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Developing JSR-168- Compliant Portlets for the SAS[®] Information Delivery Portal 4.4

Second Edition

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Developing JSR-168-Compliant Portlets for the SAS® Information Delivery Portal 4.4, Second Edition

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What's New in Developing JSR-168-Compliant Portlets for SAS Information Delivery Portal 4.4

Changes to JSR-168-Compliant Portlets

In the third maintenance release of SAS Information Delivery Portal 4.4, the following changes and enhancements have been made to JSR-168-compliant portlets:

- The TestPortlet scripting facility for remote portlets includes a new **configure** parameter for deploying JSR-168 portlets.
- The sample portlet code has been updated.
- JSR-168-compliant SAS portlets are no longer supported in third-party portals.

Chapter 1

Concepts for Developing JSR-168-Compliant Portlets

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Introduction to Developing JSR-168-Compliant Portlets

Portlets are the information display components of a web portal application such as the SAS Information Delivery Portal. A portlet can process requests from the user and generate dynamic content such as report lists, alerts, workflow notifications, or performance metrics.

In addition to a set of standard portlets, the SAS BI Portlets component provides a framework that enables you to create custom portlets that use the JSR-168 portlet specification.

JSR-168-compliant portlets are different from portlets that are proprietary to SAS because JSR-168-compliant portlets are implemented by using an industry-standard API.

For information about developing portlets using the SAS Portlet API, see *Developing Portlets for the SAS Information Delivery Portal*.

Requirements for Developing JSR-168-Compliant Portlets for SAS

The third maintenance release of SAS Information Delivery Portal 4.4 and SAS BI Portlets 4.4 must be installed on the server where you test your custom portlets.

SAS recommends that you develop your portlets on a development SAS installation before you build and deploy your portlets on a production SAS installation.

Chapter 2

Tools for Creating JSR-168-Compliant Portlets

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Using the Portlet API

In general, custom JSR-168-compliant portlets for SAS can be developed by using industry-standard Java classes. The `com.sas.portal.portlet` classes in the SAS API are specific to proprietary portlets and are not used with JSR-168 portlets.

However, a class that is specific to SAS is needed to obtain a user context for the portlet:

`com.sas.web.keys.CommonKeys`

defines common prefix strings and other keys used to prevent name space collisions among various SAS domains.

The `USER_CONTEXT` field contains a string that can be used to obtain the user context for a portlet session.

In JSP code, you can obtain a user context directly from the HTTP session by using the following code fragments:

```
<%
import com.sas.services.user.UserContextInterface;
import com.sas.web.keys.CommonKeys;

UserContextInterface userContext =
    (UserContextInterface) session.getAttribute(CommonKeys.USER_CONTEXT);
%>
```

In Java code, you can obtain a user context from the portlet session by using the following code fragments:

```
import javax.portlet.*;
import com.sas.services.user.UserContextInterface;
import com.sas.web.keys.CommonKeys;

UserContextInterface userContext = (UserContextInterface)
    portletRequest.getPortletSession().getAttribute(
        CommonKeys.USER_CONTEXT,
        PortletSession.APPLICATION_SCOPE);
```

The `UserContextInterface` enables you to access all of the user metadata from the SAS Metadata Repository. For more information, see <http://support.sas.com/rnd/javadoc/94/Foundation/com/sas/services/user/UserContextInterface.html> in the SAS API documentation.

Using the Testportlet Scripting Facility

Overview of the Testportlet Scripting Facility

The *Testportlet Scripting Facility* is a scripting tool that enables you to initialize your portlet development directories and to compile your portlet source into an EAR file. The files for this facility can be found in the *SAS-config-directory* \Lev1\CustomAppData\testportlet directory. The scripting facility should be used for portlet development because it provides a process that integrates your custom portlets with the SAS versioned JAR repository.

Note: Before you begin developing a custom portlet, ensure that the SAS Metadata Server is running so that metadata can be accessed during the configuration and deployment processes.

Creating a Portlet By Using the Testportlet Scripting Facility

The following steps provide an overview of creating a portlet using the scripting facility. For a detailed example of creating a portlet, see “[Sample Portlet: HelloUserJSR168PortletSample](#)” on page 15.

1. Create a source directory for the code associated with the portlet. This directory is referred to in subsequent instructions as the *portlet source directory*.
2. Create a configuration directory for the portlet under the *SAS-config-directory* \Lev1\CustomAppData\ directory. Use the portlet name for the configuration directory name.

The following rules apply to the portlet name and configuration directory structure:

- Neither portlet names nor their paths can contain spaces.
 - The portlet name must be unique.
3. Copy the files from *SAS-config-directory/Levn/CustomAppData/testportlet* to the new directory.
 4. Edit the `custom.properties` file in the portlet configuration directory to specify the portlet name and title and the locations for the configuration and source files.

Note: You must use forward slashes (/) in your directory values (for example, **C:/SAS/EBI/Lev1/CustomAppData/SampleHelloUserJSR168Portlet**).

5. Enter the following command to create the directory structure for your portlet:

```
cfg createJSR168PortletDirectories
  -Dmetadata.connection.passwd="unrestricted-user-password"
```

where *unrestricted-user-password* is the password for the unrestricted user.

Note: You can submit a password as clear text or as an encoded string from the PWENCODE procedure. For more information, see *Encryption in SAS*.

Check the customconfig.log file in **SAS-config-directory/Levn/CustomAppData/SampleHelloUserJSR168Portlet** to ensure that the script completed successfully.

- The following directory structure is created:

```
source-directory
  Configurable
    ears
      archive-name
        META-INF
    wars
      archive-name
        WEB-INF
  Picklists
    wars
      archive-name
  Static
    ears
      archive-name
        META-INF
    lib
    wars
      archive-name
        jsp
        source
        WEB-INF
        classes
        spring-config
```

The **\Configurable** and **\Static** directory hierarchies are used to store the files needed to create PAR, EAR, and WAR files for the portlet in the same directory structure as the PAR, EAR, and WAR files themselves. The **\Configurable** hierarchy is used for files in which values are substituted from the portlet configuration file when the portlet is built. The **\Static** hierarchy is used for files that do not require substitution. The **\Picklists** directory hierarchy is used to store picklist files that specify which of the JAR files from the SAS versioned JAR repository need to be included in the portlet. The **\Static\lib** directory is used to store additional JAR files needed at compile time.

6. Create source files for your portlet in the source directory structure.
7. Copy the SAS BI Portlets picklist file to tell the portlet which of the JAR files from the SAS versioned JAR repository need to be included in the portlet.

Note: After a SAS maintenance release is applied at your site, you must copy the updated picklist and rebuild and redeploy the PAR and EAR files for custom portlets.

8. Add any additional JAR files to the `\Static\Lib` directory.
9. For deployments that use multiple web application servers only: Edit the `build.xml` file that is located in the `SAS-configuration-directory/Lev1/Web/Applications/SASBIPortlets4.4/PortletDeploymentTool/src` directory. Locate the configurable value `@webappsrv.server.name@` and replace it with the name of the web application server where SAS Information Delivery Portal is assigned. By default, the server name is `SASServer1`.

10. Enter the following command to compile the portlet:

```
cfg compileJSR168Portlet -Dmetadata.connection.passwd="unrestricted-user-password"
```

where *unrestricted-user-password* is the password for the unrestricted user.

Check the `customconfig.log` file to ensure that the script completed successfully.

11. Enter the following command to build the EAR file:

```
cfg buildJSR168Webapps -Dmetadata.connection.passwd="unrestricted-user-password"
```

where *unrestricted-user-password* is the password for the unrestricted user.

