fired on edit state activation
- *"oneditactivated"* which is fired when edit state is activated
- *"onviewactivation"* which is fired on view state activation
- *"onviewactivated"* which is fired after the component is changed to representation state

Example:

```
...
<rich:inplaceInput value="#{bean.value}" oneditactivation="if (!confirm('Are you sure you want
 to change the value?')){return false;}" />
...
```

The given code illustrates how *"oneditactivation"* attribute works, namely when the state is being changed from view to edit, a confirmation window with a message `"Are you sure you want to change value?"` comes up.

Using the boolean *"selectOnEdit"* attribute set to true, the text in the input field will be selected when the change from view/changed state to edit occurs.

This is the result:

Figure 6.144. Usage of the *"selectOnEdit"* attribute

If the **<rich:inplaceInput>** loses focus, input data is saved automatically and the component displays a new value. Additionally, the data is saved when "Enter" is pressed. Nevertheless, you can use the *"showControls"* attribute, which makes "Save" and "Cancel" buttons appear next to the input field. If the controls are used, data is not saved automatically when the form loses focus: user has to confirm that he/she wants to save/discard the data explicitly. In both cases(with controls or without them) the input data can be discarded by pressing "Esc" key.

Example:

```
...
<rich:inplaceInput value="#{bean.value}" showControls="true"/>
...
```

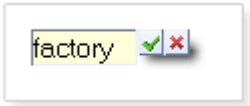


Figure 6.145. Usage *"showControls"* attribute

You can also position the controls relatively to the input field, by means of

- The *"controlsHorizontalPosition"* attribute with "left", "right" and "center" definitions
- The *"controlsVerticalPosition "* attribute with "bottom", "center" and "top" definitions

Example:

```
...
<rich:inplaceInput value="#{bean.value}" showControls="true"
 controlsVerticalPosition="bottom" controlsHorizontalPosition="left"/>
...
```

This is the result:

Figure 6.146. Positioning of "Save" and "Cancel" buttons

It is also possible to use *"controls"* facet in order to replace the default controls with facets content. See the example below.

Example:

```
...
<rich:inplaceInput defaultLabel="Click here to edit" showControls="true"
 controlsHorizontalPosition="left" controlsVerticalPosition="bottom" id="inplaceInput">
   <f:facet name="controls">
          <h:commandButton value="Save" onclick="#{rich:component('inplaceInput')}.save();"
 type="button" />
       <h:commandButton value="Cancel" onclick="#{rich:component('inplaceInput')}.cancel();"
 type="button" />
   </f:facet>
</rich:inplaceInput>
...
```

This is the result:

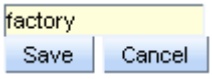


Figure 6.147. *"controls"* facet usage

Note:

The *"controls"* facet also implies using *"showControls"* attribute and it has to be defined as "true".

Redefinition of the "save" and "cancel" icons can be performed using *"saveControlIcon"* and *"cancelControlIcon"* attributes. You need to define the path to where your images are located.

Example:

```
...
<rich:inplaceInput value="#{bean.value}" defaultLabel='click to edit'
```

```
    showControls="true"
    controlsHorizontalPosition="left"
    controlsVerticalPosition="top"
    saveControlIcon="/images/cancel.gif"
    cancelControlIcon="/images/save.gif"/>
    ...
```

Figure 6.148. Redefining of "save" and "cancel" buttons

The **<rich:inplaceInput>** component could be rendered with **** or ** ** elements to display its value. In order to change default **** output, use *"layout"* attribute with "block" value.

The **<rich:inplaceInput>** component supports standard *"tabindex"* attribute. When the component gets focus the edit mode is activated.

The *"inputWidth"* , *"minInputWidth"* , *"maxInputWidth"* attributes are provided to specify the width, minimal width and maximal width for the input element respectively.

Table 6.197. Keyboard usage

Keys and combinations	Description
ENTER	Saves the input data, and changes the state from edit to changed
ESC	Changes the state from edit to view or changed, value is not affected
TAB	Switches between the components

6.11.6.4. Reference Data

Table of <rich:inplaceInput> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/inplaceInput.html].

Table 6.198. Component Identification Parameters

Name	Value
component-type	org.richfaces.inplaceInput
component-class	org.richfaces.component.html.HtmlInplaceInput
component-family	org.richfaces.inplaceInput
renderer-type	org.richfaces.renderkit.inplaceInputRenderer

Name	Value
tag-class	org.richfaces.taglib.inplaceInputTag

Table 6.199. JavaScript API

Function	Description
edit()	Changes the state to edit
cancel()	Changes its state to the previous one before editing (changed or view)
save()	Changes its state to changed with a new value
getValue()	Gets the current value
setValue(newValue)	Sets the current value (to be implemented)

Table 6.200. Facets

Facet name	Description
controls	Defines the contols contents. Related attributes are "saveControlIcon" and "cancelControlIcon"

Table 6.201. Classes names that define a component appearance

Class name	Description
rich-inplace	Defines styles for a wrapper (or) element of a component
rich-inplace-input	Defines styles for the component input field

Table 6.202. Class name for the view state

Class name	Description
rich-inplace-view	Defines styles for the view state
rich-inplace-input-view-hover	Defines styles for hovered text in the view state

Table 6.203. Class name for the input field in edit state

Class name	Description
rich-inplace-field	Defines styles for the input field look and feel in edit state

Table 6.204. Class name for the "Changed" state

Class name	Description
rich-inplace-changed	Defines styles for the "Changed" state

Class name	Description
rich-inplace-input-changed-hover	Defines styles for the hovered text in the "Changed" state

Table 6.205. Classes names for "save" and "cancel" controls in Edit state

Class name	Description
rich-inplace-control	Defines styles for the controls
rich-inplace-control-press	Defines styles for the controls when either of the buttons is pressed
rich-inplace-shadow-size	Defines size of the shadow
rich-inplace-shadow-tl	Defines styles for the shadow in the top left corner
rich-inplace-shadow-tr	Defines styles for the shadow in the top right corner
rich-inplace-shadow-bl	Defines styles for the shadow in the bottom left corner
rich-inplace-shadow-br	Defines styles for the shadow in the bottom right corner

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.6.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/inplaceInput.jsf?c=inplaceInput] you can see the example of **<rich:inplaceIput>** usage and sources for the given example.

6.11.7. < rich:inplaceSelect > available since 3.2.0

6.11.7.1. Description

The **<rich:inplaceSelect>** is used for creation select based inputs: it shows the value as text in one state and enables editing the value, providing a list of options in another state

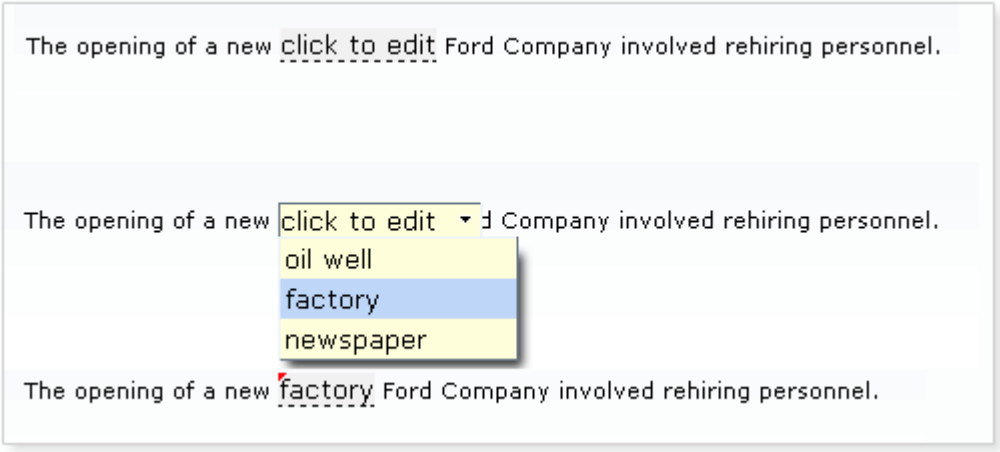


Figure 6.149. Three states of <rich:inplaceSelect> component

6.11.7.2. Key Features

- View/changed/edit states highly customizable representations
- Optional "inline" or "block" element rendering on a page
- Changing state event customization
- Possibility to call custom JavaScript function on state changes
- Edit mode activation when the component got focus with the "Tab"
- Sizes synchronizations between modes
- Highly customizable look and feel

6.11.7.3. Details of Usage

The *"value"* attribute is a value-binding expression for the current value of the component.

The **<rich:inplaceSelect>** component has three functional states:

- View state displays default label with the value taken from *"value"* or *"defaultLabel"* attributes.

  If the initial value of the *"value"* attribute is "null" or empty string the *"defaultLabel"* attribute is used to define default label.

  Example:

```
...
<rich:inplaceSelect value="#{bean.value}" defaultLabel="click to edit">
   <f:selectItems value="#{bean.selectItems}" />
</rich:inplaceSelect>
```

```
...
```

In the example above the *"value"* attribute is not initialized therefore "`click to edit`" text, that *"defaultLabel"* , contains is displayed.

This is the result:

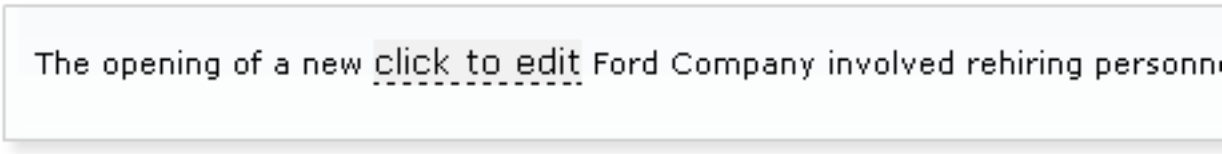


Figure 6.150. View state

- Edit state - select representation to allow value edit

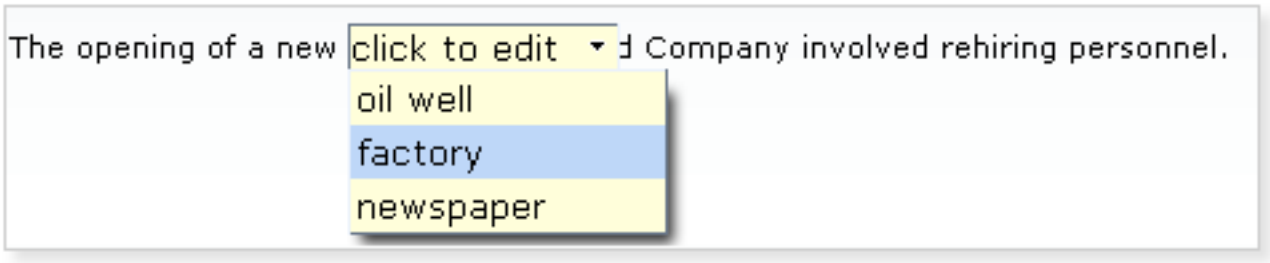


Figure 6.151. Edit state

- Changed state - value representation after it was changed

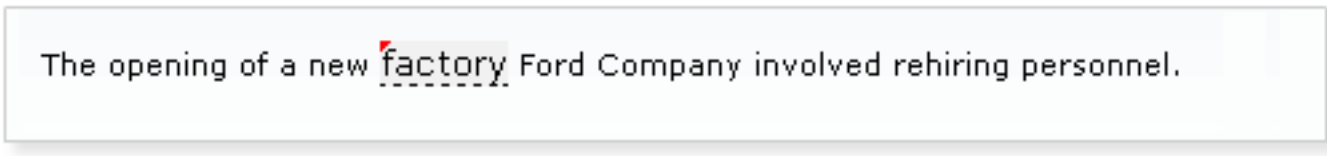


Figure 6.152. Changed state

You can form the list of the options using **<f:selectItem/>** and **<f:selectItems/>** JSF components.

Please, see the example below.

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" defaultLabel="click to edit">
   <f:selectItems  value="#{bean.selectItems}"/>
```

```
    <f:selectItem itemValue="1" itemLabel="factory"/>
    <f:selectItem itemValue="2" itemLabel="newspaper"/>
</rich:inplaceSelect>
...
```

In the example above the value of the selected item is available via *"value"* attribute.

The *"editEvent"* attribute provides an option to assign an JavaScript action that initiates the change of the state from view to edit. The default value is "onclick".

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" defaultLabel="Double Click to edit"
 editEvent="ondblclick">
    <f:selectItems value="#{demo.selectItems}" />
</rich:inplaceSelect>
...
```

The **<rich:inplaceSelect>** component provides specific event attributes:

- *"oneditactivation"* fired on edit state activation
- *"oneditactivated"* fired when edit state is activated
- *"onviewactivation"* fired on view state activation
- *"onviewactivated"* fired after the component is changed to representation state

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" oneditactivation="if (!confirm('Are you sure you
 want to change the value?')){return false;}">
    <f:selectItems value="#{demo.selectItems}" />
</rich:inplaceSelect>
...
```

The given code illustrates how *"oneditactivation"* attribute works, namely when the state is being changed from view to edit, a confirmation window with a message `"Are you sure you want to change value?"` comes up.

To prevent opening the drop-down list by default, once edit state is activated, set the *"openOnEdit"* attribute to "false". The default value is "true".

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" showControls="true" openOnEdit="false">
   <f:selectItems  value="#{bean.selectItems}"/>
</rich:inplaceSelect>
...
```

This is the result:

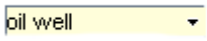


Figure 6.153. The *"openOnEdit"* attribute usage

Nowever, if you want to confirm the data saving explicitly you can use the *"showControls"* attribute, which makes "Save" and "Cancel" buttons (displayed as icons) appear next to the input field. Edit state can be deactivated by pressing "Esc" key. An option in the drop-drown list can be also selected by pressing "Enter".

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" showControls="true">
   <f:selectItems  value="#{bean.selectItems}"/>
</rich:inplaceSelect>
...
```

This is the result:

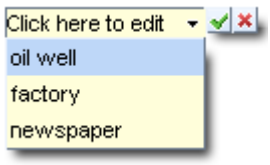


Figure 6.154. The *"showControls"* attribute usage

You can also position the controls relatively to the input field, by means of

- The *"controlsHorizontalPosition"* attribute with "left", "right" and "center" definitions
- The *"controlsVerticalPosition "* attribute with "bottom" and "top" definitions

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" controlsHorizontalPosition="left"
 controlsVerticalPosition="center" showControls="true">
   <f:selectItems value="#{bean.selectItems}"/>
</rich:inplaceSelect>
...
```

This is the result:

Figure 6.155. Controls positioning

It is also possible to use *"controls"* facet in order to replace the default controls with facets content. See the example below.

Please, see the example.

Example:

```
...
<rich:inplaceSelect value="#{bean.inputValue}" showControls="true">
   <f:facet name="controls">
      <button onclick="#{rich:component('inplaceSelect')}.save();" type="button">Save</button>
         <button onclick="#{rich:component('inplaceSelect')}.cancel();" type="button">Cancel</
button>
   </f:facet>
   <f:selectItems value="#{bean.selectItems}"/>
</rich:inplaceSelect>
...
```

This is the result:

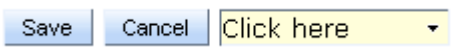


Figure 6.156. *"controls"* facet usage

Note:

The *"controls"* facet also implies using *"showControls"* attribute and it has to be defined as "true".

The **<rich:inplaceSelect>** component could be rendered with **** or ** ** elements to display its value. In order to change default **** output, use the *"layout"* attribute with "block" value.

The **<rich:inplaceSelect>** component supports standard *"tabindex"* attribute. When the component gets focus the edit mode is activated and drop-down list is opened.

