



# Using JavaBeans in JSPs Pages Introduction



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# Agenda

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## Introduction to Java Beans

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## Objectives

At the end of this module, you will be able to:

- Explain the JavaBean with its properties

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## Introduction to Java Beans

- A Java Bean is a reusable software component that works with Java
- Any Java class that follows certain design conventions can be a JavaBeans component
- It must follow certain conventions about method naming, construction, and behavior
  - Must have a public default constructor
  - Properties must be declared private
  - Properties must be accessible using *get*, *set*, and other methods (accessor and mutator methods) obeying a standard naming convention
- JSP technology directly supports using JavaBeans components with JSP language elements
- You can easily create and initialize beans and get and set the values of their properties

## Identifying the property of a bean

```
public class A1 {  
    private int id;  
    private String username;  
    public String getName(){  
        return username;  
    }  
    public void setName(String x){  
        username=x;  
    }  
    public void setEmpID(int y){  
        id=y;  
    }  
    public int getEmpID(){  
        return id;  
    }  
}
```

What are the properties of this bean?

name

empID

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## Actions: *The jsp:useBean Action*

- Lets you load in a JavaBean to be used in the JSP page
- The simplest syntax for specifying that a bean should be used is:  

```
<jsp:useBean id="name" class="package.class" />
```
- This usually means "instantiate an object of the class specified by class, and bind it to a variable with the name specified by id."

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## Actions: *The jsp:useBean Action (Contd.).*

```
package p1;

public class Example1 {
    private int age;
    public int getAge() {
    }
    public void setAge(int i) {
    }
}
```

If we have to instantiate the given class in java, we will use the following syntax :

```
p1.Example1 obj1 = new p1.Example1();
```

In jsp, the same result is achieved using jsp:useBean :

```
<jsp:useBean id="obj1" class="p1.Example1" />
```

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## <jsp:getProperty>

- Converts property names following the bean standards

- Has two attributes:

*name="beanInstanceName"*

- The name of the Bean instance as declared in a <jsp:useBean> tag

*property="propertyName"*

- The name of the Bean property whose value you want to display



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## Example on jsp:getProperty

```
package jspbean;
import java.util.Calendar;
public class TimeBean{
    private int hour,minute,second;
    public TimeBean(){
        Calendar cal = Calendar.getInstance();
        hour = cal.get(Calendar.HOUR);
        minute = cal.get(Calendar.MINUTE);
        second = cal.get(Calendar.SECOND);
    }
    public int getHour() { return hour; }
    public int getMinute() { return minute; }
    public int getSecond() { return second; }
    public String getMessage(){
        return "Time: "+hour+" "+minute+" "+second;
    }
}
```

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## Example on jsp:getProperty (Contd.).

```
<HTML>
<HEAD><TITLE>Time Bean </TITLE></HEAD>
<BODY>
<jsp:useBean id="b2" class="jspbean.TimeBean" />
Hour=<jsp:getProperty name="b2" property="hour" /> <BR>
Minute=<jsp:getProperty name="b2" property="minute"/><BR>
Second<jsp:getProperty name="b2" property="second"/><BR>
Message= <jsp:getProperty name="b2" property="message"/>
</BODY>
</HTML>
```

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## <jsp:setProperty>

- Sets the value of one or more properties in a JavaBean component

### *Example:*

```
<jsp:useBean id="person" class="p1.A1" />
<jsp:setProperty name="person" property="empID" value="999"/>
<jsp:setProperty name="person" property="empID" value = "<%=
    request.getParameter("Employee-Id") %>"/>
<jsp:setProperty name="person" property="name" param="username"
/>
<jsp:setProperty name="person" property="empID" />
<jsp:setProperty name="person" property="*" />
```

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## Properties of JSP:setProperty

1. **name:** This required attribute designates the bean whose property will be set. The `jsp:useBean` element must appear before the `jsp:setProperty` element.
2. **property:** This required attribute indicates the property you want to set. However, there is one special case: a value of "\*" means that all request parameters whose names match bean property names will be passed to the appropriate setter methods.
3. **value:** This optional attribute specifies the value for the property. String values are automatically converted to numbers, boolean to Boolean, byte to Byte, char to Character via the standard `valueOf` method in the target or wrapper class. For example, a value of "true" for a boolean or Boolean property will be converted via `Boolean.valueOf`, and a value of "42" for an int or Integer property will be converted via `Integer.valueOf`.

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## Example on jsp:setProperty

### CircleBean.java

```
package jspbean;

public class CircleBean{
    private double radius;

    public void setRadius(double r) { radius = r; }

    public double getArea() { return Math.PI*radius*radius; }
}
```

### Circle.jsp

```
<BODY>

    <jsp:useBean id="cb" class="jspbean.CircleBean" />
    <jsp:setProperty name="cb" property="radius" value="2.0" />
    Reduced Form: <jsp:getProperty name="cb" property="area" />
</BODY>
```

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## Quiz

1. Identify the implicit objects in JSP  
a. *request*   b. *response*   c. *out*   d. *session* e. *application*
2. Is JSP page extensible?(TRUE/FALSE)
3. JSP handles runtime errors using \_\_\_\_\_ attribute in page directive.
2. How do I use comments within a JSP page?

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## Summary

In this module, you were able to:

- Describe the Software Component Assembly Model
- Explain Java's approach to developing software components
- Develop a simple Bean
- Distinguish JSP architecture vis-à-vis servlets
- Define and use the basic JSP Elements
- Create and use Java Beans

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## References

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**Thank You**