Check the `customconfig.log` file to ensure that the script completed successfully.

12. Enter the following command to register the portlet metadata:

```
cfg configure -Dmetadata.connection.passwd="unrestricted-user-password"
```

where *unrestricted-user-password* is the password for the unrestricted user.

Check the `customconfig.log` file to ensure that the script completed successfully.

13. Use the Portlet Deployment Tool to deploy the portlet EAR file into the SAS BI Portlets web application.
14. Stop the web application server on which the SAS Information Delivery Portal and the SAS BI Portlets web applications are running.
15. Rebuild the SAS Information Delivery Portal and SAS BI Portlets web applications by using the SAS Deployment Manager. For more information, see "Rebuilding the SAS Web Applications" in the "Administering SAS Web Applications" chapter of the *SAS Intelligence Platform: Middle-Tier Administration Guide*.
16. Redeploy the EAR files for the SAS Information Delivery Portal and the SAS BI Portlets web applications. The custom portlet should now be available to the portal. The EAR files are located at `SAS-config-directory/Levn/Web/Staging/`. For instructions about redeploying web applications, see "Redeploying Web Applications" in the "Administering SAS Web Applications" chapter of the *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Using the Portlet Deployment Tool

Overview of the Portlet Deployment Tool

The Portlet Deployment Tool (PDT) is a command-line script that enables you to add JSR-168-compliant portlets to the SAS BI Portlets web application.

The basic process to deploy a portlet with the PDT is as follows:

1. Modify either the `build.properties` file or the `xmlpropfile.xml` file to specify the parameters for the PDT.
2. Execute the PDT by submitting an Ant command in the directory where the `build.properties` file or the `xmlpropfile.xml` file is located. The PDT places your custom portlets in the custom content directory for the SAS BI Portlets web application so that the portlets are included automatically when you rebuild it. The PDT also creates PAR files for the portlets, which are included automatically in the SAS Information Delivery Portal when you rebuild it.
3. Rebuild the SAS BI Portlets and SAS Information Delivery Portal web applications by using the SAS Deployment Manager. For more information about rebuilding web applications, see "Rebuilding the SAS Web Applications" in the "Middle-Tier Administration" chapter of the *SAS Intelligence Platform: Web Application Administration Guide*.
4. Redeploy the SAS Information Delivery Portal and the SAS BI Portlets web applications. These files are located in the `SAS-config-directory/Levn/Web/Staging/` directory. For more information about redeploying web applications, see "Redeploying the SAS Web Applications" in the "Middle-Tier Administration" chapter of the *SAS Intelligence Platform: Web Application Administration Guide*.

Specify Build Parameters for the PDT

Overview of Specifying the PDT Build Parameters

The Portlet Deployment Tool is an Ant script that obtains its build parameters from an external file. You can use either of the following parameters files:

`build.properties`

a plain text file. The PDT uses this file by default. This file is simplest to use if you are defining a single portlet and you do not need to specify locale information.

`xmlpropfile.xml`

an XML file that enables you to define multiple portlets at one time. You can also specify localized titles and descriptions for the portlets. To use the XML file, you must specify the `-Dxmlpropfile=xmlpropfile.xml` option when you execute the PDT script.

Specifying Parameters in the `build.properties` File

The `build.properties` file is located in `SAS-config-directory/Levn/Web/Applications/SASBIPortlets<version>/PortletDeploymentTool/src/`. You must specify the following parameters:

servlet-context-name

specifies the context name for the portlet. The value of this parameter must match the value of the `<context-root>` element in the application.xml file in the portlet source.

Note: If you use the Testportlet Scripting Facility, then the `<context-root>` value in application.xml is obtained from the `webapp.testportlet.contextroot` parameter in the custom.properties file.

web-app-name

specifies the name of the WAR file for the portlet, without the .war extension. For example, if the WAR file for your portlet is named sample.hellouser.jsr168.war, then specify the value `sample.hellouser.jsr168`.

web-app-server

specifies the type of Java application server where the SAS BI Portlets web application is deployed. The default value, `vfabrictcsvr`, is the only supported value.

portlet-ear-file-name

specifies the name of the EAR file for the portlet.

portlet-ear-file-path

specifies the full path to the EAR file for the portlet, including the filename. You must use the forward slash (/) character to delimit the directories in your path (for example, `C:/SAS/EntBIServer/Lev1/Web/Staging/myportlet.ear`).

work-dir

specifies the working directory where the PDT places temporary files.

supported-portlet-modes

specifies which portlet modes are supported by this portlet. Specify one of the following values:

`all` specifies that the View, Edit, and Help modes are supported.

`edit` specifies that the View and Edit modes are supported.

`help` specifies that the View and Help modes are supported.

If you do not specify a value, then only the View mode is supported.

Specifying Parameters in the xmlpropfile.xml File

The xmlpropfile.xml file is located in `SAS-config-directory/Levn/Web/Applications/SASBIPortlets<version>/PortletDeploymentTool/src/`.

The format of the xmlpropfile.xml file is as follows:

```
<webapps server-type="server-type" work-dir="working-directory" >
  <webapp
    servlet-context-name="context-name"
    web-app-name="Web-application-name"
    portlet-ear-file-name="filename"
    portlet-ear-file-path="fully-qualified-filename"
    default-supported-portlet-modes="modes-value" >

  <portlets>
    <portlet name="portlet-name" supported-portlet-modes="modes-value" >
      <locales>
        <locale name="locale-code"
          title="portlet-title"
          description="portlet-description"
        >
      >
    >
  >
</webapps>
```

```

        />
    </locales>
</portlet>
</portlets>
</webapp>
</webapps>

```

The file contains one **<webapps>** element, with a **<webapp>** element inside it for each web application that you add. The TestPortlet Scripting Facility configures each portlet as a separate web application.

<webapps>

specifies the properties that are common to all of the web applications in the file. You must specify the following attributes:

server-type

specifies the type of Java application server where the SAS BI Portlets web application is deployed. The default value, **vfabrictcsvr**, is the only supported value.

work-dir

specifies the working directory where the PDT places temporary files.

<webapp>

specifies properties for a specific web application. You must specify the following attributes:

servlet-context-name

specifies the context name for the portlet. The value of this parameter must match the value of the **<context-root>** element value in the application.xml file in the portlet source.

Note: If you use the Testportlet Scripting Facility, then the **<context-root>** value in application.xml is obtained from the `webapp.testportlet.contextroot` parameter in the custom.properties file.

web-app-name

specifies the name of the WAR file for the portlet, without the .war extension. For example, if the WAR file for your portlet is named `sample.hellouser.jsr168.war`, then specify the value **sample.hellouser.jsr168**.

portlet-ear-file-name

specifies the name of the EAR file for the portlet.

portlet-ear-file-path

specifies the full path to the EAR file for the portlet, including the filename. You must use the forward slash (/) character to delimit the directories in your path (for example, `C:/SAS/EntBIServer/Lev1/Web/Staging/myportlet.ear`).

default-supported-portlet-modes

specifies which portlet modes are supported by default for the portlets in this web application. Specify one of the following values:

all specifies that the View, Edit, and Help modes are supported.

edit specifies that the View and Edit modes are supported.

help specifies that the View and Help modes are supported.

If you do not specify a value, then only the View mode is supported.

Each `<webapp>` element can contain an optional `<portlets>` element. The `<portlets>` element contains one or more `<portlet>` elements:

<portlet>

specifies the properties for a portlet. You can specify the following attributes:

name

specifies the name of the portlet.

supported-portlet-modes

specifies which portlet modes are supported by this portlet. Specify one of the following values:

all specifies that the View, Edit, and Help modes are supported

edit specifies that the View and Edit modes are supported

help specifies that the View and Help modes are supported

If you do not specify a value, then only the View mode is supported.