The *"selectWidth"* , *"minSelectWidth"* and *"maxSelectWidth"* attributes are provided to specify the width, minimal width and maximal width for the input element respectively.

In order to specify the height and width parameters for the list items of the component, you can use *"listHeight"* and *" listWidth"* attributes.

6.11.7.4. Reference Data

Table of <rich:inplaceSelect> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/inplaceSelect.html].

Table 6.206. Component Identification Parameters

Name	Value
component-type	org.richfaces.InplaceSelect
component-class	org.richfaces.component.html.HtmlInplaceSelect
component-family	org.richfaces.InplaceSelect
renderer-type	org.richfaces.renderkit.InplaceSelectRenderer
tag-class	org.richfaces.taglib.InplaceSelectTag

Table 6.207. JavaScript API

Function	Description
edit()	Changes the state to edit
cancel()	Changes its state to the previous one before editing (changed or view)
save()	Changes its state to changed with a new value
getValue()	Gets the current value
setValue(newValue)	Sets the current value and name

Table 6.208. Facets

Facet name	Description
controls	Defines the contols contents. Related attributes are "saveControlIcon" and "cancelControlIcon"

Table 6.209. Class name for the view state

Class name	Description
rich-inplace-select-view	Defines styles for the select view

Table 6.210. Class name for the input field in edit state

Class name	Description
rich-inplace-select-field	Defines styles for the select field

Table 6.211. Class name for the control

Class name	Description
rich-inplace-select-control	Defines styles for the select control
rich-inplace-select-control-press	Defines styles for the pressed select control

Table 6.212. Class name for the list

Class name	Description
rich-inplace-select-list-decoration	Defines styles for a wrapper <table> element of an inplaceSelect

Table 6.213. Classes names for the selected item

Class name	Description
rich-inplace-select-selected-item	Defines styles for the selected item

Table 6.214. Classes names for the shadow

Class name	Description
rich-inplace-select-shadow-tl	Defines styles for the top-left shadow
rich-inplace-select-shadow-tr	Defines styles for the top-right shadow
rich-inplace-select-shadow-bl	Defines styles for the bottom-left shadow
rich-inplace-select-shadow-br	Defines styles for the bottom-right shadow

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.7.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/inplaceSelect.jsf?c=inplaceSelect] you can see the example of **<rich:inplaceSelect>** usage and sources for the given example.

6.11.8. < rich:inputNumberSlider > available since 3.0.0

6.11.8.1. Description

The **<rich:inputNumberSlider>** component is a slider component. A handler's position corresponds to a definite value on the slider track. In order to change the value you can slide a handler or set the necessary value into the input field. You can dispose it horizontally or vertically on the page.

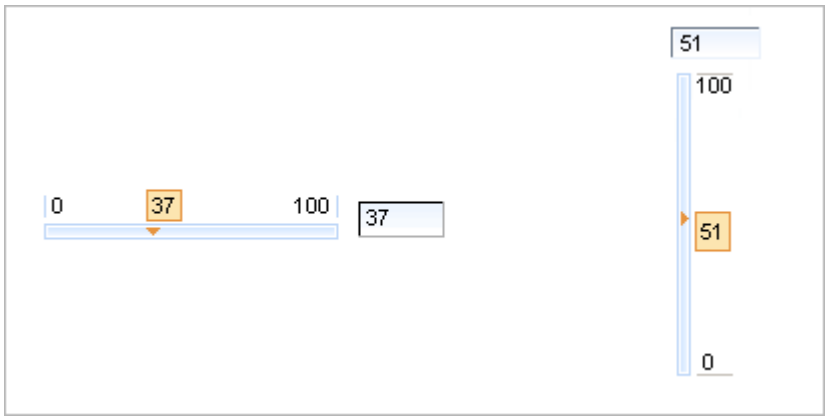


Figure 6.157. <rich:inputNumberSlider> component, horizontal and vertical views

6.11.8.2. Key Features

- Fully skinnable control and input elements
- Optional value text field with an attribute-managed position
- Optional disablement of the component on a page
- Optional toolTip to display the current value while a handle is dragged
- Dragged state is stable after the mouse moves
- Optional manual input possible if a text input field is present
- Validation of manual input
- Possibility to display 2 controls that increase/decrease the value by the defined step width, when they will be clicked.

- Attribute "orientation" that can have the values "vertical" and "horizontal" to define in which direction the slider should be movable.

6.11.8.3. Details of Usage

<rich:inputNumberSlider> is used to facilitate your data input with rich UI Controls.

Here is the simplest variant of a slider definition with *"minValue"*, *"maxValue"* and *"step"* (on default is "1") attributes, which define the beginning and the end of a numerical area and a slider property step.

Example:

```
<rich:inputNumberSlider></rich:inputNumberSlider>
```

It's generated on a page:

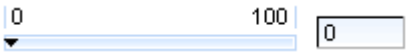


Figure 6.158. Generated <rich:inputNumberSlider>

Using *"showInput"* (default is "true") and *"enableManualInput"* (default value is "true") attributes, it's possible to output the input area near the slider, and make it read-only or editable.

To remove input area use `showInput = "false"` :

Example:

```
<rich:inputNumberSlider minValue="1"  maxValue="100" showInput="false"/>
```

It's displayed at a page like:

Figure 6.159. <rich:inputNumberSlider> without input field

It's also possible to switch off displaying of "boundary values" and a toolTip showing on a handle drawing. This could be performed with the help of the component defined attributes: *"showBoundaryValues"* which is responsible for "boundary values" displaying (default is true) and *"showToolTip"* which is responsible for tooltTip displaying (default is "true").

Moreover, to add e.g. some JavaScript effects, events defined on it are used.

- *"onchange"*
- *"onmouseover"*
- *"onclick"*
- *"onfocus"*
- *"onmouseout"*
- etc.

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of a localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"` , {2} for `"ShortConverter.SHORT"`.

The *"showArrows"* boolean attribute when set to "true" enables additional controls for increasing and decreasing slider value. The controls (arrows by default) are placed in the beginning and in the end of slider track:

Figure 6.160. <rich:inputNumberSlider> with additional controls

Clicking an arrow changes the driven value on the amount defined with *"step"* attribute. Keepeng an arrow control pressed changes the value continuous. Time that value takes to change from one step to another is definded with *"delay"* attribute.

6.11.8.4. Reference Data

Table of <rich:inputNumberSlider> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/inputNumberSlider.html].

Table 6.215. Component Identification Parameters

Name	Value
component-type	org.richfaces.inputNumberSlider
component-class	org.richfaces.component.html.HtmlInputNumberSlider
component-family	org.richfaces.inputNumberSlider
renderer-type	org.richfaces.InputNumberSliderRenderer

Name	Value
tag-class	org.richfaces.taglib.InputNumberSliderTag

Table 6.216. Classes names that define a component appearance

Class name	Description
rich-slider	Defines styles for a wrapper table element of a component
rich-inslider-track	Defines styles for a bar
rich-inslider-handler	Defines styles for a slider handler
rich-inslider-handler-selected	Defines styles for a selected handler
rich-inslider-field	Defines styles for a text field
rich-inslider-right-num	Defines styles for the right number
rich-inslider-left-num	Defines styles for the left number
rich-inslider-track-border	Defines styles for track border
rich-inslider-tip	Defines styles for a hint
inputNumberSlider-increase-vertical	Defines styles for the top arrow
inputNumberSlider-decrease-vertical	Defines styles for the bottom arrow
inputNumberSlider-increase-horizontal	Defines styles for the right arrow
inputNumberSlider-decrease-horizontal	Defines styles for the left arrow

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.8.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/inputNumberSlider.jsf?c=inputNumberSlider] you can see the example of **<rich:inputNumberSlider>** usage and sources for the given example.

6.11.9. < rich:inputNumberSpinner > available since 3.0.0

6.11.9.1. Description

A single line input field that lets selecting a number using controls near a text field. It's possible to change a value using "Up/Down" keyboard keys. The keyboard input in a field is possible if it isn't locked by the *"enableManualInput"* attribute. When arrow controls are pressed, the cursor can be moved in any way without losing a dragged state.

Figure 6.161. <rich:inputNumberSpinner> component

6.11.9.2. Key Features

- Fully skinnable control and input elements
- 3D look and feel with an easily customizable appearance
- Attribute-managed positions of the controls (inside/outside of the input field)
- Keyboard controls support
- Optional disablement of the component on a page
- Optional *"cycled"* mode of scrolling values
- Optional manual/controls-only input into a value text field
- Validation of manual input

6.11.9.3. Details of Usage

<rich:inputNumberSpinner> is used to facilitate your data input with rich UI Controls.

Here is the simplest variant of spinner definition with *"minValue"*, *"maxValue"* and *"step"* (on default is "1") attributes, which define the beginning and the end of numerical area and a spinner step.

Example:

```
...
<rich:inputNumberSpinner minValue="1" maxValue="100"/>
...
```

It generates on a page:

Figure 6.162. Generated <rich:inputNumberSpinner>

There are also several attributes to define functionality peculiarities:

- *"cycled"* if the attribute is "true" after the current value reaches the border value it's be reversed to another border value after next increasing/decreasing. In other case possibilities of next increasing/decreasing are locked
- *"disabled"* is an attribute that defines whether a component is active on a page

- *"enableManualInput"* is an attribute that defines whether a keyboard input is possible or only UI controls could be used

Moreover, to add e.g. some JavaScript effects, events defined on it are used

- *"onchange"*
- *"onmouseover"*
- *"onclick"*
- *"onfocus"*
- *"onmouseout"*
- etc.

The *"label"* attribute is a generic attribute. The *"label"* attribute provides an association between a component, and the message that the component (indirectly) produced. This attribute defines the parameters of localized error and informational messages that occur as a result of conversion, validation, or other application actions during the request processing lifecycle. With the help of this attribute you can replace the last parameter substitution token shown in the messages. For example, {1} for `"DoubleRangeValidator.MAXIMUM"` , {2} for `"ShortConverter.SHORT"` .

6.11.9.4. Reference Data

Table of <rich:inputNumberSpinner> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/inputNumberSpinner.html].

Table 6.217. Component Identification Parameters

Name	Value
component-type	org.richfaces.inputNumberSpinner
component-class	org.richfaces.component.html.HtmlInputNumberSpinner
component-family	org.richfaces.inputNumberSpinner
renderer-type	org.richfaces.InputNumberSpinnerRenderer
tag-class	org.richfaces.taglib.InputNumberSpinnerTag

Table 6.218. Classes names that define a component appearance

Class name	Description
rich-spinner-c	Defines styles for a wrapper table element of a component
rich-spinner-input-container	Defines styles for a container
rich-spinner-input	Defines styles for a wrapper <td> element for input fields

Class name	Description
rich-spinner-button	Defines styles for a button
rich-spinner-buttons	Defines styles for all buttons

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.9.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/inputNumberSpinner.jsf?c=inputNumberSpinner] you can see the example of **<rich:inputNumberSpinner>** usage and sources for the given example.

6.11.10. < rich:suggestionbox > available since 3.0.0

6.11.10.1. Description

The component adds on-keypress suggestions capabilities to any input text component like **<h:inputText>** .

Figure 6.163. <rich:suggestionbox> component

6.11.10.2. Key Features

- Adds *"onkeypress"* suggestions capabilities to any input text component
- Possible to render table as a popup suggestion
- Can be pointed to any Ajax request status indicator of the page
- Easily customizable look-and-feel
- Fully skinnable component
- Managing area of components submitted on Ajax request
- Flexible list of components to update after Ajax request managed by attributes

- Setting restriction to Ajax request generation
- Keyboard navigation support

6.11.10.3. Details of Usage

6.11.10.3.1. Main attributes

There are 3 main component attributes:

- *"for"* contains an ID of an input component for which the suggestion support is provided
- *"suggestionAction"* defines the method to get a collection of suggestion data on request
- *"var"* defines a collection name that provides an access for the current row while iterating through

To create the simplest variant on a page use the following syntax:

```
...
        <h:inputText id="city" value="#{capitalsBean.capital}" />
        <rich:suggestionbox for="city" var="result"
        suggestionAction="#{capitalsBean.autocomplete}">
        <h:column>
        <h:outputText value="#{result.name}" />
        </h:column>
        </rich:suggestionbox>
        ...
```

There is a managed bean:

```
...
        public class SBbean {

        private ArrayList<Capital> capitals = new ArrayList<Capital>();
        private ArrayList<String> capitalsNames = new
        ArrayList<String>();
        private List<SelectItem> capitalsOptions = new
        ArrayList<SelectItem>();
        private String capital = "";

        public List<Capital> autocomplete(Object suggest) {
        String pref = (String) suggest;
        ArrayList<Capital> result = new ArrayList<Capital>();
```

```
Iterator<Capital> iterator = getCapitals().iterator();
while (iterator.hasNext()) {
Capital elem = ((Capital) iterator.next());
if ((elem.getName() != null && elem.getName().toLowerCase()
.indexOf(pref.toLowerCase()) == 0)
|| "".equals(pref)) {
result.add(elem);
}
}
return result;
}

public SBbean() {
URL rulesUrl = getClass().getResource("capitals-rules.xml");
Digester digester = DigesterLoader.createDigester(rulesUrl);
digester.push(this);
try {
digester.parse(getClass().getResourceAsStream("capitals.xml"));
} catch (IOException e) {
throw new FacesException(e);
} catch (SAXException e) {
throw new FacesException(e);
}
capitalsNames.clear();
for (Capital cap : capitals) {
capitalsNames.add(cap.getName());
}
capitalsOptions.clear();
for (Capital cap : capitals) {
capitalsOptions.add(new SelectItem(cap.getName(), cap.getState()));
}
}

public String addCapital(Capital capital) {
capitals.add(capital);
return null;
}
}
```

In the example above when suggestion item (city) is selected it is set as a value of `<h:inputText id="city"/>` .

Here is a result:

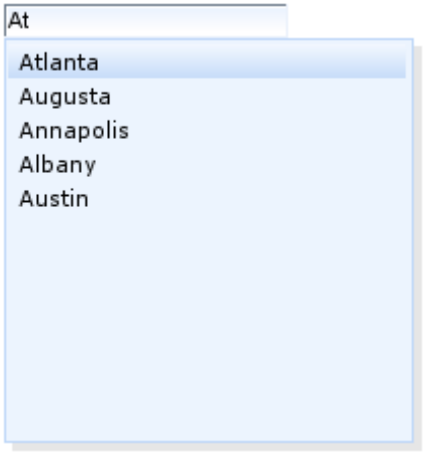


Figure 6.164. Simple <rich:suggestionbox>

The **<rich:suggestionbox>** component could get any collection and outputs it in a popup in several columns. The *"fetchValue"* attribute points to the data that is inserted into the input field if a particular row is selected or clicked from the suggested list. Therefore when some string is chosen input receives the proper value.

```
...
        <h:inputText id="city" value="#{capitalsBean.capital}" />
        <rich:suggestionbox for="city" var="result"
        fetchValue="#{result.state}"
        suggestionAction="#{capitalsBean.autocomplete}">
        <h:column>
        <h:outputText value="#{result.name}" />
        </h:column>
        <h:column>
        <h:outputText value="#{result.state}" />
        </h:column>
        </rich:suggestionbox>
        ...
```

In the example above if you choose any string input will receive the corresponding value from the second column containing `#{result.state}` .

Here is a result:

Figure 6.165. <rich:suggestionbox> with output in several columns

There is also one more important attribute named *"tokens"* that specifies separators after which a set of some characters sequence is defined as a new prefix beginning from this separator and not from the string beginning.