Note: The supported-portlet-modes attribute is optional. If you specify null or a value, then the supported-portlet-modes attribute overrides the value of the default-supported-portlet-modes attribute on the `<webapp>` element.

Each `<portlet>` element can contain an optional `<locales>` element. The `<locales>` element contains one or more `<locale>` elements:

<locale>

specifies the properties for a locale. You must specify the following values:

name

specifies the name of the locale.

title

specifies the locale-specific title for the portlet. The value of this attribute is an escaped-UTF-8 ASCII string.

The value of the title attribute corresponds to the "portlet.description" entry in the locale-specific portletDisplayResources_*locale-name*.properties file in the portlet's generated PAR file.

description

specifies the locale-specific description for the portlet. The value of this attribute is an escaped-UTF-8 ASCII string.

The value of the description attribute corresponds to the "portlet.description" entry in the locale-specific portletDisplayResources_*locale-name*.properties file in the portlet's generated PAR file.

For example, the following file deploys two portlets and specifies localization options for the second portlet:

```
<webapps server-type="vfabricctcsvg" work-dir="c:/temp/pdt-test" >
  <webapp
    servlet-context-name="HelloUserJSR168PortletSample"
    web-app-name="sample.hellouser.jsr168"
    portlet-ear-file-name="sample.hellouser.jsr168.ear"
    portlet-ear-file-path="C:/SAS/Config/Lev1/Web/Staging/sample.hellouser.jsr168.ear"
    default-supported-portlet-modes="all" >
  </webapp>
  <webapp
    servlet-context-name="HelloUserJSR168PortletSample2"
    web-app-name="sample2.hellouser.jsr168"
```



```

portlet-ear-file-name="sample2.hellouser.jsr168.ear"
portlet-ear-file-path="C:/SAS/Config/Lev1/Web/Staging/sample2.hellouser.jsr168.ear"
default-supported-portlet-modes="all" >
<portlets>
  <portlet name="HelloUserSample2"
    supported-portlet-modes="view help">
    <locales>
      <locale name="zh_CN"
        title="\u4e66\u7b7e"
        description="\u7528\u6765\u7ba1\u7406\u4e66\u7b7e\u7684 Portlet" />
      <locale name="en"
        title="CheckWindowStateNormalTestPortlet"
        description="The HelloUserSample 2 portlet" />
    </locales>
  </portlet>
</portlets>
</webapp>
</webapps>

```

Execute the PDT Script

To execute the PDT with the build.properties file, follow these steps:

1. In a command shell, navigate to the **SAS-config-directory/Levn/Web/Applications/SASBIPortlets<version>/PortletDeploymentTool/src** directory.

2. Set environment variables.

On Windows, enter the following command:

```
..\..\..\..\..\level_env.bat
```

On UNIX, enter the following command:

```
../../../../../level_env.sh
```

3. Call the launchant.bat script to execute the PDT.

On Windows, enter the following command:

```
..\..\..\..\..\Utilities\launchant.bat
```

On UNIX, enter the following command:

```
../../../../../Utilities/launchant.sh
```

To execute the PDT with the xmlpropfile.xml file, follow these steps:

1. If you do not have Apache Ant on your machine, download it from ant.apache.org and install it by using the instructions from Apache.

2. In a command shell, navigate to the **SAS-config-directory/Levn/Web/Applications/SASBIPortlets<version>/PortletDeploymentTool/src** directory.

3. Set environment variables.

On Windows, enter the following command:

```
..\..\..\..\..\level_env.bat
```

On UNIX, enter the following command:

```
.../.../.../.../level_env.sh
```

4. Call the ant.bat script to execute the PDT.

On Windows, enter the following command:

```
ant -lib "%DEPLOYWIZ%\ant-contrib.jar -lib "%DEPLOYWIZ%\bsf.jar -lib "%DEPLOYWIZ%\bsh.jar -Dxmlpropfile=xmlpropfile.xml
```

On UNIX, enter the following command:

```
ant -lib $DEPLOYWIZ/ant-contrib.jar -lib $DEPLOYWIZ/bsf.jar -lib $DEPLOYWIZ/bsh.jar -Dxmlpropfile=xmlpropfile.xml
```

Add Portlets to the SAS BI Portlets Web Application

To add your portlets to the SAS BI Portlets web application:

1. Stop the web application server on which the SAS Information Delivery Portal and the SAS BI Portlets web applications are running.
2. Specify the parameters for your custom portlet in build.properties or, for multiple portlets, in xmlpropfile.xml.
3. Run the PDT. The new portlets are added to the custom content area for the SAS BI Portlets web application.
4. If you want to add additional portlets, repeat steps 2–3 as needed.
5. Rebuild the SAS BI Portlets and SAS Information Delivery Portal web applications by using the SAS Deployment Manager. For more information about rebuilding web applications, see "Rebuilding the SAS Web Applications" in the "Administering SAS Web Applications" chapter of the *SAS Intelligence Platform: Middle-Tier Administration Guide*.
6. Redeploy the SAS Information Delivery Portal and the SAS BI Portlets web applications. These files are located in the **SAS-config-directory/Levn/Web/Staging/** directory. For more information about redeploying web applications, see "Redeploying the SAS Web Applications" in the "Administering SAS Web Applications" chapter of the *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Remove Custom Portlets from the SAS BI Portlets Web Application

If you want to remove any custom portlets that you added previously, follow these steps:

1. Stop the web application server on which the SAS Information Delivery Portal and the SAS BI Portlets web applications are running.
2. Remove any portlet PAR files and exploded portlet directories that were generated by the PDT for the custom portlets that you want to remove. The PAR files are located in the **SAS-config-directory\Levn\Web\Applications\SASPortlets<version>\Deployed** directory. The exploded portlet directories are located in the **SAS-config-directory\Levn\Web\Applications\SASPortlets<version>\Exploded** directory.
3. Remove the files in the SAS BI Portlets custom content area that were created by the PDT. The files are located in the **SAS-config-directory\Levn\Web\Common\<app-server>\SASBIPortlets<version>\CustomContent\ears\sas.biportlets** directory.

4. Rebuild the SAS BI Portlets and the SAS Information Delivery Portal web applications by using the SAS Deployment Manager. For more information about rebuilding web applications, see "Rebuilding the SAS Web Applications" in the "Administering SAS Web Applications" chapter of the *SAS Intelligence Platform: Middle-Tier Administration Guide*.
5. Redeploy the SAS Information Delivery Portal and the SAS BI Portlets web applications. These files are located in the **SAS-config-directory/Levn/Web/Staging/** directory. For more information about redeploying web applications, see "Redeploying the SAS Web Applications" in the "Administering SAS Web Applications" chapter of the *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Chapter 3

Sample Portlet: HelloUserJSR168PortletSample

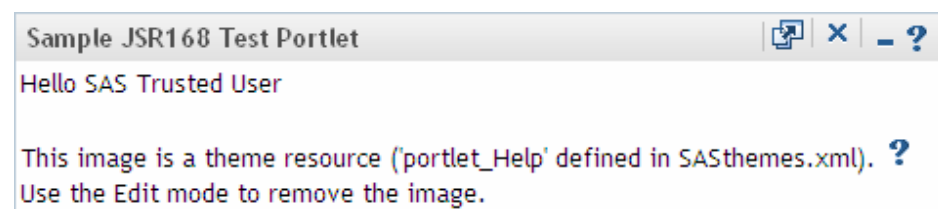
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Sample Portlet: HelloUserJSR168PortletSample

Overview of HelloUserJSR168PortletSample

The HelloUserJSR168PortletSample portlet is a JSR-168 portlet that greets the user by using the name of the user who is logged on. The portlet also displays images that are packaged with the portlet and retrieves resources from the theme service. The portlet features View, Edit, and Help modes.

Figure 3.1 The HelloUserJSR168PortletSample Portlet



The portlet calls a web application named `sample.hellouser.jsr168.war`, which uses SAS Foundation Services to access session information from the SAS Information Delivery Portal web application and obtain the user name of the current user. The `sample.hellouser.jsr168.war` application generates an HTML fragment that is displayed within the portlet.

To create the HelloUserJSR168PortletSample sample, follow these steps:

1. Create the base directory for the portlet source.
2. Configure the scripting facility.
3. Use the scripting facility to create the subdirectories for the source.
4. Copy the picklist of required JAR files.
5. Configure files for the Spring Framework.
6. Create the configurable source files.
7. Create the static source files.
8. Copy the images for the portlet.
9. Prepare your development environment.
10. Compile the source code and build the portlet EAR file.
11. Load the portlet into the SAS BI Portlets custom content area.
12. Rebuild the SAS Information Delivery Portal and SAS BI Portlets web applications.
13. Redeploy the web applications.

Step 1: Configure the Scripting Facility

This sample uses the TestPortlet Scripting Facility that is delivered with the SAS Information Delivery Portal. To configure the scripting facility for the sample, follow these steps:

1. Create a new directory within *SAS-config-directory/Levn/CustomAppData* named **SampleHelloUserJSR168Portlet**. Throughout this example, the base directory is referred to as the *source-directory*.

The following rules apply to the portlet name and configuration directory structure:

- Neither portlet names nor their paths can contain spaces.
 - The portlet name must be unique.
2. Copy the files from *SAS-config-directory/Levn/CustomAppData/testportlet* to the new directory.
 3. Edit the custom.properties file in your **SampleHelloUserJSR168Portlet** directory. The code that is highlighted must be changed or added to the file:

```
# If you change the value "testportlet", make sure to rename in all properties
# here as well as in the custom_config.xml.
config.currprod.12byte=testportlet

# Change the value of this property to be the name of your web application.
config.currprod.legalname=Hello User JSR168 Portlet Sample

# Do not change the value of this property. The name might be changed if you
# change the value of config.currprod.12byte above.
webappsrv.testportlet.server=server

# Change the value of this property to be the location of your portlet's source
# code and configuration files. The name might be changed if you change the
# value of config.currprod.12byte above.
```

```

testportlet.install.dir=source-directory

# Change the value of this property to be the name of your war and ear
# file. The name might be changed if you change the value of
# config.currprod.12byte above.
webapp.testportlet.archive.name=sample.hellouser.jsr168

# Change the value of this property to be the context root of your web
# application and the name of the portlet. The name might be changed if you
# change the value of config.currprod.12byte above.
webapp.testportlet.contextroot=SampleHelloUserJSR168

# Change the value of this property to be the versioned name of your web
# application. This property is only used for JSR 168 portlets. The name might
# be changed if you change the value of config.currprod.12byte above.
webapp.testportlet.display.name=Hello User JSR168 Portlet Sample

# Change the value of this property to be the name of the local services
# to use for the connection information.
webapp.testportlet.localservices.name=SASBIPortlets4.4

# Add any other configuration properties that your JSR 168 portlet and/or web
# application may need.

```

Note: You must use forward slashes (/) in your directory values (for example, **C:/SAS/EBI/Lev1/CustomAppData/SampleHelloUserJSR168Portlet**).

Step 2: Create the Source Subdirectories

Perform the following steps to create the source directories that are needed for the portlet source:

1. Ensure that the SAS Metadata Server is running.
2. In a command shell, navigate to the **SAS-config-directory/Levn/CustomAppData/SampleHelloUserJSR168Portlet** directory.
3. Enter the following command:

```

cfg createJSR168PortletDirectories
  -Dmetadata.connection.passwd="unrestricted-user-password"

```

where *unrestricted-user-password* is the password for the unrestricted user.

Note: You can submit a password as clear text or as an encoded string from the PWENCODE procedure. For more information, see *Encryption in SAS*.

Check the customconfig.log file in **SAS-config-directory/Levn/CustomAppData/SampleHelloUserJSR168Portlet** to ensure that the script completed successfully.

4. Manually create these additional directories for this sample:

```
source-directory/Config
```

```
source-directory/Config/Deployment
```

```
source-directory/Config/Deployment/Metadata
```

`source-directory/Static/wars/sample.hellouser.jsr168/images`

`source-directory/Static/wars/sample.hellouser.jsr168/source/sample`

`source-directory/Static/wars/sample.hellouser.jsr168/source/sample/res`

Your source directory should contain the following structure:

```

source-directory
  Config
  Deployment
  Metadata
  Configurable
  ears
    sample.hellouser.jsr168
      META-INF
  wars
    sample.hellouser.jsr168
      META-INF
      WEB-INF
  Picklists
  wars
    sample.hellouser.jsr168
  Static
  ears
    sample.hellouser.jsr168
      META-INF
  lib
  wars
    sample.hellouser.jsr168
      images
      jsp
      source
        sample
          res
      WEB-INF
      classes
      spring-config

```

Step 3: Copy the Picklist of Required JAR Files

The portlet sample uses a picklist file to identify the JAR files from the SAS versioned JAR repository that are needed.

Copy the picklist from ***SAS-Home-Directory/SASBIPortlets/<version>/Picklists/apps/testportlet*** to ***source-directory/Picklists/wars/sample.hellouser.jsr168***.

Note: If you update your SAS software, then you must update the picklist and repeat steps 8 through 13.

Step 4: Configure Files for the Spring Framework

The sample portlet uses the Spring Framework to integrate with the Web Infrastructure Platform. To configure the Spring Framework for the portlet, perform the following steps:

1. Copy the Spring configuration files from *SAS-Home-Directory/SASBIPortlets/<version>/Static/wars/sas.biportlets/WEB-INF/spring-config* to *source-directory/Static/wars/sample.hellouser.jsr168/WEB-INF/spring-config*.
2. Modify the `pc-config.xml` file to remove the following lines:

```
<bean id="viewerFactory"
    class="com.sas.portal.plugins.viewers.components.omr.impl.SASPortalViewerImpl">
    <constructor-arg ref="baseUrlLocator" />
</bean>

<bean id="omrSearchInfoFactory"
    class="com.sas.portal.plugins.search.components.omr.impl.OMRSearchInfoFactoryImpl">
    <constructor-arg ref="localSecuredUser" />
<constructor-arg ref="logger" />
</bean>

<bean id="searchEngine"
    class="com.sas.portal.plugins.search.components.engine.impl.SearchEngineImpl">
<constructor-arg ref="localInformationService" />
<constructor-arg ref="omrSearchInfoFactory" />
<constructor-arg ref="logger" />
</bean>
```

Step 5: Create the Configurable Source Files

Overview of the Configurable Source Files

The *configurable source files* are files that contain parameter substitutions. These files are placed in the *source-directory/Configurable* directory structure. These files use values from the `custom.properties` file that you modified in step 1.

SampleHelloUserJSR168.appxml.orig

This file uses parameters from the `custom.properties` file to describe the application metadata for the portlet web application.