Example:

```
...
        <h:inputText id="city" value="#{capitalsBean.capital}" />
        <rich:suggestionbox for="city" var="result"
        suggestionAction="#{capitalsBean.autocomplete}"
        tokens=",">
        <h:column>
        <h:outputText value="#{result.name}" />
        </h:column>
        </rich:suggestionbox>
        ...
```

This example shows that when a city is chosen and a comma and first letter character are input, Ajax request is called again, but it submits a value starting from the last token:

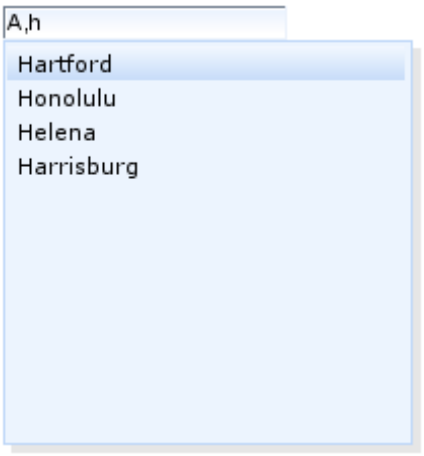


Figure 6.166. <rich:suggestionbox> with chosen word

For a multiple definition use either " `,.;[]` " syntax as a value for *"tokens"* attribute or link a parameter to some bean property that transmits separators collection.

6.11.10.3.2. JavaScript API

There is such feature of the **<rich:suggestionbox>** component as object selection . If you want to get the selected item as object on the client side you should set the value of the *"usingSuggestObjects"* attribute to "true". After that you should specify JavaScript method in the *"onobjectchange"* attribute and pass the `suggestion` object as a parameter:

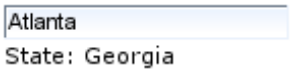
```
...
        <h:inputText id="city" value="#{capitalsBean.capital}" />
        <rich:suggestionbox for="city" var="result"
        suggestionAction="#{capitalsBean.autocomplete}"
        onobjectchange="processObjects(suggestion)"
        usingSuggestObjects="true">
        <h:column>
        <h:outputText value="#{result.name}" />
        </h:column>
        </rich:suggestionbox>
        <h:panelGroup>
        <div id="state"></div>
        </h:panelGroup>
        ...
```

When the item is selected you can get it as an object on the client side and use `getSelectedItems()` method to access any object properties:

```
<script
```

```
type="text/javascript">
function processObjects(suggestionBox) {
var items = suggestionBox.getSelectedItems();
var state;
if (items && items.length > 0) {
for ( var i = 0; i < items.length; i++) {
state = items[i].state;
}
document.getElementById('state').innerHTML = "State: "+state;
}else{
document.getElementById('state').innerHTML = '';
}
}
</script>
```

Here is a result:



State: Georgia

Figure 6.167. Usage of `getSelectedItems()` method

6.11.10.3.3. Other attributes and facets

In addition to attributes common for Ajax action components and limiting requests quantity and frequency, the **<rich:suggestionbox>** has one more its own attribute limiting requests: the *"minChars"* attribute. This attribute defines characters quantity inputted into a field after which Ajax requests are called to perform suggestion.

There is possibility to define what is shown if the autocomplete returns empty list. Attribute *"nothingLabel"* or facet with the same name could be used for this purpose.

Example:

```
...
<rich:suggestionbox for="city" var="result"
suggestionAction="#{capitalsBean.autocomplete}"
nothingLabel="No cities found">
<h:column>
<h:outputText value="#{result.name}" />
</h:column>
</rich:suggestionbox>
...
```

Here is a result:

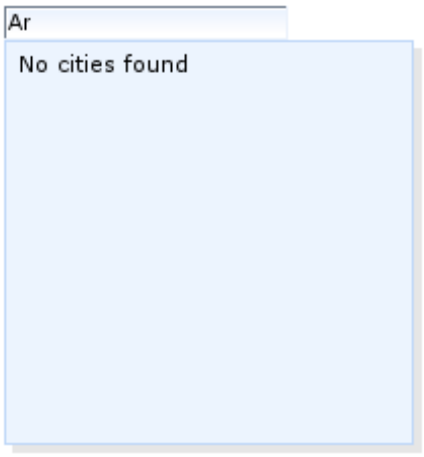


Figure 6.168. <rich:suggestionbox> with empty list

You can also use facets for the further **<rich:suggestionbox>** customization:

```
...
        <h:inputText id="city" value="#{capitalsBean.capital}" />
        <rich:suggestionbox for="city" var="result"
        suggestionAction="#{capitalsBean.autocomplete}">
        <f:facet name="nothingLabel">
        <h:outputText value="No cities found" />
        </f:facet>
        <f:facet name="header">
        <h:outputText value="Select your city" />
        </f:facet>
        <h:column>
        <h:outputText value="#{result.name}" />
        </h:column>
        </rich:suggestionbox>
        ...
```

Here is a result:

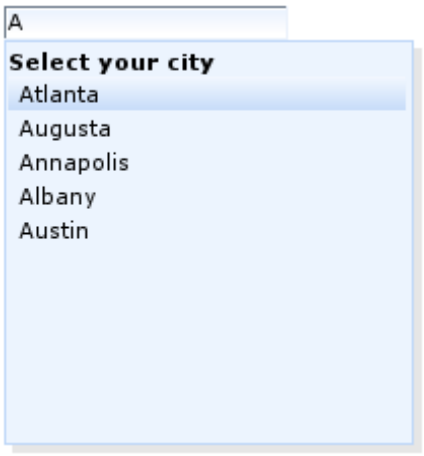


Figure 6.169. <rich:suggestionbox> facets

Information about the *"process"* attribute usage you can findin the *"Decide what to process"* guide section.

In RichFaces Wiki article about *Additional Properties* [http://wiki.jboss.org/wiki/RichFacesSuggestionGettingAdditionalProperties] you can find example of getting additional properties.

6.11.10.4. Reference Data

Table of <rich:suggestionbox> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/suggestionbox.html] .

Table 6.219. Component Identification Parameters

Name	Value
component-type	org.richfaces.SuggestionBox
component-class	org.richfaces.component.html.HtmlSuggestionBox
component-family	org.richfaces.SuggestionBox
renderer-type	org.richfaces.SuggestionBoxRenderer
tag-class	org.richfaces.taglib.SuggestionBoxTag

Table 6.220. Facets

Facet name	Description
nothingLabel	Redefines the content item if the autocomplete returns empty list. Related attribute is "nothingLabel"
popup	

Facet name	Description
	Redefines the content for the popup list of the suggestion
header	Defines the header content
footer	Defines the footer content

Table 6.221. Classes names that define a suggestionbox

Class name	Description
rich-sb-common-container	Defines styles for a wrapper element of a suggestion container
rich-sb-ext-decor-1	Defines styles for the first wrapper element of a suggestion box exterior
rich-sb-ext-decor-2	Defines styles for the second wrapper element of a suggestion box exterior
rich-sb-ext-decor-3	Defines styles for the third wrapper element of a suggestion box exterior
rich-sb-overflow	Defines styles for a wrapper element
rich-sb-int-decor-table	Defines styles for a suggestion box table
rich-sb-int	Defines the styles for a suggestion box table rows (tr)
rich-sb-cell-padding	Defines the styles for suggestion box table cells (td)
rich-sb-int-sel	Defines styles for a selected row
rich-sb-shadow	Defines styles for a suggestion boxshadow

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.11.10.5. Relevant Resources Links

Visit ***<rich:suggestionbox>*** [http://livedemo.exadel.com/richfaces-demo/richfaces/suggestionBox.jsf?c=suggestionBox] page at RichFaces Livedemo for examples of component usage and sources.

RichFaces cookbook at JBoss Portal includes some articles that cover different aspects of working with **<rich:suggestionbox>** :

- " *Creating suggestion box dynamically* [http://www.jboss.org/community/docs/DOC-11851] ";
- " *Getting additional properties from <rich:suggectionbox>* [http://www.jboss.org/community/docs/DOC-11865] ".

6.12. Rich Selects

RichFaces library provides desktop like complex controls to implement user select functionality.

6.12.1. < rich:listShuttle > available since 3.1.3

6.12.1.1. Description

The **<rich:listShuttle>** component is used for moving chosen items from one list into another with their optional reordering there.

Figure 6.170. <rich:ListShuttle> component

6.12.1.2. Key Features

- Highly customizable look and feel
- Reordering possibility for lists items
- Multiple selection of lists items
- Keyboard support

6.12.1.3. Details of Usage

The **<rich:listShuttle>** component consists of the following parts:

- two item lists (source and target). List consists of items. Each item has three different representations: common, selected, active
- optional caption element
- optional ordering controls set is a set of controls that performs reordering
- move controls set is a set of controls, which performs moving items between lists

Note:

Now the listener can not be called from the column facet. This is a temporary limitation. The additional information can be found in *RichFaces Jira* [http://jira.jboss.org/jira/browse/RF-5327].

The *"sourceValue"* attribute defines a List or Array of items to be shown in the source list.

The *"targetValue"* attribute defines a List or Array of items to be shown in the target list.

The *"var"* attribute could be shared between both Lists or Arrays to define lists on the page.

The *"sourceRequired"* and *"targetRequired"* attributes define the case when source and target values are being validated. If the value of both attributes is "true" there should be at least one item in source and target lists. Otherwise validation fails.

Example:

```
...
<h:form id="myForm">
      <rich:messages>
            <f:facet name="errorMarker">
                  <h:graphicImage value="/images/ajax/error.gif" />
            </f:facet>
      </rich:messages>
                        <rich:listShuttle    id="myListShuttle"    sourceValue="#{toolBar.freeItems}"
targetValue="#{toolBar.items}"
                                    sourceRequired = "true" targetRequired = "true" var="items"
converter="listShuttleconverter"
                        sourceCaptionLabel="Source List" targetCaptionLabel="Target List">
            <rich:column>
                  <h:graphicImage value="#{items.iconURI}" />
            </rich:column>
            <rich:column>
                  <h:outputText value="#{items.label}" />
            </rich:column>
      </rich:listShuttle>
      <a4j:commandButton value="Submit" />
</h:form>
...
```

In the example above the source list is empty. If you submit the form validation fails and error message appears on a page.

This is the result:

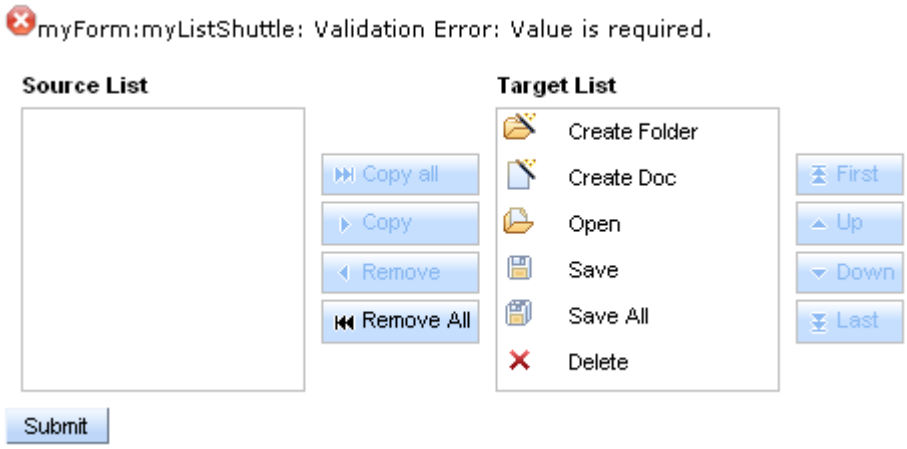


Figure 6.171. Style classes

The *"converter"* attribute is used to convert component data to a particular component's value. For example, when you select items in a list, a converter is used to format a set of objects to a strings to be displayed.

Note

The *"sourceSelection"* attribute stores the collection of items selected by you in the source list. The *"targetSelection"* attribute stores the collection of items selected by you in the target list.

Captions could be added to a list only after it was defined as a *"sourceCaption"* and *"targetCaption"* named facets inside the component or defined with the *"sourceCaptionLabel"* and *"targetCaptionLabel"* attribute.

```
...
<rich:listShuttle var="item" sourceValue="#{bean.source}" targetValue="#{bean.target}"
 sourceSelection="#{bean.sourceSelection}"
                  targetSelection="#{bean.targetSelection}" converter="listShuttleconverter">
      <f:facet name="sourceCaption">
            <h:outputText value="Cars Store #1" />
      </f:facet>
      <f:facet name="targetCaption">
            <h:outputText value="Cars Store #2" />
      </f:facet>
      <rich:column>
            <h:outputText value="#{items.name}" />
      </rich:column>
```

```
</rich:listShuttle>
...
```

The **<rich:listShuttle>** component provides the possibility to use ordering controls set, which performs reordering in the target item list. Every control has possibility to be disabled.

An ordering controls set could be defined with *"topControlLabel"*, *"bottomControlLabel"*, *"upControlLabel"*, *"downControlLabel"* attributes.

It is also possible to use *"topControl"*, *"topControlDisabled"*, *"bottomControl"*, *"bottomControlDisabled"*, *"upControl"*, *"upControlDisabled"*, *"downControl"*, *"downControlDisabled"* facets in order to replace the default controls with facets content.

Example:

```
...
<rich:listShuttle var="item" sourceValue="#{bean.source}" targetValue="#{bean.target}"
 converter="listShuttleconverter">
      ...
      <f:facet name="topControl">
            <h:outputText value="Move to top" />
      </f:facet>
      <f:facet name="upControl">
            <h:outputText value="Move up" />
      </f:facet>
      <f:facet name="downControl">
            <h:outputText value="Move down" />
      </f:facet>
      <f:facet name="bottomControl">
            <h:outputText value="Move to bottom" />
      </f:facet>
</rich:listShuttle>
...
```

The **<rich:listShuttle>** component also provides 4 predefined controls in move controls set for moving items between source and target lists. Every control has possibility to be disabled.

A move controls set could be defined with *"copyControlLabel"*, *"removeControlLabel"*, *"copyAllControlLabel"*, *"removeAllControlLabel"* attributes.

It is also possible to use *"copyControl"*, *"removeControl"*, *"copyAllControl"*, *"removeAllControl"* facets in order to replace the default controls with facets content.

```
...
```

```
<rich:listShuttle var="item" sourceValue="#{bean.source}" targetValue="#{bean.target}"
 converter="listShuttleconverter"
                copyControlLabel="Copy" removeControlLabel="Remove"
                copyAllControlLabel="Copy all" removeAllControlLabel="Remove all">
      <h:column>
           <f:facet name="header">
                <h:outputText value="Cars" />
           </f:facet>
           <h:outputText value="#{item.name}" />
      </h:column>
</rich:listShuttle>
...
```

Controls rendering is based on the *"controlsType"* attribute. Possible types are button and none.

Note

Currently the button controls type is based on ** ** element.

The **<rich:listShuttle>** component allows to use internationalization method to redefine and localize the labels. You could use application resource bundle and define `RICH_SHUTTLES_TOP_LABEL`, `RICH_SHUTTLES_BOTTOM_LABEL`, `RICH_SHUTTLES_UP_LABEL`, `RICH_SHUTTLES_DOWN_LABEL` `RICH_LIST_SHUTTLE_COPY_ALL_LABEL`, `RICH_LIST_SHUTTLE_COPY_LABEL`, `RICH_LIST_SHUTTLE_REMOVE_ALL_LABEL`, `RICH_LIST_SHUTTLE_REMOVE_LABEL` there.

You could also pack `org.richfaces.renderkit.listShuttle` resource bundle with your JARs defining the same properties.

Table 6.222. Keyboard usage for elements selection

Keys and combinations	Description
CTRL+click	Inverts selection for an item
SHIFT+click	Selects all rows from active one to a clicked row if they differ, else select the actve row. All other selections are cleared
CTRL+A	Selects all elements inside the list if some active element is already present in a list
Up, Down arrows	Changes the active element to the next or previous in a list and make it the only selected. Scroll follows the selection to keep it visible

Table 6.223. Keyboard usage for elements reordering

Keys and combinations	Description
Home	Moves selected set to the top of a list (for target list only)
End	Moves selected set to the bottom of a list (for target list only)
CTRL+Up arrow	Moves selected item to one position upper
CTRL+Down arrow	Moves selected item to one position lower

6.12.1.4. Reference Data

Table of <rich:listShuttle> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/listShuttle.html].

Table 6.224. Component Identification Parameters

Name	Value
component-type	org.richfaces.ListShuttle
component-class	org.richfaces.component.html.HtmlListShuttle
component-family	org.richfaces.ListShuttle
renderer-type	org.richfaces.ListShuttleRenderer
tag-class	org.richfaces.taglib.ListShuttleTag

Table 6.225. JavaScript API

Function	Description
enable()	Enables ordering control (to be implemented)
disable()	Disables ordering control (to be implemented)
isEnabled()	Checks if current control is enabled (to be implemented)
up()	Moves up selected item in the list
down()	Moves down selected item in the list
top()	Moves top selected item in the list
bottom()	Moves bottom selected item in the list
copy()	Copies selected item from the source list to the target list
remove()	Removes selected item from the target list to the source list
copyAll()	

Function	Description
	Copies all items from the source list to the target list
removeAll()	Removes all items from the target list to the source list
getSelection()	Returns currently selected item (to be implemented)
getItems()	Returns the collection of all items (to be implemented)

Table 6.226. Facets

Facet	Description
copyAllControl	Redefines the label content for the "copyAll" control. Related attribute is "copyAllControlLabel"
removeAllControl	Redefines the label content for the "removeAll" control. Related attribute is "removeAllControlLabel"
copyControl	Redefines the label content for the "copy" control. Related attribute is "copyControlLabel"
removeControl	Redefines the label content for the "remove" control. Related attribute is "removeControlLabel"
copyAllControlDisabled	Redefines the disabled label content for the "copyAll" control
removeAllControlDisabled	Redefines the disabled label content for the "removeAll" control
caption	Redefines the caption control
sourceCaption	Defines source list caption representation text. Related attribute is "sourceCaptionLabel"
targetCaption	Defines source list target representation text. Related attribute is "targetCaptionLabel"

Table 6.227. Classes names that define a list representation

Class name	Description
rich-list-shuttle	Defines styles for a wrapper table element of a listShuttle
rich-list-shuttle-caption	Defines styles for a list caption
rich-shuttle-body	Defines styles for a list body

Class name	Description
rich-shuttle-list-content	Defines styles for a list content
rich-shuttle-source-items	Defines styles for a wrapper element for source list
rich-shuttle-target-items	Defines styles for a wrapper element for target list
rich-shuttle-list-header	Defines styles for a lists header
rich-shuttle-header-tab-cell	Defines styles for a header cell

Table 6.228. Classes names that define a caption representations in a source and target lists

Class name	Description
rich-shuttle-source-caption	Defines styles for a caption in a source list
rich-shuttle-target-caption	Defines styles for a caption in a target list

Table 6.229. Classes names that define a rows representations in a source list

Class name	Description
rich-shuttle-source-row	Defines styles for a row in a source list
rich-shuttle-source-row-selected	Defines styles for a selected row in a source list
rich-shuttle-source-row-active	Defines styles for an active row in a source list

Table 6.230. Classes names that define a rows representations in a target list

Class name	Description
rich-shuttle-target-row	Defines styles for a row in a target list
rich-shuttle-target-row-selected	Defines styles for a selected row in a target list
rich-shuttle-target-row-active	Defines styles for an active row in a target list

Table 6.231. Classes names that define a cells representations in a source list

Class name	Description
rich-shuttle-source-cell	Defines styles for a cell in a source list
rich-shuttle-source-cell-selected	Defines styles for a selected cell in a source list
rich-shuttle-source-cell-active	Defines styles for an active cell in a source list

Table 6.232. Classes names that define a cells representations in a target list

Class name	Description
rich-shuttle-target-cell	Defines styles for a cell in a target list
rich-shuttle-target-cell-selected	Defines styles for a selected cell in a target list
rich-shuttle-target-cell-active	Defines styles for an active cell in a target list

Table 6.233. Classes names that define controls representations

Class name	Description
rich-shuttle-controls	Defines styles for a controls group
rich-shuttle-top	Defines styles for a "Top" control
rich-shuttle-bottom	Defines styles for a "Bottom" control
rich-shuttle-up	Defines styles for a "Up" control
rich-shuttle-down	Defines styles for a "Down" control
rich-shuttle-copy	Defines styles for a "Copy" control
rich-shuttle-remove	Defines styles for a "Remove" control
rich-shuttle-copyAll	Defines styles for a "copyAll" control
rich-shuttle-removeAll	Defines styles for a "removeAll" control
rich-shuttle-control-disabled	Defines styles for a control in a disabled state

Table 6.234. Classes names that define a button representation

Class name	Description
rich-list-shuttle-button	Defines styles for a button
rich-list-shuttle-button-disabled	Defines styles for a disabled button
rich-list-shuttle-button-light	Defines styles for a button highlight
rich-list-shuttle-button-press	Defines styles for a pressed button
rich-list-shuttle-button-content	Defines styles for a button content
rich-list-shuttle-button-selection	Defines styles for a button selection

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.12.1.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/listShuttle.jsf?c=listShuttle] you can see an example of **<rich:listShuttle>** usage and sources for the given example.

6.12.2. < rich:orderingList > available since 3.1.3

6.12.2.1. Description

The **<rich:orderingList>** is a component for ordering items in a list. This component provides possibilities to reorder a list and sort it on the client side.

Figure 6.172. <rich:orderingList> component

6.12.2.2. Key Features

- Highly customizable look and feel
- Reordering possibility for list items
- Multiple selection of list items
- Keyboard support

6.12.2.3. Details of Usage

The **<rich:orderingList>** component consists of

- Item list element that displays a list of items. It has three different representations for a single element: common, selected, active. Combination of these states is possible.
- Ordering controls set

The *"value"* and *"var"* attributes are used to access the values of a list.

Controls rendering is based on the *"controlsType"* attribute. Possible types are button or none.

Note

Currently the button controls type is based on ** ** element.

The information about the *"converter"* attribute is *here*.

The *"selection"* attribute stores the collection of items selected by you. In the example below after submitting the form the current collection is placed in the object's property and then **<rich:dataTable>** with selected items is shown.

Example:

```
...
<h:form>
        <rich:orderingList value="#{bean.simpleItems}" var="item" selection="#{bean.selection}"
 controlsType="button">
            <rich:column>
               <f:facet name="header">
                     <h:outputText value="Cars" />
               </f:facet>
               <h:outputText value="#{item}" />
            </rich:column>
      </rich:orderingList>
      <rich:dataTable id="infoPanelID" value="#{bean.info}" var="info" rendered="true">
            <rich:column>
                  <h:outputText value="#{info}" />
            </rich:column>
      </rich:dataTable>
      <a4j:commandButton value="reRender" reRender="infoPanelID" />
</h:form>
...
```

The **<rich:orderingList>** component allows to use *"caption"* facet. A caption could be also defined with *"captionLabel"* attribute.

Simple example is placed below.

Example:

```
...
<rich:orderingList value="#{bean.simpleItems}" var="item" controlsType="button"
 selection="#{bean.selection}">
      <f:facet name="caption">
            <h:outputText value="Caption Facet" />
      </f:facet>
      <rich:column>
            <f:facet name="header">
            <h:outputText value="Cars" />
            </f:facet>
            <h:outputText value="#{item.name}" />
```

```
        </rich:column>
        <rich:column>
            <f:facet name="header">
            <h:outputText value="Price" />
            </f:facet>
            <h:outputText value="#{item.price}" />
        </rich:column>
</rich:orderingList>
...
```

The **<rich:orderingList>** component provides the possibility to use ordering controls set, which performs reordering. Every control has possibility to be disabled.

An ordering controls set could be defined with *"topControlLabel"*, *"bottomControlLabel"*, *"upControlLabel"*, *"downControlLabel"* attributes.

It is also possible to use *"topControl"*, *"topControlDisabled"*, *"bottomControl"*, *"bottomControlDisabled"*, *"upControl"*, *"upControlDisabled"*, *"downControl"*, *"downControlDisabled"* facets in order to replace the default controls with facets content.

Example:

```
...
<rich:orderingList value="#{bean.simpleItems}" var="item" controlsType="button"
 selection="#{bean.selection}">
        <f:facet name="topControl">
            <h:outputText value="Move to top" />
        </f:facet>
        <f:facet name="upControl">
            <h:outputText value="Move up" />
        </f:facet>
        <f:facet name="downControl">
            <h:outputText value="Move down" />
        </f:facet>
        <f:facet name="bottomControl">
            <h:outputText value="Move to bottom" />
        </f:facet>
<rich:orderingList>
...
```

The position of the controls relatively to a list could be customized with:

- *"controlsHorizontalAlign"* attribute. Possible values:

- "left" - controls render to the left side of a list
- "right" (default) - controls render to the right side of a list
- "center" - controls is centered

- *"controlsVerticalAlign"* attribute. Possible values:
  - "top" - controls render aligned to the top side of a list
  - "bottom" - controls render aligned to the bottom side of a list
  - "center" (default) - controls is centered relatively to a list

The **<rich:orderingList>** component has a possibility to hide any of the controls by pairs using following attributes:

- *"orderControlsVisible"* attribute has two values: "true" or "false". If false Up and Down controls are not displayed.
- *"fastOrderControlsVisible"* attribute has two values: "true" or "false". If false Top and Bottom controls are not displayed.

The **<rich:orderingList>** component allows to use internationalization method to redefine and localize the labels. You could use application resource bundle and define `RICH_SHUTTLES_TOP_LABEL`, `RICH_SHUTTLES_BOTTOM_LABEL`, `RICH_SHUTTLES_UP_LABEL`, `RICH_SHUTTLES_DOWN_LABEL` there.

You could also pack `org.richfaces.renderkit.orderingList` resource bundle with your JARs defining the same properties.

Table 6.235. Keyboard usage for elements selection

Keys and combinations	Description
CTRL+click	Inverts selection for an item
SHIFT+click	Selects all rows from active one to a clicked row if they differ, else select the active row. All other selections are cleared
CTRL+A	Selects all elements inside the list if some active element is already present in a list
Up, Down arrows	Changes the active and selected elements to the next or previous in a list

Table 6.236. Keyboard usage for elements reordering

Keys and combinations	Description
Page Up	Moves selected set to the top of a list

Keys and combinations	Description
Page Down	Moves selected set to the bottom of a list
CTRL+Up arrow	Moves selected item to one position upper
CTRL+Down arrow	Moves selected item to one position lower

6.12.2.4. Reference Data

Table of <rich:orderingList> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/orderingList.html].

Table 6.237. Component Identification Parameters

Name	Value
component-type	org.richfaces.OrderingList
component-class	org.richfaces.component.html.HtmlOrderingList
component-family	org.richfaces.OrderingList
renderer-type	org.richfaces.OrderingListRenderer

Table 6.238. JavaScript API

Function	Description
hide()	Hides ordering control (to be implemented)
show()	Shows ordering control (to be implemented)
isShown()	Checks if current control is shown (to be implemented)
enable()	Enables ordering control (to be implemented)
disable()	Disables ordering control (to be implemented)
isEnabled()	Checks if current control is enabled (to be implemented)
Up()	Moves up selected item in the list
Down()	Moves down selected item in the list
Top()	Moves top selected item in the list
Bottom()	Moves bottom selected item in the list
getSelection()	Returns currently selected item
getItems()	Returns the collection of all items

Table 6.239. Facets

Facet	Description
caption	Redefines the caption content. Related attribute is "captionLabel"

Facet	Description
topControl	Redefines the label for the "Top" control. Related attribute is "topControlLabel"
bottomControl	Redefines the label for the "Bottom" control. Related attribute is "bottomControlLabel"
upControl	Redefines the label for the "Up" control. Related attribute is "upControlLabel"
downControl	Redefines the label for the "Down" control. Related attribute is "downControlLabel"
topControlDisabled	Redefines the disabled label for the "Top" control
bottomControlDisabled	Redefines the disabled label for the "Bottom" control
upControlDisabled	Redefines the disabled label for the "Up" control
downControlDisabled	Redefines the disabled label for the "Down" control

Table 6.240. Classes names that define a list representation

Class name	Description
rich-ordering-list-body	Defines styles for a wrapper table element of an orderingList
rich-ordering-list-output	Defines styles for a wrapper element of a list
rich-ordering-list-items	Defines styles for a wrapper table element of items in the list
rich-ordering-list-content	Defines styles for a list content
rich-ordering-list-header	Defines styles for a wrapper element for a list header
rich-ordering-list-table-header	Defines styles for a wrapper <tr> element for a list header
rich-ordering-list-table-header-cell	Defines styles for a header cell

Table 6.241. Classes names that define a caption representation

Class name	Description
rich-ordering-list-caption	Defines styles for a caption
rich-ordering-list-caption-disabled	Defines styles for a caption in disabled state
rich-ordering-list-caption-active	Defines styles for a caption in active state

Table 6.242. Classes names that define rows representation

Class name	Description
rich-ordering-list-row	Defines styles for a row
rich-ordering-list-row-selected	Defines styles for a selected row
rich-ordering-list-row-active	Defines styles for an active row
rich-ordering-list-row-disabled	Defines styles for a disabled row

Table 6.243. Classes names that define cells representation

Class name	Description
rich-ordering-list-cell	Defines styles for a cell
rich-ordering-list-cell-selected	Defines styles for a selected cell
rich-ordering-list-cell-active	Defines styles for an active cell
rich-ordering-list-cell-disabled	Defines styles for a disabled cell

Table 6.244. Classes names that define a button representation

Class name	Description
rich-ordering-list-button	Defines styles for a button
rich-ordering-list-button-disabled	Defines styles for a disabled button
rich-ordering-list-button-light	Defines styles for a button highlight
rich-ordering-list-button-press	Defines styles for a pressed button
rich-ordering-list-button-content	Defines styles for a button content
rich-ordering-list-button-selection	Defines styles for a button selection
rich-ordering-list-button-valign	Defines styles for a wrapper <td> element for buttons vertical align
rich-ordering-list-button-layout	Defines styles for a wrapper element of buttons layout

Table 6.245. Classes names that define controls representation

Class name	Description
rich-ordering-controls	Defines styles for a controls group
rich-ordering-control-top	Defines styles for a "top" control
rich-ordering-control-bottom	Defines styles for a "bottom" control
rich-ordering-control-up	Defines styles for a "up" control
rich-ordering-control-down	Defines styles for a "down" control
rich-ordering-control-disabled	Defines styles for controls in disabled state

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.12.2.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/orderingList.jsf?c=orderingList] you can see an example of **<rich:orderingList>** usage and sources for the given example.

6.12.3. < rich:pickList > available since 3.2.0

6.12.3.1. Description

The **<rich:pickList>** component is used for moving selected item(s) from one list into another.