Example Code 3.1 /Config/Deployment/Metadata/SampleHelloUserJSR168.appxml.orig

```
<ApplicationMetadata xmlns="http://www.sas.com/xml/schema/namespace/ApplicationMetadata-9.4">
    <Application Name="@webapp.testportlet.display.name@" Desc="@webapp.testportlet.display.name@"
        Folder="/System/Applications/@config.currprod.legalname@/@webapp.testportlet.display.name@"
        ParentComponent="SAS Application Infrastructure" Platform=""
        ProductName="@webapp.testportlet.display.name@">
    <ApplicationUri Host="@webapp.portal.host@" Port="@webapp.portal.port@"
        Protocol="@webapp.portal.protocol@" Service="/@webapp.testportlet.contextroot@"/>

    <!-- Uncomment if you want to support logging into the JSR168 web application directly.
<Directives>
```

```

    <URLDirective LogonTarget="true" Name="@webapp.testportlet.contextroot@Logon" Uri="/index.jsp"/>
</Directives>
<Configuration>
    <Property Desc="" Name="Logon.Target" Value="@webapp.testportlet.contextroot@Logon"/>
</Configuration>
-->
</Application>
</ApplicationMetadata>

```

application.xml.orig

This file uses parameters from the custom.properties file to describe the contents of the portlet web application.

Example Code 3.2 /Configurable/ears/sample.hellouser.jsr168/META-INF/application.xml.orig

```

<?xml version="1.0" encoding="UTF-8"?>
<application 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/application_1_4.xsd"
    version="1.4">
    <display-name>@webapp.testportlet.display.name@</display-name>
    <description>@webapp.testportlet.display.name@</description>
    <module>
        <web>
            <web-uri>@webapp.testportlet.archive.name@.war</web-uri>
            <context-root>@webapp.testportlet.contextroot@</context-root>
        </web>
    </module>
</application>

```

context.xml.orig

This file uses parameters from the custom.properties file to describe the context path for the portlet web application.

Example Code 3.3 /Configurable/wars/sample.hellouser.jsr168/META-INF/context.xml.orig

```

<?xml version="1.0"?>
<Context docBase="..sas_webapps/@webapp.testportlet.archive.name@.war"
    path="/@webapp.testportlet.contextroot@" sessionCookiePath="/">
    <ResourceLink global="sas/jdbc/SharedServices" name="jdbc/SASAPP" type="javax.sql.DataSource"/>
</Context>

```

portlet.xml.orig

This file uses parameters from the custom.properties file to define settings for the portlet.

Example Code 3.4 /Configurable/wars/sample.hellouser.jsr168/WEB-INF/portlet.xml.orig

```

<?xml version="1.0" encoding="UTF-8"?>
<portlet-app xmlns="http://java.sun.com/xml/ns/portlet/portlet-app_1_0.xsd"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:portlet="http://java.sun.com/xml/ns/portlet"
    xsi:schemaLocation="http://java.sun.com/xml/ns/portlet/portlet-app_1_0.xsd
        /opt/SUNWps/dtd/portlet.xsd" version="1.0">

    <!-- Sample Hello User JSR168 Portlet -->
    <portlet>

```

```

<description>A sample JSR168 SAS-enabled portlet.</description>
<!-- *** Name used as PAR file name and displayed to user. *** -->
<portlet-name>@webapp.testportlet.contextroot@</portlet-name>
<display-name xml:lang="en">@webapp.testportlet.display.name@</display-name>
<portlet-class>org.springframework.web.portlet.DispatcherPortlet</portlet-class>
<init-param>
  <name>contextConfigLocation</name>
  <value>/WEB-INF/spring-config/hellouserjsr168portlet.xml</value>
</init-param>
<supports>
  <mime-type>text/html</mime-type>
  <portlet-mode>VIEW</portlet-mode>
  <portlet-mode>EDIT</portlet-mode>
  <portlet-mode>HELP</portlet-mode>
</supports>
<supported-locale>en</supported-locale>

<!-- Portlet Resource Bundle -->
<resource-bundle>sample.res.Resources</resource-bundle>

</portlet>

</portlet-app>

```

web.xml.orig

This file uses parameters from the custom.properties file to define settings for the portlet web application.

Example Code 3.5 /Configurable/wars/sample.hellouser.jsr168/WEB-INF/web.xml.orig

```

<?xml version="1.0" encoding="UTF-8"?>
<web-app id="@webapp.testportlet.contextroot@" version="2.4"
  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">

  <display-name>@webapp.testportlet.display.name@</display-name>

  <!-- BEGIN Spring Integration -->
  <context-param>
    <param-name>contextConfigLocation</param-name>
    <param-value>
      /WEB-INF/spring-config/infrastructure-config.xml,
      /WEB-INF/spring-config/pc-config.xml,
      /WEB-INF/spring-config/ppm-config.xml
      /WEB-INF/spring-config/omrid-config.xml
    </param-value>
  </context-param>
  <!-- beanRefContext.xml is currently provided as part of the sas.svcs.cluster.jar. -->
  <context-param>
    <param-name>locatorFactorySelector</param-name>
    <param-value>classpath:beanRefContext.xml</param-value>
  </context-param>
  <context-param>
    <param-name>parentContextKey</param-name>

```

```

    <param-value>config.context</param-value>
</context-param>
<!--
    This corresponds to the name of your SoftwareComponent
    object in the SAS Metadata Server.
-->
<context-param>
    <param-name>application-name</param-name>
    <param-value>@webapp.biportlets.software.component.name@</param-value>
</context-param>
<!-- END Spring Integration -->

<!-- Cross Site Scripting Sanitizer -->
<filter>
    <filter-name>SanitizingRequestFilter</filter-name>
    <filter-class>org.springframework.web.filter.DelegatingFilterProxy</filter-class>
    <init-param>
        <param-name>targetBeanName</param-name>
        <param-value>sanitizingRequestFilter</param-value>
    </init-param>
    <init-param>
        <param-name>targetFilterLifecycle</param-name>
        <param-value>>true</param-value>
    </init-param>
</filter>
<!-- Cross Site Scripting Filter -->
<filter-mapping>
    <filter-name>SanitizingRequestFilter</filter-name>
    <url-pattern>*</url-pattern>
</filter-mapping>

<!-- Web Infrastructure Platform Authentication Integration -->
<filter>
    <filter-name>springSecurityFilterChain</filter-name>
    <filter-class>org.springframework.web.filter.DelegatingFilterProxy</filter-class>
</filter>
<filter-mapping>
    <filter-name>springSecurityFilterChain</filter-name>
    <url-pattern>*</url-pattern>
    <dispatcher>REQUEST</dispatcher>
    <dispatcher>FORWARD</dispatcher>
</filter-mapping>

<!-- logging context separation listener (this should be the FIRST listener) -->
<listener>
    <listener-class>com.sas.svcs.logging.LoggingContextListener</listener-class>
</listener>

<!-- Spring Bootstrap -->
<listener>
    <listener-class>org.springframework.web.context.ContextLoaderListener</listener-class>
</listener>
<listener>
    <listener-class>com.sas.portal.plugins.servlet.impl.PortletServletScopeInitializer</listener-class>
</listener>

```

```

    <!-- MVC dispatcher to handle @Controller Portlet Authentication requests -->
<servlet>
    <servlet-name>portlet-auth</servlet-name>
    <servlet-class>org.springframework.web.servlet.DispatcherServlet</servlet-class>
    <init-param>
        <param-name>contextConfigLocation</param-name>
        <param-value>/WEB-INF/spring-config/portlet-auth-config.xml</param-value>
    </init-param>
    <load-on-startup>1</load-on-startup>
</servlet>

<!-- Portlet Authentication -->
<servlet-mapping>
    <servlet-name>portlet-auth</servlet-name>
    <url-pattern>/auth/*</url-pattern>
</servlet-mapping>

<session-config>
    <session-timeout>30</session-timeout>
</session-config>

<resource-ref id="ResourceRef_SASAPP_DataSource">
    <res-ref-name>jdbc/SASAPP</res-ref-name>
    <res-type>javax.sql.DataSource</res-type>
    <res-auth>Container</res-auth>
</resource-ref>

</web-app>

```

Step 6: Create the Static Source Files

Overview of the Static Source Files

The *static source files* are files that do not contain parameter substitutions. These files are placed in the *source-directory/Static* directory structure.

edit.jsp

This file creates the page that is displayed for the Edit mode of the portlet.

Example Code 3.6 /Static/wars/sample.hellouser.jsr168/jsp/edit.jsp

```

<%@ page import="javax.portlet.*"%>
<%@ page import="java.util.*"%>
<%@ page import="sample.HelloUserJSR168PortletSample"%>
<%@ taglib uri="http://java.sun.com/portlet" prefix="portlet"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt"%>

<portlet:defineObjects/>
<%
    PortletURL actionUrl = renderResponse.createActionURL();
%>

<fmt:setLocale value="\${sas_portlet_locale}" />
<fmt:setBundle basename="sample.res.Resources" />

```

```

<form name="<portlet:namespace />_form1" method="post" action="<%=actionUrl.toString()%>">
  <div class="portlet-font" >
    <fmt:message key="edit1.txt"/>
    <p>
    <fmt:message key="edit2.txt"/>
    <p>
    <input type="hidden"
      name="<%=HelloUserJSR168PortletSample.FORM_ACTION%>"
      value="<%=HelloUserJSR168PortletSample.ACTION_UPDATE%>" />
    <input class="button" type="submit"
      value='<fmt:message key="ok.txt"/>'
      alt='<fmt:message key="ok.txt"/>'
      />
  </div>
</form>

<c:if test="{PARAM_THEME_IMAGE_PATH != null}">
  <form name="<portlet:namespace />_form2" method="post" action="<%=actionUrl.toString()%>">
    <div class="portlet-font" >
      <fmt:message key="edit3.txt"/>
      <p>
      <input type="hidden"
        name="<%=HelloUserJSR168PortletSample.FORM_ACTION%>"
        value="<%=HelloUserJSR168PortletSample.ACTION_REMOVE%>" />
      <input class="button" type="submit"
        value='<fmt:message key="remove.txt"/>'
        alt='<fmt:message key="remove.txt"/>'
        />
    </div>
  </form>
</c:if>

```

error.jsp

This file creates the page that is displayed if an error occurs.

Example Code 3.7 /Static/wars/sample.hellouser.jsr168/jsp/error.jsp

```

<%@ page language="java" contentType= "text/html; charset=UTF-8" %>
<%@ page import="sample.HelloUserJSR168PortletSample" %>

<h1>Error</h1>
<p><%= request.getAttribute(HelloUserJSR168PortletSample.ERROR_MESSAGE) %></p>

```

help.jsp

This file creates the page that is displayed for the Help mode of the portlet.

Example Code 3.8 /Static/wars/sample.hellouser.jsr168/jsp/help.jsp

```

<%@ page import="java.util.*"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@ taglib uri="http://java.sun.com/portlet" prefix="portlet"%>

<portlet:defineObjects/>

<%

```

```

String filename = renderResponse.encodeURL(renderRequest.getContextPath()+"/images/Note.gif");
ResourceBundle rb = portletConfig.getResourceBundle(renderRequest.getLocale());
%>

<div class="portlet-font" >
    <%= rb.getString("help1.txt") %>
    <br/>
    <%= rb.getString("help2.txt") %>
</div>



```

view.jsp

This file creates the page that is displayed for the View mode of the portlet.

Example Code 3.9 /Static/wars/sample.hellouser.jsr168/jsp/view.jsp

```

<%@ page import="java.util.*"%>
<%@ page import="sample.HelloUserJSR168PortletSample"%>
<%@ taglib uri="http://java.sun.com/portlet" prefix="portlet"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt"%>

<portlet:defineObjects/>

<%
    String themeImagePath =
        (String)renderRequest.getAttribute(HelloUserJSR168PortletSample.PARAM_THEME_IMAGE_PATH);
%>

<fmt:setLocale value="\${sas_portlet_locale}" />
<fmt:setBundle basename="sample.res.Resources" />

<div class="portlet-font" >
    <fmt:message key="view1.txt"/>
    <c:out value="\${PARAM_USERNAME}" />
</div>

<c:if test="\${PARAM_THEME_IMAGE_PATH != null}">
    <br/>
    <fmt:message key="view2.txt"/>
    
    <br/>
    <fmt:message key="view3.txt"/>
</c:if>

<br/>

```

HelloUserJSR168PortletSample.java

This file creates the main Java source for the portlet.

Note: The filename and file location must match the 'portletClass' property value that is specified in the hellouserjsr168portlet.xml Spring configuration file.

Example Code 3.10 /Static/wars/sample.hellouser.jsr168/source/sample/HelloUserJSR168PortletSample.java

```
package sample;
```

```

import java.io.IOException;

import javax.portlet.ActionRequest;
import javax.portlet.ActionResponse;
import javax.portlet.GenericPortlet;
import javax.portlet.PortletConfig;
import javax.portlet.PortletException;
import javax.portlet.PortletMode;
import javax.portlet.PortletRequestDispatcher;
import javax.portlet.PortletSession;
import javax.portlet.RenderRequest;
import javax.portlet.RenderResponse;

import org.springframework.context.ApplicationContext;
import org.springframework.web.portlet.context.PortletApplicationContextUtils;

import com.sas.framework.commons.resolvers.ThemeResolverInterface;
import com.sas.framework.themes.client.Image;
import com.sas.framework.themes.client.Theme;
import com.sas.framework.themes.client.ThemeServiceInterface;
import com.sas.framework.webapp.util.WebKey;
import com.sas.portal.portlet.toolkit.session.PortletSessionFacade;
import com.sas.portal.portlet.toolkit.session.impl.PortletSessionFacadeImpl;
import com.sas.services.ServiceException;
import com.sas.services.user.UserContextInterface;

public class HelloUserJSR168PortletSample extends GenericPortlet {

    /** used by the JSP to get request parameters and attribute to display users name */
    public static String PARAM_USERNAME = "PARAM_USERNAME";
    public static String PARAM_THEME_IMAGE_PATH = "PARAM_THEME_IMAGE_PATH";

    public static String FORM_ACTION = "FORM_ACTION";
    public static String ACTION_UPDATE = "UPDATE";
    public static String ACTION_REMOVE = "REMOVE";

    public static final String ERROR_MESSAGE = "hello.user.jsr168.sample.errorMessage";

    public static String _viewJsp;
    public static String _editJsp;
    public static String _helpJsp;
    public static String _errorJsp;

    public void init() {
        PortletConfig portletConfig = getPortletConfig();
        /** these have to match property values
         * from WEB-INF/spring-config/hellouserjsr168portlet.xml */
        _viewJsp = portletConfig.getInitParameter("viewPage");
        _editJsp = portletConfig.getInitParameter("editPage");
        _helpJsp = portletConfig.getInitParameter("helpPage");
        _errorJsp = portletConfig.getInitParameter("errorPage");
    }

    protected void doView(RenderRequest request, RenderResponse response) throws PortletException,
        IOException {