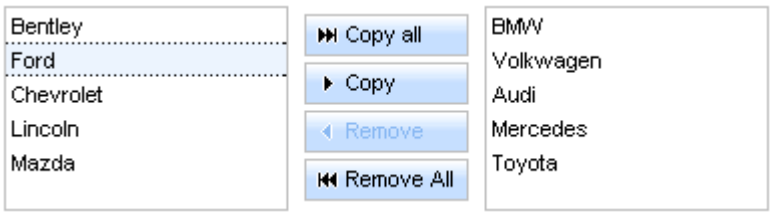


Figure 6.173. <rich:pickList> component

6.12.3.2. Key Features

- Multiple selection of list items
- Keyboard support
- Supports standard JSF internationalization
- Highly customizable look and feel

6.12.3.3. Details of Usage

The **<rich:pickList>** component consists of

- 2 item lists. Every item has three different representations: common, selected, active. Combination of these states is possible.
- Move controls set is a set of controls, which performs moving items between lists.

The *"value"* attribute is the initial value of this component.

The **<f:selectItem />** or **<f:selectItems />** facets are used to define the values of a source list.

Example:

```
...
<rich:pickList value="#{pickBean.listValues}">
      <f:selectItem itemValue="Bentley" itemLabel="Bentley"/>
      <f:selectItem itemValue="Audi" itemLabel="Audi"/>
      <f:selectItems value="#{pickBean.sourceList}"/>
</rich:pickList>
...
```

The *"switchByClick"* attribute provides an option to copy and remove items between lists by one click. Default value of this attribute is "false", so you need a double click to copy, remove items from one list to another.

Lables of the move controls can be defined with *"copyAllControlLabel"* , *"copyControlLabel"* , *"removeControlLabel"* , *"removeAllControlLabel"* attributes.

Example:

```
...
<rich:pickList copyAllControlLabel = "#{pickBean.copyAllLabel}" copyControlLabel =
"#{pickBean.copyLabel}"
                    removeControlLabel = "#{pickBean.removeLabel}" removeAllControlLabel
="#{pickBean.removeAllLabel}" value="#{pickBean.listValues}">
      <f:selectItem itemValue="Bentley" itemLabel="Bentley"/>
      <f:selectItem itemValue="Audi" itemLabel="Audi"/>
      <f:selectItems value="#{pickBean.sourceList}"/>
</rich:pickList>
...
```

If you don't want to display labels on the buttons you need to set *"showButtonsLabel"* to "false".

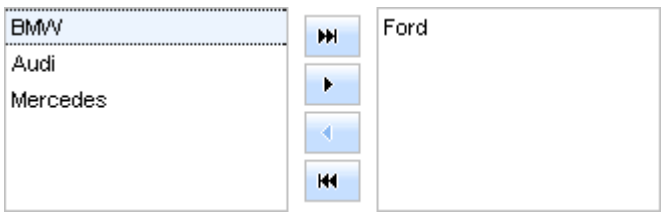


Figure 6.174. Move control buttons without labels

Alternative to the given attributes are the following facets: *"copyAllControl"* , *"removeAllControl"* , *"copyControl"* , *"removeControl"* , *"copyAllControlDisabled"* , *"removeAllControlDisabled"* , *"copyControlDisabled"* , *"removeControlDisabled"* , *"caption"* .

It is an example of usage of the facets and it is identical to the previous example.

```
...
<rich:pickList value="#{pickBean.listValues}">
   <f:facet name="copyAllControl">
      <h:commandButton value="#{pickBean.copyAllLabel}" />
   </f:facet>
   <f:facet name="copyControl">
      <h:commandButton value="#{pickBean.copyLabel}" />
   </f:facet>
   <f:facet name="removeControl">
      <h:commandButton value="#{pickBean.removeLabel}" />
   </f:facet>
   <f:facet name="removeAllControl">
      <h:commandButton value="#{pickBean.removeAllLabel}" />
   </f:facet>
   <f:selectItem itemValue="Bentley" itemLabel="Bentley"/>
   <f:selectItem itemValue="Audi" itemLabel="Audi"/>
   <f:selectItems value="#{pickBean.sourceList}"/>
</rich:pickList>
...
```

With the help of *"moveControlsVerticalAlign"* attribute you can align move controls vertically.

The possible value for *"moveControlsVerticalAlign"* are "top", "bottom" and "center" (default value).

The **<rich:pickList>** component provides resizing of lists by using such attributes as:

- *"listsHeight"* defines height of the lists.
- *"sourceListWidth"* defines width of a source list.
- *"targetListWidth"* defines width of a target list.

Example:

```
...
<rich:pickList                                    listsHeight="#{pickBean.listsHeight}"

 targetListWidth="#{pickBean.targetListWidth}" value="#{pickBean.listValues}">
      <f:selectItem itemValue="Bentley" itemLabel="Bentley"/>
      <f:selectItem itemValue="Audi" itemLabel="Audi"/>
      <f:selectItems value="#{pickBean.sourceList}"/>
```

```
</rich:pickList>
...
```

The **<rich:pickList>** component allows to use internationalization method to redefine and localize the labels. You could use application resource bundle and define `RICH_PICK_LIST_COPY_ALL_LABEL`, `RICH_PICK_LIST_COPY_LABEL`, `RICH_PICK_LIST_REMOVE_ALL_LABEL`, `RICH_PICK_LIST_REMOVE_LABEL` there.

Table 6.246. Keyboard usage for elements selection

Keys and combinations	Description
CTRL+click	Inverts selection for an item
SHIFT+click	Selects all rows from active one to a clicked row if they differ, else select the active row. All other selections are cleared
CTRL+A	Selects all elements inside the list if some active element is already present in a list
Up, Down arrows	Changes the active and selected elements to the next or previous in a list

6.12.3.4. Reference Data

Table of <rich:pickList> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/pickList.html].

Table 6.247. Component Identification Parameters

Name	Value
component-type	org.richfaces.PickList
component-class	org.richfaces.component.html.HtmlPickList
component-family	org.richfaces.PickList
renderer-type	org.richfaces.PickListRenderer
tag-class	org.richfaces.taglib.PickListTag

Table 6.248. Facets

Facet	Description
copyAllControl	Redefines the "copyAll" label with the control set. Related attribute is "copyAllControlLabel"
removeAllControl	Redefines the "removeAll" label with the control set. Related attribute is "removeAllControlLabel"

Facet	Description
copyControl	Redefines the "copy" label with the control set. Related attribute is "copyControlLabel"
removeControl	Redefines the "remove" label with the control set. Related attribute is "removeControlLabel"
copyAllControlDisabled	Redefines the disabled "copyAll" label with the control set.
removeAllControlDisabled	Redefines the disabled "removeAll" label with the control set.
copyControlDisabled	Redefines the disabled "copy" label with the control set.
removeControlDisabled	Redefines the disabled "remove" label with the control set.
caption	Defines the "caption" label with the control set.

Table 6.249. Classes names that define a list representation

Class name	Description
rich-list-picklist	Defines styles for a wrapper <table> element of a pickList

Table 6.250. Classes names that define a source and target items representation

Class name	Description
rich-picklist-source-items	Defines styles for a wrapper element of a source list
rich-picklist-target-items	Defines styles for a wrapper element of a target list
rich-picklist-body	Defines styles for a wrapper <table> element of a list body (source and target)
rich-picklist-list	Defines styles for a (source and target) list
rich-picklist-list-content	Defines styles for a (source and target) list content
rich-picklist-internal-tab	Defines styles for a wrapper <table> element of list items (source and target)

Table 6.251. Classes names that define rows representation

Class name	Description
rich-picklist-source-row	Defines styles for a source list row

Class name	Description
rich-picklist-source-row-selected	Defines styles for a selected row in a source list
rich-picklist-target-row-selected	Defines styles for a selected row in a target list

Table 6.252. Classes names that define a source cell representation

Class name	Description
rich-picklist-source-cell	Defines styles for a cell in a source list
rich-picklist-source-cell-selected	Defines styles for a selected cell in a source list
rich-picklist-source-cell-active	Defines styles for an active cell in a source list

Table 6.253. Classes names that define a target cell representation

Class name	Description
rich-picklist-target-cell	Defines styles for a target list cell
rich-picklist-target-cell-selected	Defines styles for a selected cell in a target list
rich-picklist-target-cell-active	Defines styles for an active cell in a target list

Table 6.254. Classes names that define a control representation

Class name	Description
rich-picklist-controls	Defines styles for wrapper element of a pickList controls
rich-picklist-control-disabled	Defines styles for a control in a disabled state
rich-picklist-control-copyall	Defines styles for a "copyAll" control
rich-picklist-control-copy	Defines styles for a "Copy" control
rich-picklist-control-remove	Defines styles for a "Remove" control
rich-picklist-control-removeall	Defines styles for a "removeAll" control
rich-picklist-control-img	Defines styles for a control image

Table 6.255. Classes names that define a button representation

Class name	Description
rich-list-picklist-button	Defines styles for a button
rich-list-picklist-button-disabled	Defines styles for a disabled button
rich-list-picklist-button-press	Defines styles for a pressed button
rich-list-picklist-button-light	Defines styles for a button highlight
rich-list-picklist-button-selection	Defines styles for a button selection
rich-list-picklist-button-content	Defines styles for a button content

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.12.3.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/pickList.jsf?c=pickList] you can see an example of **<rich:pickList>** usage and sources for the given example.

6.13. Rich Semantic Layouts

Layout components enrich RichFaces with functionality that enables you to create the whole page layout and define the parameters of the page. You can also create your custom theme and use it alongside with these components.

6.13.1. < rich:page > available since 3.3.1

6.13.1.1. Description

The **<rich:page>** component is used to create basic (X)HTML markup and define document parameters like DOCTYPE, title etc. The component also allows to build top level layout: header, bottom, center and left or right layout areas.

6.13.1.2. Key Features

- Option to change the renderer of the component (themes support)
- Possibility to define parameters of an HTML page
- Possibility to create page layout with facets
- Provides styling based on RichFaces skinnability

6.13.1.3. Details of Usage

The **<rich:page>** component together with the **<rich:layout>** component provides a full-fledged mechanism for markup creation.

First of all, to declare the document type of the page you should use the *"markupType"* attribute which has the following values:

- "html"
- "html-transitional"

- "xhtml"
- "xhtml-transitional"
- "html-frameset"
- "html-3.2"

The default value is "html".

The *"contentType"* allows to specify the type of the content and encoding for the page.

The title of the page can be set with the *"pageTile"* attribute. To place some other page parameters (like meta information, links to CSS style sheets etc.) in the <head> element of an HTML page use "pageHeader" facet.

Example:

```
...
<rich:page pageTitle="The title of the page" markupType="xhtml">
   <f:facet name="pageHeader">
      <meta content="The rich:page component" name="keywords" />
      <link rel="shortcut icon" href="/images/favicon.ico" />
      <link href="/css/style.css" rel="stylesheet" type="text/css" />
      <script type="text/javascript" src="/js/menu.js"></script>
   </f:facet>
   <!-- page content -->
</rich:page>
...
```

Note:

Note, the **<rich:page>** component encodes the full page structure. Therefore, be sure you don't use the doctype declaration, root html element, head and body elements on the same page where you've put this component.

The implementation of the **<rich:page>** component provides four facets that you can use to arrange the layout of the page: "header", "subheader", "sidebar" and "footer". Their behavior is quite self-explanatory.

The position of the panel rendered by the "sidebar" facet can be set with the *"sidebarPosition"* attribute that can take either "right" or "left" as values, you can also specify the width for this facet with the *"sidebarWidth"* attribute.

Example:

```
...
<rich:page sidebarPosition="left" sidebarWidth="300">
   <f:facet name="header">
      <!-- header  content -->
   </f:facet>
   <f:facet name="sidebar">
      <!-- side panel content -->
   </f:facet>
   <!-- body content -->
   <f:facet name="footer">
      <!-- footer  content -->
   </f:facet>
</rich:page>
...
```

The **<rich:page>** component also provides attributes to define CSS classes for each nested facet as well as a body part of the page created with the component.

Several templates are available for the **<rich:page>** component. A template can be activated with the *"theme"* attribute.

The theme defines the way the **<rich:page>** is rendered. Default renderer(default theme) of the **<rich:page>** has no mappings to skin parameters and just provides CSS classes for the page part. However, the simple theme, which is an extension of the default theme, has mappings to skin parameters and adds the RichFaces skinning for the page elements.

As a whole, RichFaces provides 4 themes for the **<rich:page>** component out-of-the-box: "simple", "violetRays", "oldschool", "smooth". The *Creating a Theme for <rich:page>* [http://www.jboss.org/community/docs/DOC-13635] article tells how you can create your custom theme for the **<rich:page>** component.

6.13.1.4. Reference Data

Table of <rich:page> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/page.html].

Table 6.256. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.html.HtmlPage
component-class	org.richfaces.component.html.HtmlPage
component-family	org.richfaces.Page
renderer-type	org.richfaces.PageRenderer

Name	Value
tag-class	org.richfaces.taglib.PageTag

Table 6.257. Facets

Facet Name	Description
pageHeader	Creates the <head/> part of the HTML page
header	Creates a header
subheader	Creates a horizontal panel under the header
footer	Creates a footer
sidebar	Creates a left/right panel

Table 6.258. CSS Selectors that define the representation of the component's blocks

CSS Selector	Description
.rich-page	Defines styles for the whole page
.rich-page-header	Defines styles for the header
.rich-page-subheader	Defines styles for the block under the header
.rich-page-sidebar	Defines styles for the sidebar
.rich-page-body	Defines styles for the body part of the page
.rich-page-footer	Defines styles for the footer

6.13.1.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/layouts.jsf] you can see the example of **<rich:page>** component usage and sources for the given example.

The *Layout components for RichFaces 3.3.1* [http://www.jboss.org/community/docs/DOC-13336] on the JBoss.org Wiki

6.13.2. < rich:layout > available since 3.3.1

6.13.2.1. Description

The **<rich:layout>** component is designed to build layouts basing on Yahoo UI Grids CSS

6.13.2.2. Key Features

- Cross-borwser compatibility
- Easy layout creation

6.13.2.3. Details of Usage

The **<rich:layout>** allows to build a grid that can be used to make the layout on a page. The **<rich:layout>** is used in conjunction with the **<rich:layoutPanel>** that is used as a child element and carries the main burden of building the grid.

Hence, you need to use the **<rich:layout>** as a container and **<rich:layoutPanel>** to create areas inside the container.
This is how you can make a layout with 5 areas:

Example:

```
...
<rich:layout>
        <rich:layoutPanel position="top">
                <!--top-->
        </rich:layoutPanel>
        <rich:layoutPanel position="left">
                <!--left-->
        </rich:layoutPanel>
        <rich:layoutPanel position="center">
                <!--center-->
        </rich:layoutPanel>
        <rich:layoutPanel position="right">
                <!--right-->
        </rich:layoutPanel>
        <rich:layoutPanel position="bottom">
                <!--bottom-->
        </rich:layoutPanel>
</rich:layout>
...
```

To get more details about **<rich:layoutPanel>** please read the *chapter about layoutPanel* in the guide.

6.13.2.4. Reference Data

Table of <rich:layout> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/layout.html].

Table 6.259. Component Identification Parameters

Name	Value
component-type	org.richfaces.layout

Name	Value
component-class	org.richfaces.component.html.HtmlLayout
component-family	org.richfaces.Layout
renderer-type	org.richfaces.LayoutRenderer
tag-class	org.richfaces.taglib.layoutTag

6.13.2.5. Relevant Resources Links

Visit *layout* [http://livedemo.exadel.com/richfaces-demo/richfaces/layouts.jsf] page at RichFaces Live Demo for examples of component usage and their sources.

The *Layout components for RichFaces 3.3.1* [http://www.jboss.org/community/docs/DOC-13336] on the JBoss.org Wiki

6.13.3. < rich:layoutPanel > available since 3.3.1

6.13.3.1. Description

The **<rich:layouPanel>** is an auxiliary component used to create layout areas within the **<rich:layout>** container.