```



```

String forwardPage = null;

/** get a UserContext from the PortletSessionFacade */
PortletSessionFacade sessionFacade = PortletSessionFacadeImpl.getSessionFacade(request);
UserContextInterface userContext = sessionFacade.getUserContext();
try {
    String userName = userContext.getPerson().getDisplayName();
    // set request parameters as attributes for use by JSTL
    request.setAttribute(PARAM_USERNAME, userName);
    // get the PortletSession to determine if the image should be displayed
    PortletSession ps = request.getPortletSession();
    // see if theme name exists as the result of a processAction call
    String themeImagePath = (String) ps.getAttribute(PARAM_THEME_IMAGE_PATH);
    request.setAttribute(PARAM_THEME_IMAGE_PATH, themeImagePath);
    forwardPage = _viewJsp;
} catch (ServiceException e) {
    forwardPage = _errorJsp;
    request.setAttribute(ERROR_MESSAGE, e.getLocalizedMessage());
    e.printStackTrace();
}
// forward request to jsp
PortletRequestDispatcher rd = getPortletContext().getRequestDispatcher(forwardPage);
rd.include(request, response);
}

public void doHelp(RenderRequest request, RenderResponse response) throws
    IOException, PortletException {
    PortletRequestDispatcher rd = getPortletContext().getRequestDispatcher(_helpJsp);
    rd.include(request, response);
}

public void doEdit(RenderRequest request, RenderResponse response) throws PortletException, IOException {
    PortletSession ps = request.getPortletSession();
    String themeImagePath = (String) ps.getAttribute(PARAM_THEME_IMAGE_PATH);
    request.setAttribute(PARAM_THEME_IMAGE_PATH, themeImagePath);

    PortletRequestDispatcher rd = getPortletContext().getRequestDispatcher(_editJsp);
    rd.include(request, response);
}

public void processAction(ActionRequest request, ActionResponse response)
    throws PortletException {
    PortletSession ps = request.getPortletSession();
    // retrieved from the form action hidden field name EDIT_ACTION
    String action = request.getParameter(FORM_ACTION);
    // ACTION_UPDATE is the value of the hidden field named EDIT_ACTION
    if (action != null) {
        if (action.equals(ACTION_UPDATE)) {
            /** demonstrates accessing WIP Services to get a theme */
            // get the ApplicationContext and ThemeResolver to access the theme service to get the theme
            // name being used
            ApplicationContext appContext =
                PortletApplicationContextUtils.getWebApplicationContext(request.getPortletSession().getPortletContext());

            ThemeResolverInterface themeResolver =
                (ThemeResolverInterface) appContext.getBean("sasThemeResolver");

```

```

        String themeName = themeResolver.getCurrentThemeName();
        ThemeServiceInterface themeService = (ThemeServiceInterface)appContext.getBean("themeService");
        Theme theme = themeService.getTheme(themeName);
        // get theme resource to display in View (an image defined in SASthemes.xml)
        Image image = theme.getImage("portlet_Help");
        String imagePath = image.getFile();
        ps.setAttribute(PARAM_THEME_IMAGE_PATH, imagePath);
    } else if (action.equals(ACTION_REMOVE)) {
        ps.removeAttribute(PARAM_THEME_IMAGE_PATH);
    }
}
}
response.setPortletMode(PortletMode.VIEW);
}
}

```

Resources.properties

This file contains all of the strings that are used in the portlet user interface.

Note: The filename and file location must match the value of the 'setBundle' property that is specified in the edit.jsp file.

Example Code 3.11 /Static/wars/sample.hellouser.jsr168/source/sample/res/Resources.properties

```

javax.portlet.title=Sample JSR168 Test Portlet
javax.portlet.short-title=JSR168 Test Portlet
javax.portlet.keywords=SAS, UserContext, JSR168, test

# View mode text
view1.txt=Hello
view2.txt=This image is a theme resource ('portlet_Help' defined in SASthemes.xml).
view3.txt=Use the Edit mode to remove the image.

# Edit mode text
edit1.txt=You are in Edit mode.
edit2.txt=The OK button will retrieve a resource (image) from the SAS ThemeService.
edit3.txt=The Remove button will remove the Theme image from the View mode.

# Help mode text
help1.txt=You are in Help mode.
help2.txt=This shows an image that is included with the portlet.

#buttons
ok.txt=Ok
remove.txt=Remove

```

interceptors.xml

This file creates the Spring Framework interceptors for the portlet. *Interceptors* handle user requests for portlet features.

Note: This file must be located in the same directory as hellouserjsr168portlet.xml.

Example Code 3.12 /Static/wars/sample.hellouser.jsr168/WEB-INF/spring-config/interceptors.xml

```

<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE beans PUBLIC "-//SPRING//DTD BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd">
<beans>
    <!-- HandlerInterceptors -->

```

```

<bean id="sasPortletInterceptor"
      class="com.sas.portal.portlet.toolkit.interceptor.SASPortletInterceptor" />
<bean id="backToPortalInterceptor"
      class="com.sas.portal.portlet.toolkit.interceptor.BackToPortalInterceptor" />
</beans>

```

hellouserjsr168portlet.xml

This file creates the Spring Framework integration parameters for the portlet.

Note: The filename and file location must match the 'contextConfigLocation' property value that is specified in the portlet.xml file.

Example Code 3.13 /Static/wars/sample.hellouser.jsr168/WEB-INF/spring-config/hellouserjsr168portlet.xml

```

<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE beans PUBLIC "-//SPRING//DTD BEAN//EN" "http://www.springframework.org/dtd/spring-beans.dtd">
<beans>
  <import resource="interceptors.xml" />
  <bean id="HelloUserJSR168PortletSampleBean"
        class="org.springframework.web.portlet.mvc.PortletWrappingController">
    <property name="portletClass">
      <!-- This is the class name for the sample portlet. -->
      <value>sample.HelloUserJSR168PortletSample</value>
    </property>
    <property name="useSharedPortletConfig">
      <value>>false</value>
    </property>
    <property name="initParameters">
      <props>
        <prop key="viewPage">/jsp/view.jsp</prop>
        <prop key="editPage">/jsp/edit.jsp</prop>
        <prop key="helpPage">/jsp/help.jsp</prop>
        <prop key="errorPage">/jsp/error.jsp</prop>
      </props>
    </property>
  </bean>
  <!-- Handler Mappings -->
  <bean id="portletModeHandlerMapping"
        class="org.springframework.web.portlet.handler.PortletModeHandlerMapping">
    <property name="interceptors">
      <list>
        <ref bean="sasPortletInterceptor"/>
      </list>
    </property>
    <property name="portletModeMap">
      <map>
        <entry key="view"><ref bean="HelloUserJSR168PortletSampleBean"/></entry>
        <entry key="edit"><ref bean="HelloUserJSR168PortletSampleBean"/></entry>
        <entry key="help"><ref bean="HelloUserJSR168PortletSampleBean"/></entry>
      </map>
    </property>
  </bean>
</beans>

```

Step 7: Copy the Images for the Portlet

Copy the file Note.gif from *SAS-Home-Directory/SASBIPortlets/<version>/Static/wars/sas.biportlets/images* to *source-directory/Static/wars/sample.hellouser.jsr168/images*.