6.13.3.2. Key Features

- Cross-browser compatibility
- Provides possibility of an easy layout creation

6.13.3.3. Details of Usage

The **<rich:layoutPanel>** component is used to split the area inside the **<rich:layout>** into up to 5 parts: top, left, center, right, bottom.

The *"position"* attribute defines the position of the **<rich:layoutPanel>** in the area created with **<rich:layout>** .

```
...
<rich:layout>
    <rich:layoutPanel position="top">
        <!--top-->
    </rich:layoutPanel>
    <rich:layoutPanel position="left">
        <!--left-->
    </rich:layoutPanel>
    <rich:layoutPanel position="center">
        <!--center-->
```

```
        </rich:layoutPanel>
        <rich:layoutPanel position="right">
            <!--right-->
        </rich:layoutPanel>
        <rich:layoutPanel position="bottom">
            <!--bottom-->
        </rich:layoutPanel>
</rich:layout>
...
```

You can specify the width of the layout area with the *"width"* attribute.

6.13.3.4. Reference Data

Table of <rich:layoutPanel> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/layoutPanel.html].

Table 6.260. Component Identification Parameters

Name	Value
component-type	org.richfaces.LayoutPanel
component-class	org.richfaces.component.html.HtmlLayoutPanel
component-family	org.richfaces.LayoutPanel
renderer-type	org.richfaces.LayoutPanelRenderer
tag-class	org.richfaces.taglib.LayoutPanelTag

6.13.3.5. Relevant Resources Links

On RichFaces Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/layouts.jsf] you can see an example of **<rich:layoutPanel>** usage and sources for the given example.

The ***<rich:layout>*** chapter of the guide.

The *Layout components for RichFaces 3.3.1* [http://www.jboss.org/community/docs/DOC-13336] on the JBoss.org Wiki.

6.14. Rich Miscellaneous

6.14.1. < rich:componentControl > available since 3.0.0

6.14.1.1. Description

The **<rich:componentControl>** allows to call JavaScript API functions on components after defined events.

6.14.1.2. Key Features

- Management of components JavaScript API
- Customizable initialization variants
- Customizable activation events
- Possibility to pass parameters to the target component

6.14.1.3. Details of Usage

<rich:componentControl> is a command component, that allows to call JavaScript API function on some defined event. Look at the example:

```
...
<rich:componentControl attachTo="doExpandCalendarID" event="onclick" operation="Expand"
 for="ccCalendarID" />
...
```

In other words it means "clicking on the component with ID `doExpandCalendarID` expands the component with ID `ccCalendarID`". It can be said, that **<rich:componentControl>** makes interact two components with the help of JavaScript API function.

The ID of the component the event that invokes JavaScript API function is applied, is defined with *"attachTo"* attribute (see the exapmle above). If *"attachTo"* attribute is not specified, the **<rich:componentControl>** is supposed to be attached to it's parent.

```
<h:commandButton value="Show Modal Panel">
    <!--componentControl is attached to the commandButton-->
    <rich:componentControl for="ccModalPanelID" event="onclick" operation="show"/>
</h:commandButton>
```

It is possible to invoke the **<rich:componentControl>** handler operation as usual JavaScript function. For this purpose it is necessary to specify the name of the JS function with the help of the *"name"* attribute:

Example:

```
function func (event) {
}
```

```
<rich:componentControl name="func" event="onRowClick" for="menu" operation="show" />
```

An important **<rich:componentControl>** feature, is that it allows transferring parameters, with the help of special attribute *"params"* :

```
...
<rich:componentControl name="func" event="onRowClick" for="menu" operation="show"
 params="#{car.model}"/>
...
```

The alternative way for parameters transferring uses **<f:param>** attribute. As the code above, the following code will represent the same functionality:

```
...
<rich:componentControl event="onRowClick" for="menu" operation="show">
    <f:param value="#{car.model}" name="model"/>
</rich:componentControl>
...
```

With the help of the *"attachTiming"* attribute you can define the page loading phase when **<rich:componentControl>** is attached to source component. Possible values are:

- `immediate` — attached during execution of **<rich:componentControl>** script
- `onavailable` — attached after the target component is initialized
- `onload` — attached after the page is loaded

<rich:componentControl> interacts with such components as: **<rich:contextMenu>** , **<rich:toolTip>** , **<rich:modalPanel >** , **<rich:listShuttle>** , **<rich:orderingList>** , **<rich:calendar>**

In order to use **<rich:componentControl>** with another component you should place the id of this component into *"for"* attribute field. All operations with defined component you can find in the JavaScript API section of defined component.

```
<h:form>
   <rich:toolTip id="toolTip" mode="ajax" value="and then just touch me." direction="top-right" />
</h:form>
<h:commandButton id="ButtonID" value="Push me">
        <rich:componentControl attachTo="ButtonID" event="onmouseover" operation="show"
 for="toolTip" />
```

```
</h:commandButton>
```

This is a result:

Figure 6.175. <rich:toolTip> is shown with the help of <rich:componentControl> .

6.14.1.4. Reference Data

Table of <rich:componentControl> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/componentControl.html].

Table 6.261. Component Identification Parameters

Name	Value
component-type	org.richfaces.ComponentControl
component-class	org.richfaces.component.html.HtmlComponentControl
component-family	org.richfaces.ComponentControl
renderer-type	org.richfaces.ComponentControlRenderer
tag-class	org.richfaces.taglib.ComponentControlTag

6.14.1.5. Relevant Resources Links

Visit the *ComponentControl page* [http://livedemo.exadel.com/richfaces-demo/richfaces/componentControl.jsf?c=componentControl] at RichFaces LiveDemo for examples of component usage and their sources.

Information on JSF **<f:param>** component You can find at *<f:param> TLD reference* [http://java.sun.com/javaee/javaserverfaces/1.1_01/docs/tlddocs/f/param.html] in Java Server Faces technology section at Sun portal.

6.14.2. < rich:effect > available since 3.1.0

6.14.2.1. Description

The **<rich:effect>** utilizes a set of effects provided by the scriptaculous JavaScript library. It allows to attach effects to JSF components and html tags.

6.14.2.2. Key Features

- No developers JavaScript writing needed to use it on pages
- Presents scriptaculous JavaScript library functionality

6.14.2.3. Details of Usage

It is possible to use **<rich:effect>** in two modes:

- attached to the JSF components or html tags and triggered by a particular event. Wiring effect with JSF components might occur on the server or client. Wiring with html tag is possible only on the client side
- invoking from the JavaScript code by an effect name. During the rendering, **<rich:effect>** generates the JavaScript function with defined name. When the function is called, the effect is applied

Those a the typical variants of using:

```
...
<!-- attaching by event  -->
<rich:panel>
   <rich:effect event="onmouseout" type="Opacity" params="duration:0.8,from:1.0,to:0.3" />
   <!--panel content-->
</rich:panel>
...

<!--  invoking from JavaScript -->
<div id="contentDiv">
   <!--div content-->
</div>

<input type="button" onclick="hideDiv({duration:0.7})" value="Hide" />
<input type="button" onclick="showDiv()" value="Show" />

<rich:effect  name="hideDiv"  for="contentDiv" type="Fade" />
<rich:effect  name="showDiv"  for="contentDiv" type="Appear" />

<!-- attaching to window on load and applying on particular page element -->
<rich:effect                for="window"              event="onload"              type="Appear"
 params="targetId:'contentDiv',duration:0.8,from:0.3,to:1.0" />
...
```

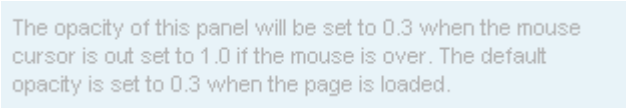


Figure 6.176. Initial

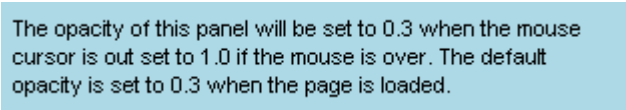


Figure 6.177. When the mouse cursor is over

"name" attribute defines a name of the JavaScript function that is be generated on a page when the component is rendered. You can invoke this function to activate the effect. The function accesses one parameter. It is a set of effect options in JSON format.

"type" attribute defines the type of an effect. For example, "Fade", "Blind", "Opacity". Have a look at *scriptaculous documentation* [http://script.aculo.us] for set of available effect.

"for" attribute defines the id of the component or html tag, the effect is attached to. RichFaces converts the *"for"* attribute value to the client id of the component if such component is found. If not, the value is left as is for possible wiring with on the DOM element's id on the client side. By default, the target of the effect is the same element that effect pointed to. However, the target element is might be overridden with *"targetId"* option passed with *"params"* attribute of with function paramenter.

"params" attribute allows to define the set of options possible for particurar effect. For example, 'duration', 'delay', 'from', 'to'. Additionally to the options used by the effect itself, there are two option that might override the **<rich:effect>** attribute. Those are:

- *"targetId"* allows to re-define the target of effect. The option is override the value of *"for"* attribute.
- *"type"* defines the effect type. The option is override the value of *"type"* attribute.

You can use a set of effects directly without defining the **<rich:effect>** component on a page if it's convenient for you. For that, load the scriptaculous library to the page with the following code:

Example:

```
...
<a4j:loadScript src="resource://scriptaculous/effect.js" />
...
```

If you do use the **<rich:effect>** component, there is no need to include this library because it's already here.

For more information look at *RichFaces Users Forum* [http://jboss.com/index.html?module=bb&op=viewtopic&t=119044].

6.14.2.4. Reference Data

Table of <rich:effect> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/effect.html].

Table 6.262. Component Identification Parameters

Name	Value
component-type	org.richfaces.Effect
component-class	org.richfaces.component.html.HtmlEffect
component-family	org.richfaces.Effect
renderer-type	org.richfaces.EffectRenderer
tag-class	org.richfaces.taglib.EffectTag

6.14.2.5. Relevant Resources Links

Here [http://wiki.jboss.org/wiki/CreateABannerUsingEffectsAndPoll] you can get additional information how to create an image banner using **<rich:effect>** and **<a4j:poll>** components and figure out how to create an HTML banner from *"Creating HTML Banner Using Effects And Poll RichFaces Wiki" article* [http://wiki.jboss.org/auth/wiki/CreateAHTMLBannerUsingEffectsAndPoll] .

In the *RichFaces Cookbook article* [http://wiki.jboss.org/auth/wiki/RichFacesCookbook/SlideShow] you can find information how to make a Slide Show with help of the **<rich:effect>** and **<a4j:poll>** components.

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/effect.jsf?c=effect] you can see the example of **<rich:effect>** usage.

How to save **<rich:effect>** status see on the *RichFaces Users Forum* [http://www.jboss.com/index.html?module=bb&op=viewtopic&t=118833].

6.14.3. < rich:gmap > available since 3.0.0

6.14.3.1. Description

Component that presents the Google map in the JSF applications.

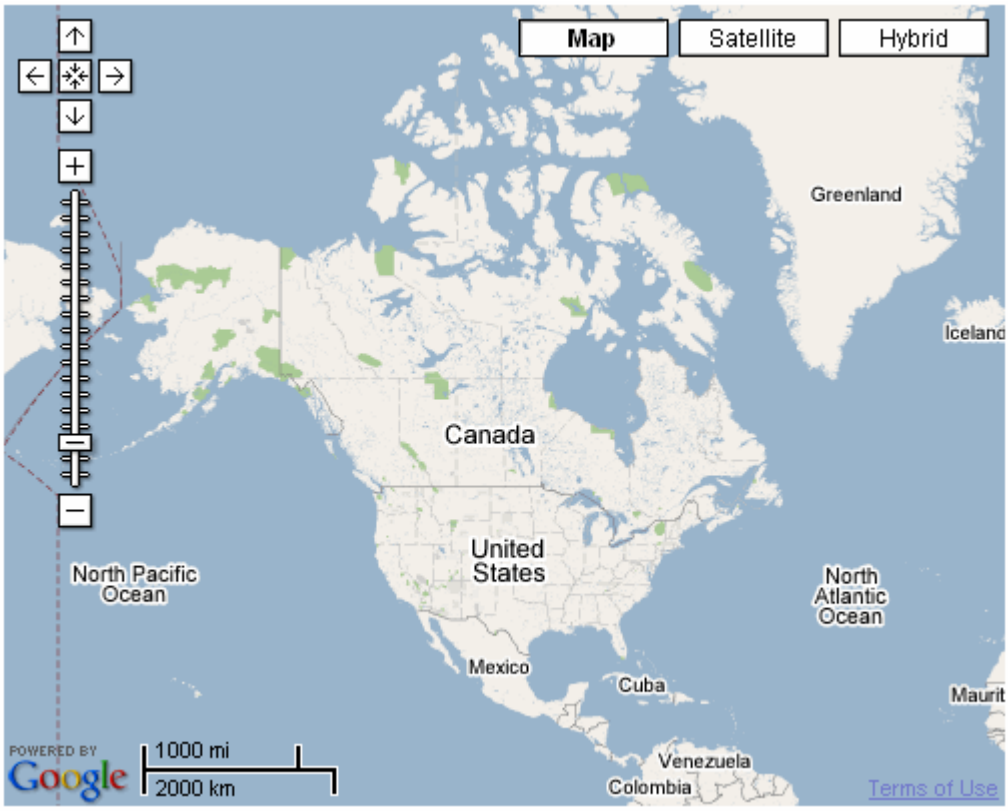


Figure 6.178. <rich:gmap> component

6.14.3.2. Key Features

- Presents all the Google map functionality
- Highly customizable via attributes
- No developers JavaScript writing needed to use on a pages

6.14.3.3. Details of Usage

To use *Google Map* in your application, generate a key on *Google Map official resource* [http://google.com/apis/maps] . One key could be used for one directory on the server.

Here are the main settings of initial rendering performed with a component map that are accessible with the following attributes:

- *"zoom"* defines an approximation size (boundary values 1-18)
- *"lat"* specifies an initial latitude coordinate in degrees, as a number between -90 and +90
- *"lng"* specifies an initial longitude coordinate in degrees, as a number between -180 and +180

- *"mapType"* specifies a type of a rendered map (`G_NORMAL_MAP`, `G_SATELLITE_MAP` (DEFAULT), `G_HYBRID_MAP`)

For example, the city of Paris is shown after rendering with the following initial settings: `lat = "48.44"` , `lng = "2.24"` and `zoom = "5"` .

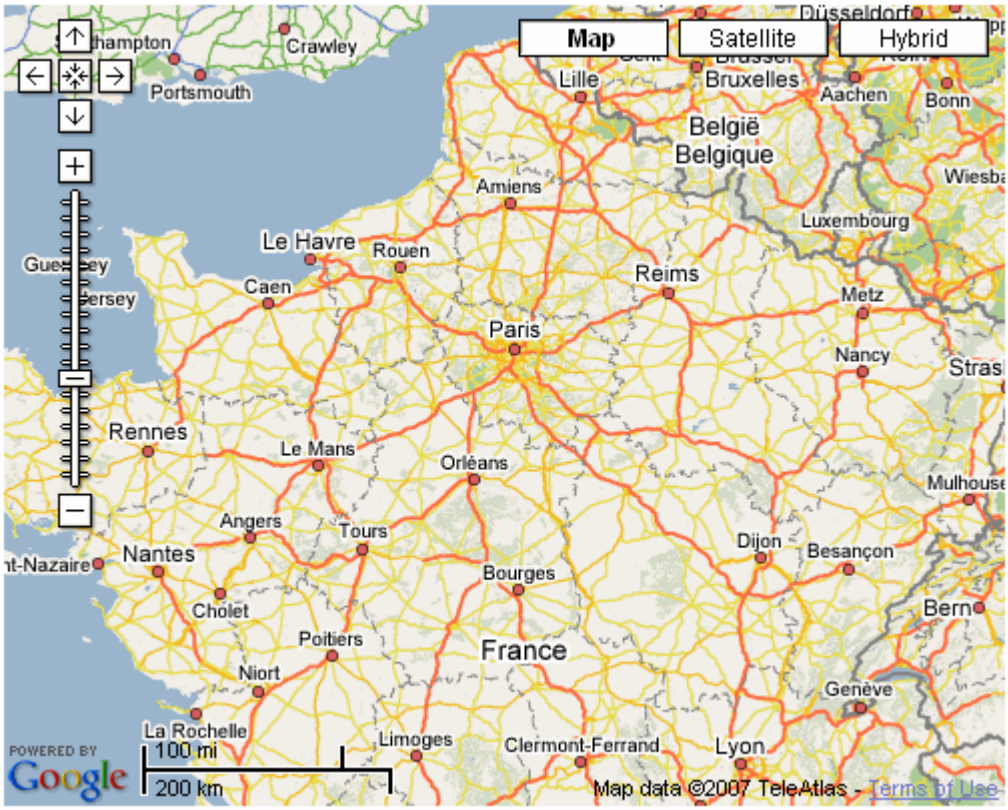


Figure 6.179. <rich:gmap> initial rendering

It's also possible to set accessible controls on the map with the help of the attributes:

- *"showGMapTypeControl"* determines whether the controls for a map type definition are switched on
- *"showGScaleControl"* determines whether the controls for scaling are switched on
- *"showGLargeMapControl"* determines whether the control for map scale rendering is rendered

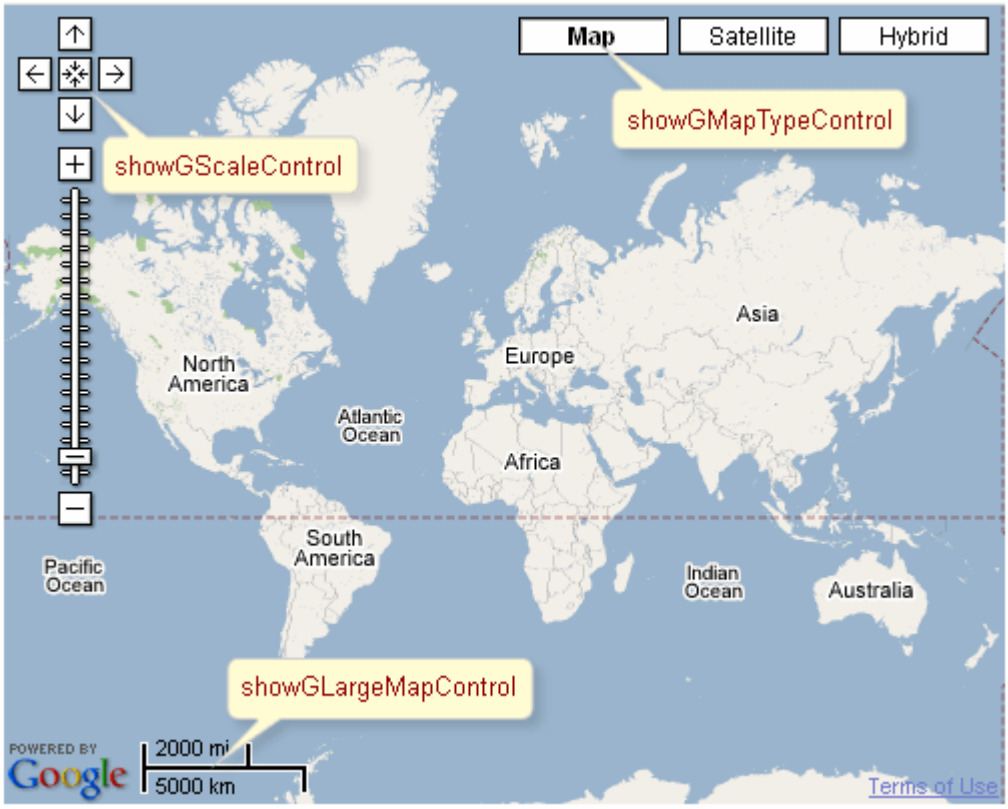


Figure 6.180. <rich:gmap> accessible controls

To set the controls as well as to perform other activities (Zoom In/Out etc.) is possible with your JavaScript, i.e. declare a name of a map object in the *"gmapVar"* attribute and then call the object directly with *Google Maps* API.

For instance, if you have `gmapVar = "map"` declared for your component, to zoom in a map you should call `map.zoomIn()` on an event. See also an example of **<rich:gmap>** usage on the *RichFaces Live Demo* [http://livedemo.exadel.com/richfaces-demo/richfaces/gmap.jsf?c=gmap].

Tip:

You do not need to use reRender to perform uptades for the **<rich:gmap>** component. Use the *"gmapVar"* attribute and *Google Maps native API* [http://code.google.com/intl/ru/apis/maps/documentation/reference.html] instead as it's described above.

Moreover, to add e.g. some JavaScript effects, events defined on it are used.

- *"onmouseover"*
- *"onclick"*

- *"onmouseout"*
- etc.

Note

Google Map does not support XHTML format of the page. Thus, if you use Facelets and JSF 1.2, do not forget to put the following tags somewhere on the page:

```
...
<f:view contentType="text/html">...</f:view>
...
```

6.14.3.4. Reference Data

Table of <rich:gmap> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/gmap.html].

Table 6.263. Component Identification Parameters

Name	Value
component-type	org.richfaces.Gmap
component-class	org.richfaces.component.html.HtmlGmap
component-family	org.richfaces.Gmap
renderer-type	org.richfaces.GmapRenderer
tag-class	org.richfaces.taglib.GmapTag

Table 6.264. Classes names that define a component appearance

Class name	Description
rich-gmap	Defines styles for a wrapper element of a component

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.14.3.5. Relevant Resources Links

On the component Live Demo page [http://livedemo.exadel.com/richfaces-demo/richfaces/gmap.jsf?c=gmap] you can see the example of **<rich:gmap>** usage and sources for the given example.

6.14.4. < rich:virtualEarth > available since 3.1.0

6.14.4.1. Description

The component presents the Microsoft Virtual Earth map in the JSF applications.

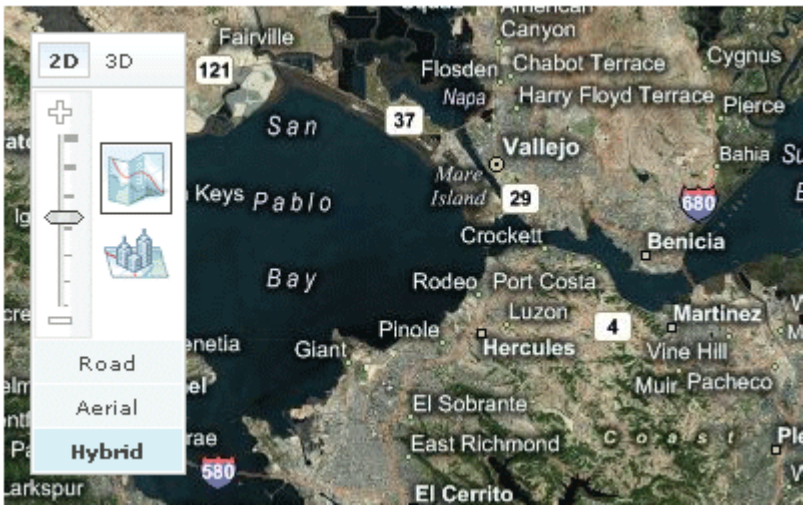


Figure 6.181. <rich:virtualEarth> component

6.14.4.2. Key Features

- Presents the Microsoft Virtual Earth map functionality
- Highly customizable via attributes
- No developers JavaScript writing is needed to use it on a pages

6.14.4.3. Details of Usage

Here are the main settings of initial rendering performed with a component map that are accessible with the following attributes:

- *"zoom"* defines an approximation size (boundary values 1-18)
- *"lat"* specifies an initial latitude coordinate in degrees, as a number between -90 and +90
- *"lng"* specifies an initial longitude coordinate in degrees, as a number between -180 and +180
- *"dashboardSize"* specifies a type of a rendered map (Normal, Small, Tiny)

For example, the city of Paris is shown after rendering with the following initial settings: `lat = "48.833"` , `lng = "2.40"` and `zoom = "11"` .

Figure 6.182. <rich:virtualEarth> initial rendering

Code for this example is placed below:

Example:

```
...
<rich:virtualEarth  style="width:800px;" id="vm" lat="48.833" lng="2.40"
                    dashboardSize="Normal"  zoom="11" mapStyle="Hybrid" var="map" />
...
```

To set all these parameters and perform some activity (Zoom In/Out etc.) is possible with your JavaScript, i.e. declare a name of an object on a map in the *"var"* attribute and then call the object directly with API *Microsoft Virtual Earth map .*

For example, to approximate a map for `var = "map"` declared inside the component, call `map.ZoomIn()` on an event.

Moreover, to add e.g. some JavaScript effects, events defined on it are used.

- *"onmouseover"*
- *"onclick"*
- *"onmouseout"*
- etc.

Note

Virtual Earth does not support XHTML format of the page. Thus, if you use Facelets and JSF 1.2, do not forget to put the following tags somewhere on the page:

```
...
<f:view contentType="text/html">...</f:view>
...
```

6.14.4.4. Reference Data

Table of <rich:virtualEarth> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/virtualEarth.html].

Table 6.265. Component Identification Parameters

Name	Value
component-type	org.richfaces.VirtualEarth
component-class	org.richfaces.component.html.HtmlVirtualEarth
component-family	org.richfaces.VirtualEarth
renderer-type	org.richfaces.VirtualEarthRenderer
tag-class	org.richfaces.taglib.VirtualEarthTag

Table 6.266. Classes names that define a component appearance

Class name	Description
rich-virtualEarth	Defines styles for a wrapper element of a component

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.14.4.5. Relevant Resources Links

Here [http://msdn2.microsoft.com/en-us/library/bb429619.aspx] you can found additional information about Microsoft Virtual Earth map.

Some additional information about usage of component can be found *on its LiveDemo page* [http://livedemo.exadel.com/richfaces-demo/richfaces/virtualEarth.jsf?c=virtualEarth].

6.14.5. < rich:hotKey > available since 3.2.2

6.14.5.1. Description

The **<rich:hotKey>** component allows to register hot keys for the page or particular elements and to define client-side processing functions for these keys.

6.14.5.2. Key Features

- Includes all features of the *Javascript jQuery Hotkeys Plugin* [http://code.google.com/p/js-hotkeys/]
- Hot key registration by request through JavaScript API
- Possibility to attach **<rich:hotKey>** to a whole page or to a particular element using *"selector"* attribute
- Hot key registration timing
- Enabling/disabling the **<rich:hotKey>** using JavaScript API

6.14.5.3. Details of Usage

There are two ways to register **<rich:hotKey>** :

- just place it anywhere on the page. In this case the **<rich:hotKey>** component is attached to the whole page (html[0] element). This is default scenario.
- attach it with *"selector"* attribute to all the elements defined using this selector. This attribute uses defined by *w3c consortium* [http://www.w3.org] syntax for CSS rule selector with some jQuery extensions.

The *"key"* attribute defines the hot key itself which is processed by the component.

After the hot key has been registered and defined you could set the *"handler"* attribute which determines a JavaScript function to be called every time when corresponding keys are pressed.

Example:

```
...
<rich:listShuttle var="cap" sourceValue="#{capitalsBean.capitals}" id="ls">
   <rich:column>
      <f:facet name="header">
         <h:outputText value="State flag"/>
      </f:facet>
      <h:graphicImage value="#{cap.stateFlag}"/>
   </rich:column>
   <rich:column>
      <f:facet name="header">
         <h:outputText value="State name"/>
      </f:facet>
      <h:outputText value="#{cap.name}"/>
```

```
    </rich:column>
</rich:listShuttle>
<rich:hotKey selector="#ls" key="right" handler="#{rich:component('ls')}.copy()"/>
<rich:hotKey selector="#ls" key="left" handler="#{rich:component('ls')}.remove()"/>
<rich:hotKey selector="#ls" key="end" handler="#{rich:component('ls')}.copyAll()"/>
<rich:hotKey selector="#ls" key="home" handler="#{rich:component('ls')}.removeAll()"/>
...
```

In the example above the *"selector"* attribute is used. So the keys work only if **<rich:listShuttle>** component is focused.

You could press Right or Left keys in order to move some selected items between lists. You could press Home or End buttons in order to move all items between lists.

With the help of the *"timing"* attribute you could manage **<rich:hotKey>** registration timing. There are three possible values of this attribute:

- "immediate" - the component is rendered in browser immediately (by default)
- "onload" - the component is rendered after the page is fully loaded
- "onregistercall" - the component is rendered only after JavaScript API for the key registration is used.

The *"type"* attribute defines the type of keyboard event. Possible values are: "onkeyup", "onkeypress" and "onkeydown".

The *"disableInInput"* attribute disables the **<rich:hotKey>** if it is activated on input elements and the value of this attribute is "true".

The *"checkParent"* attribute defines the hotkey handling of events generated by child components nested into the parent component to which the **<rich:hotKey>** is attached.

The **<rich:hotKey>** component also provides a number of JavaScript API functions. There is an example below.

Example:

```
...
<h:form id="myForm">
    <rich:hotKey id="myKey" key="ctrl+g" handler="alert('Ctrl+G is pressed')" />
   <button onclick="${rich:component('myKey')}.enable(); return false;">Turn Ctrl+G On</button>
   <button onclick="${rich:component('myKey')}.disable(); return false;">Turn Ctrl+G Off</button>
</h:form>
...
```

In the example above the Ctrl+G is registered as a global hotkey, so if you press this key combination the alert window with the "Ctrl+G is pressed" text appears. With the help of enable(), disable() JavaScript API fucntions you could enable or disable registered hotkey.

6.14.5.4. Reference Data

Table of <rich:hotKey> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/hotKey.html].

Table 6.267. Component Identification Parameters

Name	Value
component-type	org.richfaces.HotKey
component-class	org.richfaces.component.html.HtmlHotKey
component-family	org.richfaces.HotKey
renderer-type	org.richfaces.HotKeyRenderer

Table 6.268. JavaScript API

Function	Description
add(selector, key, handler)	Adds the hotkey(from key param) for elements targeted by selector. it assigns a handler function to the key
remove()	Removes hotkey registration
enable()	Enables registered hotkey
disable()	Disables registered hotkey

6.14.5.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/hotKey.jsf?c=hotKey] you can see an example of **<rich:hotKey>** usage and sources for the given example.

6.14.6. < rich:insert > available since 3.1.0

6.14.6.1. Description

The **<rich:insert>** component is used for highlighting, source code inserting and, optionally, format the file from the application context into the page.

6.14.6.2. Key Features

- Source code highlighting
- Variety of formats for source code highlighting

6.14.6.3. Details of Usage

The are two basic attributes. The *"src"* attribute defines the path to the file with source code. The *"highlight"* attribute defines the type of a syntax highlighting.

If *"highlight"* attribute is defined and *JHighlight* [https://jhighlight.dev.java.net/] open source library is in the classpath, the text from the file is formated and colorized.

An example is placed below.