Step 8: Prepare the Development Environment

Before you compile and deploy the sample portlet, prepare your development environment by following these steps:

1. Stop the web application server on which the SAS Information Delivery Portal is running.
2. Back up your metadata content. For more information, see the *SAS Intelligence Platform: System Administration Guide*.
3. Ensure that the SAS Metadata Server is running. The configuration and deployment scripts require access to your metadata.
4. For deployments that use multiple web application servers only: Edit the build.xml file that is located in the *SAS-configuration-directory/Lev1/Web/Applications/SASBIPortlets4.4/PortletDeploymentTool/src* directory. Locate the configurable value @webappsrv.server.name@ and replace it with the name of the web application server where SAS Information Delivery Portal is assigned. By default, the server name is SASServer1.

Step 9: Compile the Source Code

Use the scripting facility to compile your portlet source and build the portlet EAR file:

1. In a command shell, navigate to the *SAS-config-directory/Levn/CustomAppData/SampleHelloUserJSR168Portlet* directory.
2. Enter the following command to compile the portlet:


```
cfg compileJSR168Portlet -Dmetadata.connection.passwd="unrestricted-user-password"
```

 where *unrestricted-user-password* is the password for the unrestricted user.
Check the customconfig.log file to ensure that the script completed successfully.
3. Enter the following command to build the EAR file:


```
cfg buildJSR168Webapps -Dmetadata.connection.passwd="unrestricted-user-password"
```

 where *unrestricted-user-password* is the password for the unrestricted user.
Check the customconfig.log file to ensure that the script completed successfully.
4. Enter the following command to register the portlet metadata:


```
cfg configure -Dmetadata.connection.passwd="unrestricted-user-password"
```

 where *unrestricted-user-password* is the password for the unrestricted user.
Check the customconfig.log file to ensure that the script completed successfully.

Step 10: Load the Portlet into the SAS BI Portlets Custom Content Area

Use the Portlet Deployment Tool to load the new portlet into the SAS BI Portlets custom content area:

1. Modify the properties file for the PDT. Update the file *SAS-config-directory/Levn/Web/Applications/SASBIPortlets<version>/PortletDeploymentTool/src/build.properties* with the changes that are highlighted:

```
#####
#
# Properties that will change for each portlet ear processed
#
#####

# the webapps ServletContext name. the value needs to be the same
# as the value of the <context-root> tag in the
# META-INF/application.xml file of the portlet ear.
#
# example: SASBIDashboardJsrs168
servlet-context-name=SampleHelloUserJSR168

# the name of the war file that will be processed inside the portlet
# ear. Note that this version of the Portlet Deployment Tool can only
# process one war file.
#
# example: sas.bidashboardjsr168
web-app-name=sample.hellouser.jsr168

# the app server to which the portlet ear file will be deployed.
# valid entries are vfabricctsvr
#
# example: vfabricctsvr
web-app-server=vfabricctsvr

# name of the portlet ear file.
#
# example: sas.bidashboardjsr1684.3.ear
portlet-ear-file-name=sample.hellouser.jsr168.ear

# full path to the portlet ear file.
#
# example: c:/SAS/EntBIServer/Levn/Web/Staging/portlet-ear-file-name
portlet-ear-file-path=SAS-config-directory/Levn/Web/Staging/sample.hellouser.jsr168.ear

# work directory for temporary files.
#
# example: c:/temp/pdt
work-dir=SAS-config-directory/Levn/Web/Temp/PDT

# whitespace-separated list of portlet modes supported by the portlet.
# valid values are "all", "edit", "help". Note that view mode
```

```
# must always be supported so it is not listed here. If the list is empty,  
# it is assumed that only view mode is supported. If "all" is specified,  
# it is assumed that view, edit, and help modes are supported.  
supported-portlet-modes=all
```

2. In a command shell, navigate to the **SAS-config-directory/Levn/Web/Applications/SASBIPortlets<version>/PortletDeploymentTool/src** directory.

3. Call the level_env.bat script to set environment variables.

On Windows, enter the following command:

```
..\..\..\..\..\level_env.bat
```

On UNIX, enter the following command:

```
../../../../../../../../level_env.sh
```

4. Call the launchant.bat script to execute the PDT.

On Windows, enter the following command:

```
..\..\..\..\..\Utilities\launchant.bat
```

On UNIX, enter the following command:

```
../../../../../../../../Utilities/launchant.sh
```

Step 11: Rebuild the Web Applications

The EAR files for the SAS Information Delivery Portal and the SAS BI Portlets web applications contain files that are associated with each portlet. To add the new portlet, you must rebuild the web applications by using the SAS Deployment Manager. For more information, see "Rebuilding the SAS Web Applications" in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Step 12: Redeploy the Web Applications

Redeploy the EAR files for the SAS Information Delivery Portal and the SAS BI Portlets web applications. The custom portlet should now be available to the portal as SampleHelloUserJSR168Portlet.

The EAR files are located at **SAS-config-directory/Levn/Web/Staging/**.

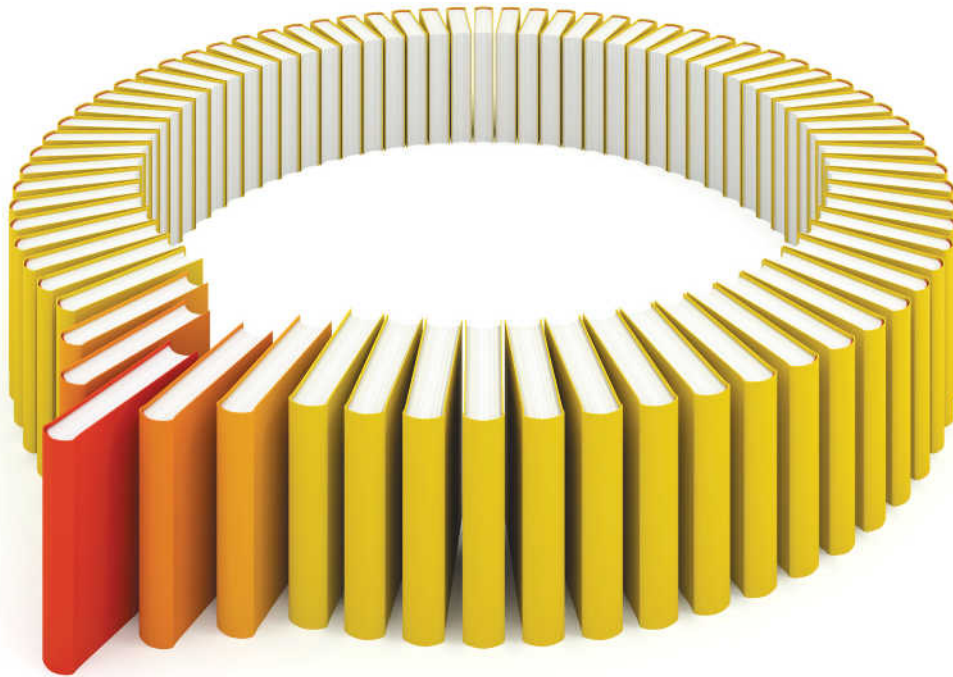
For more information about redeploying web applications, see "Redeploying Web Applications" in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Appendix 1

Tips and Best Practices

The following best practices apply to all SAS JSR-168-compliant portlets:

- The HTML that is displayed in the portlet should be as simple as possible to ensure that the portlet is displayed the same way in each portal. For example, avoid using Dojo in JSR-168 portlets.
- The SAS Information Delivery Portal expects all portlets to be compatible with Dojo 0.4.3. In addition, its JSR-168 implementation does not define a namespace.
- The JSR-168 portlet container in the SAS Information Delivery Portal renders the portlet after each action. Some types of redirect errors might be hidden by the second render. Also, some actions that are performed during renders can cause unwanted changes due to multiple renders.
- The HTML that is displayed in the portlet can use the CSS and images that are included in the SAS Themes web application.



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