Example:

```
...
<rich:insert  src="/pages/sourcePage.xhtml" highlight="xhtml"/>
...
```

The result of using **<rich:insert>** component is shown on the picture:

```
<ui:composition xmlns="http://www.w3.org/1999/xhtml"
    xmlns:ui="http://java.sun.com/jsf/facelets"
    xmlns:h="http://java.sun.com/jsf/html"
    xmlns:a4j="http://richfaces.org/a4j"
    xmlns:rich="http://richfaces.org/rich">

<h:form>
  <rich:panel>
    <a4j:commandButton value="Set Name to Alex"  reRender="rep" >
      <a4j:actionparam name="username" value="Alex" assignTo="#{userBean.name}"/>
    </a4j:commandButton>
    <rich:spacer width="20" />
    <a4j:commandButton value="Set Name to John"  reRender="rep" >
      <a4j:actionparam name="username" value="John" assignTo="#{userBean.name}"/>
    </a4j:commandButton>
  </rich:panel>
  <rich:panel>
    <h:outputText id="rep" value="Selected Name:#{userBean.name}"/>
  </rich:panel>
</h:form>
</ui:composition>
```

Figure 6.183. Source code highlighting

The **<rich:insert>** component provides the same functionality as *JHighlight* [https://jhighlight.dev.java.net/]. Thus, all names of highlight style classes for source code of particular language could be changed to your names, which are used by the *JHighlight* [https://jhighlight.dev.java.net/] library.

6.14.6.4. Reference Data

Table of <rich:insert> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/insert.html].

Table 6.269. Component Identification Parameters

Name	Value
component-type	org.richfaces.ui.Insert
component-class	org.richfaces.ui.component.html.HtmlInsert
component-family	org.richfaces.ui.Insert
renderer-type	org.richfaces.ui.InsertRenderer
tag-class	org.richfaces.ui.taglib.InsertTag

6.14.6.5. Relevant Resources Links

On RichFaces LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/insert.jsf?c=insert] you can found some additional information for **<rich:insert>** component usage.

6.14.7. < rich:message > available since 3.1.0

6.14.7.1. Description

The component is used for rendering a single message for a specific component.

Figure 6.184. <rich:message> component

6.14.7.2. Key Features

- Highly customizable look and feel
- Tracking both traditional and Ajax based requests
- Optional toolTip to display the detail portion of the message
- Additionally customizable with attributes and facets
- Additionally provides two parts to be optionally defined: marker and label

6.14.7.3. Details of Usage

The component has the same behavior as standard **<h:message>** component except next two features:

- It's ajaxRendered. It means that the component is reRendered after Ajax request automatically without outputPanel usage
- The component optionally provides "passed" state which will be shown if no message is displayed

- Provides possibility to add some marker to message. By default a marker element isn't shown

A set of facets which can be used for marker defining:

- *"passedMarker"* . This facet is provided to allow setting a marker to display if there is no message
- *"errorMarker"* . This facet is provided to allow setting a marker to display if there is a message with a severity class of "ERROR"
- *"fatalMarker"* . This facet is provided to allow setting a marker to display if there is a message with a severity class of "FATAL"
- *"infoMarker"* . This facet is provided to allow setting a marker to display if there is a message with a severity class of "INFO"
- *"warnMarker"* . This facet is provided to allow setting a marker to display if there is a message with a severity class of "WARN"

The following example shows different variants for component customization. The attribute *"passedLabel"* is used for definition of the label to display when no message appears. But the message component doesn't appear before the form submission even when state is defined as passed (on initial rendering). Boolean attribute *"showSummary"* defines possibility to display summary portion of displayed messages. The facets *"errorMarker"* and *"passedMarker"* set corresponding images for markers.

Example:

```
...
<rich:message for="id" passedLabel="No errors" showSummary="true">
    <f:facet name="errorMarker">
        <h:graphicImage url="/image/error.png"/>
    </f:facet>
    <f:facet name="passedMarker">
        <h:graphicImage url="/image/passed.png"/>
    </f:facet>
</rich:message>
...
```

6.14.7.4. Reference Data

Table of <rich:message> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/message.html].

Table 6.270. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.RichMessage

Name	Value
component-class	org.richfaces.component.html.HtmlRichMessage
component-family	org.richfaces.component.RichMessage
renderer-type	org.richfaces.renderkit.html.RichMessagesHtmlBaseRenderer
tag-class	org.richfaces.taglib.RichMessageTag

Table 6.271. Facets

Facet	Description
errorMarker	Redefines the content for the marker if there is message with a severity class of "ERROR"
fatalError	Redefines the content for the marker if there is message with a severity class of "FATAL"
infoError	Redefines the content for the marker if there is message with a severity class of "INFO"
warnError	Redefines the content for the marker if there is message with a severity class of "WARN"
passedError	Redefines the content for the marker if there is no message

Table 6.272. Classes names that define a component appearance

Class name	Description
rich-message	Defines styles for a wrapper element
rich-message-marker	Defines styles for a marker
rich-message-label	Defines styles for a label

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.14.7.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/message.jsf?c=message] you can see the example of **<rich:message>** usage and sources for the given example.

6.14.8. < rich:messages > available since 3.1.0

6.14.8.1. Description

The **<rich:messages>** component is similar to **<rich:message>** component but used for rendering all messages for the components.

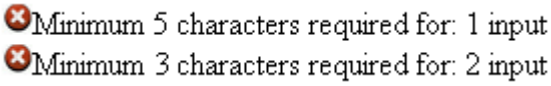


Figure 6.185. <rich:messages> component

6.14.8.2. Key Features

- Highly customizable look and feel
- Track both traditional and Ajax based requests
- Optional ToolTip to display a detailed part of the messages
- Additionally customizable via attributes and facets
- Additionally provides of three parts to be optionally defined: marker, label and header

6.14.8.3. Details of Usage

The **<rich:messages>** component is considered as JSF HTML **<h:messages>** , extended with following features:

- Ajax support (the component does not require to be wrapped in **<a4j:outputPanel>** in order to be rendered during Ajax requests);
- possibilty to add graphical markers (pictograms) to reinforce a message for both "passed" or "failed" states;
- set of predefined CSS classes for customizing messages appearance.

There are two optional parts that could be defined for every message: marker and text label. The set of facets, which can be used for a marker definition, is shown below:

Table 6.273. Facets

Facet	Description
errorMarker	Defines marker for "Error" message severity class
fatalMarker	Defines marker for "Fatal" message severity class
infoMarker	Defines marker for "Info" message severity class
warnMarker	Defines marker for "Warn" message severity class

The following example shows different variants of customization of the component.

Example:

```
<rich:messages layout="table" tooltip="true" showDetail="false" showSummary="true">
    <f:facet name="errorMarker">
        <h:graphicImage url="/image/error.png"/>
    </f:facet>
    <f:facet name="infoMarker">
        <h:graphicImage url="/image/info.png"/>
    </f:facet>
</rich:messages>
```

The **<rich:messages>** component keeps all messages for all components even after only one Ajax-validated component was updated.

6.14.8.4. Reference Data

Table of <rich:messages> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/messages.html].

Table 6.274. Component Identification Parameters

Name	Value
component-type	org.richfaces.component.RichMessages
component-class	org.richfaces.component.html.HtmlRichMessages
component-family	org.richfaces.component.RichMessages
renderer-type	org.richfaces.renderkit.html.HtmlRichMessagesRendere
tag-class	org.richfaces.taglib.RichMessagesTag

Table 6.275. Facets

Facet	Description
errorMarker	Defines marker for "Error" message severity class
fatalMarker	Defines marker for "Fatal" message severity class
infoMarker	Defines marker for "Info" message severity class
warnMarker	Defines marker for "Warn" message severity class

Table 6.276. Classes names that define a component appearance

Class name	Description
rich-messages	Defines styles for a wrapper element

Class name	Description
rich-messages-marker	Defines styles for a marker
rich-messages-label	Defines styles for a label

You can find all necessary information about style classes redefinition in *Definition of Custom Style Classes* section.

6.14.8.5. Relevant Resources Links

On the component LiveDemo page [http://livedemo.exadel.com/richfaces-demo/richfaces/messages.jsf?c=messages&tab=usage] you can see the example of **<rich:messages>** usage and sources for the given example.

6.14.9. < rich:jQuery > available since 3.0.0

6.14.9.1. Description

The **<rich:jQuery>** allows to apply styles and behaviour to DOM objects.

6.14.9.2. Key Features

- Presents jQuery JavaScript framework functionality
- Able to apply onto JSF components and other DOM objects.
- Works without conflicts with prototype.js library

6.14.9.3. Details of Usage

<rich:jQuery> can be used in two main modes:

- as a one-time query applied immediately or on a document ready event
- as a JavaScript function that can be invoked from the JavaScript code

The mode is chosen with *"timing"* attribute that has the following options:

- "immediate" - applying a query immediately
- "onload" - applying a query when a document is loaded
- onJScall - applying a query by invoked JavaScript function defined with the *"name"* attribute

Definition of the *"name"* attribute is mandatory when the value of *"timing"* attribute is "onJScall". If the *"name"* attribute is defined when *"timing"* value equals to "immediate" or "onload", the query is applied according to this value, but you still have an opportunity to invoke it by a function name.

The *"selector"* attribute defines an object or a list of objects. The query is defined with the *"query"* attribute.

Here is an example of how to highlight odd rows in a table:

Example:

```
...
<style>
   .odd {
        background-color: #FFC;
   }
</style>
...
```

```
...
<rich:table id="customList" ...>
       ...
</rich:table>
...
<rich:jQuery selector="#customList tr:odd" timing="onload" query="addClass(odd)" />
...
```

The *"selector"* attribute uses defined by w3c consortium syntax for CSS rule *selector* [http://www.w3.org/TR/REC-CSS2/selector.html] with some jQuery extensions

Those are typical examples of using selector in the **<rich:jQuery>** component.

Table 6.277. Examples of using selector

Selector	Comment
"p[a]"	In a document all "p" tags with "a" tag inside are selected
"ul/li"	All "li" elements of unordered "ul" lists are selected
"p.foo[a]"	All "p" tags with "foo" class and inserted "a" tag are selected
"input[@name=bar]"	All "input" tags with "name" attribute which value is "bar" are selected
"input[@type=radio][@checked]"	All "input" tags with attribute "type"="radio" and attribute value = "chekced" are selected
"p,span,td"	

Selector	Comment
	All tag elements "p" or"span" or "td" are selected
"p#secret"	"p" paragraph element with "id" identification = "secret" is selected
"p span"	"span" tag is a (direct or non-direct) child of "p" tag. If it's necessary, use "p > span" or "p/span" is selected
"p[@foo^=bar]"	"p" tag containing "foo" attribute with textual value beginning with "bar" word is selected
"p[@foo$=bar] "	"p" tag containing "foo" attribute with textual value ending with "bar" word is selected
"p[@foo*=bar] "	"p" tag with "foo" attribute containing substring "bar" in any place is selected
"p//span "	"span" tag that is a (direct or non-direct) child of "p" tag is selected
"p/../span "	"span" tag that is a grandchild of "p" tag is selected

In addition, RichFaces allows using either a component id or client id if you apply the query to a JSF component. When you define a selector, RichFaces examines its content and tries to replace the defined in the selector id with a component id if it's found.

For example, you have the following code:

```
...
<h:form id="form">
      ...
     <h:panelGrid id="menu">
           <h:graphicImage ... />
           <h:graphicImage ... />
           ...
     </h:panelGrid>
</h:form>
...
```

The actual id of the **<h:panelGrid>** table in the browser DOM is `"form:menu"`. However, you still can reference to images inside this table using the following selector:

```
...
<rich:jQuery selector="#menu img" query="..." />
```

```
...
```

You can define the exact id in the selector if you want. The following code reference to the same set of a DOM object:

```
...
<rich:jQuery selector="#form\\:menu img" query="..." />
...
```

Pay attention to double slashes that escape a colon in the id.

In case when the *"name"* attribute is defined, **<rich:jQuery>** generates a JavaScript function that might be used from any place of JavaScript code on a page.

There is an example of how to enlarge the picture smoothly on a mouse over event and return back to the normal size on mouse out:

```
...
<h:graphicImage width="50" value="/images/price.png"
            onmouseover="enlargePic(this, {pwidth:'60px'})" onmouseout="releasePic(this)"  />
<h:graphicImage width="50" value="/images/discount.png"
            onmouseover="enlargePic(this, {pwidth:'100px'})" onmouseout="releasePic(this)"  />
...
<rich:jQuery name="enlargePic" timing="onJScall" query="animate({width:param.pwidth})" />
<rich:jQuery name="releasePic" timing="onJScall" query="animate({width:'50px'})"/>
...
```

The JavaScript could use two parameters. The first parameter is a replacement for the selector attribute. Thus, you can share the same query, applying it to the different DOM objects. You can use a literal value or a direct reference for an existing DOM object. The second parameter can be used to path the specific value inside the query. The JSON syntax is used for the second parameter. The "param." namespace is used for referencing data inside the parameter value.

<rich:jQuery> adds styles and behavior to the DOM object dynamically. This means if you replace something on a page during an Ajax response, the applied artifacts is overwritten. But you are allowed to apply them again after the Ajax response is complete.

Usually, it could be done with reRendering the **<rich:jQuery>** components in the same Ajax interaction with the components these queries are applied to. Note, that queries with *"timing"* attribute set to "onload" are not invoked even if the query is reRendered, because a DOM document is not fully reloaded during the Ajax interaction. If you need to re-applies query with "onload" value of *"timing"* attribute, define the *"name"* attribute and invoke the query by name in the *"oncomplete"* attribute of the Ajax component.

RichFaces includes jQuery JavaScript framework. You can use the futures of jQuery directly without defining the **<rich:jQuery>** component on a page if it is convenient for you. To start using the jQuery feature on the page, include the library into a page with the following code:

```
...
<a4j:loadScript src="resource://jquery.js"/>
...
```

Refer to the *jQuery documentation* [http://docs.jquery.com/] for the right syntax. Remember to use `jQuery()` function instead of `$()`, as soon as jQuery works without conflicts with `prototype.js`.

6.14.9.4. Reference Data

Table of <rich:jQuery> attributes [http://docs.jboss.org/richfaces/3.3.1.GA/en/tlddoc/rich/jQuery.html].

Table 6.278. Component Identification Parameters

Name	Value
component-type	org.richfaces.JQuery
component-class	org.richfaces.component.html.HtmlJQuery
component-family	org.richfaces.JQuery
renderer-type	org.richfaces.JQueryRenderer
tag-class	org.richfaces.taglib.JQueryTag

6.14.9.5. Relevant Resources Links

More information about jQuery framework and its features you can read in*jQuery official documentation* [http://jquery.com/].

How to use jQuery with other libraries see also in*jQuery official documentation* [http://docs.jquery.com/Using_jQuery_with_Other_Libraries].

Some additional information about usage of component can be found *on its LiveDemo* [http://livedemo.exadel.com/richfaces-demo/richfaces/jQuery.jsf?c=jQuery].

IDE Support

RichFaces support is implemented in *JBoss Developer Studio 1.0.0 GA* [http://www.redhat.com/developers/rhds/index.html] and in *Jboss Tools* [http://jboss.org/tools]. JBoss Developer Studio is a fully packaged IDE that provides full support for Java Server Faces, RichFaces, Facelets, Struts and other Web technologies. In addition to this, it seamlessly combines visual and source-oriented development approaches. One of the special support feature for RichFaces is that it is available as project "capabilitiy" which can be added to any existing JSF project by adding libraries and modifying configuration files as required."

Links to information resources

Table 8.1. Web Resources

Resources	Links
JBoss RichFaces	*JBoss RichFaces* [http://labs.jboss.com/portal/jbossrichfaces/]
JBoss Forum	*JBoss Forums* [http://jboss.com/index.html?module=bb&op=main&c=27]
RichFaces Wiki	*RichFaces Wiki* [http://labs.jboss.com/wiki/RichFaces]
RichFaces Blog	*RichFaces Blog* [http://jroller.com/a4j/]