

# **Birt Plugin Reference Guide**

**Version: 1.0.0.GA**

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# Introduction

## 1.1. What is BIRT?

BIRT plugin for JBoss Developer Studio is an Eclipse-based open source reporting system for web applications based on Java and J2EE. BIRT consists of two main components: a report designer based on Eclipse, and a runtime component that can be added to your app server. BIRT also offers a charting engine that lets you add charts to your own Web application.

With the help of BIRT you can generate a great number of reports to be used in your application:

- Lists
- Charts
- Crosstabs, or cross-tabulation, or matrix
- Letters and Documents
- Compound Reports

In this guide we provide you with the information on BIRT Designer which allows to create a report much faster and with far fewer errors to spare your time.



You can find detailed information on the BIRT report types and anatomy here: [JBoss BIRT](http://www.eclipse.org/birt/phoenix/intro/) [http://www.eclipse.org/birt/phoenix/intro/]

All JBoss Developer Studio/JBoss Tools documentation you can find on [documentation release page](http://docs.jboss.org/tools/) [http://docs.jboss.org/tools/].

The latest documentation builds are available on [documentation nightly builds page](http://download.jboss.org/jbosstools/nightly-docs/) [http://download.jboss.org/jbosstools/nightly-docs/].



# BIRT Support

In this section we will focus more on all concepts that JBoss Tools integrates for working with BIRT.

## 2.1. BIRT Plugin Installation

This chapter will provide you with detailed information on how to install BIRT plugin into JBoss Developer Studio.

Since BIRT plugin is one of the modules of JBoss Tools project it has a dependence on other modules and will require their pre-installation.

These are the prerequisites to create a web project including Seam and BIRT capabilities:

- Eclipse Version 3.4 SDK
- DTP Version 1.6 Release
- EMF Version 2.4 Release EMF+XSD
- GEF Version 3.4 Release runtime
- WTP Version 3.0 Release
- [BIRT Report Designer SDK 2.3.0 Release](http://repository.jboss.org/eclipse/birt/2.3.0/birt-report-framework-2_3_0.zip) [http://repository.jboss.org/eclipse/birt/2.3.0/birt-report-framework-2\_3\_0.zip] or BIRT Report Designer 2.3.0 Release
- JBoss Application Server 4.2.2 GA
- JBoss Seam 2.0.1 GA
- [BIRT Web Tools Integration](http://repository.jboss.org/eclipse/birt/2.3.0/birt-wtp-integration-sdk-2_3_0.zip) [http://repository.jboss.org/eclipse/birt/2.3.0/birt-wtp-integration-sdk-2\_3\_0.zip]
- JBoss Tools nightly build

## 2.2. JBoss BIRT Integration

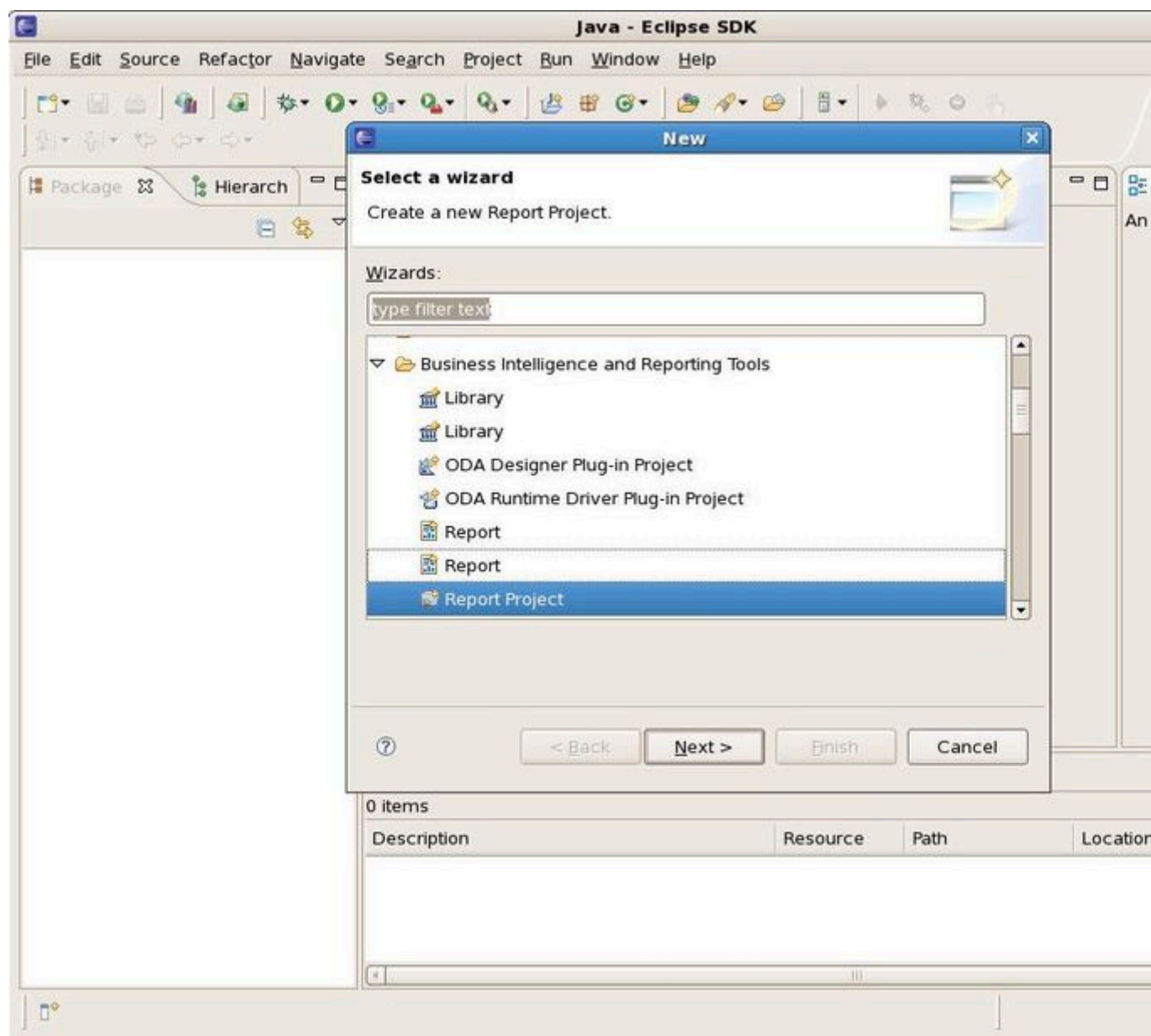
To understand Hibernate configuration, integration with Seam, and deployment see [JBoss BIRT Integration 1.0.0.alpha1 - New and Noteworthy](http://docs.jboss.org/tools/whatsnew/birt/birt-news-1.0.0.Alpha1.html) [http://docs.jboss.org/tools/whatsnew/birt/birt-news-1.0.0.Alpha1.html].

## 2.3. Creating a BIRT Report

In this chapter we suggest a step-by-step walk-through of creating your own BIRT report.

### 2.3.1. Create a Report Project

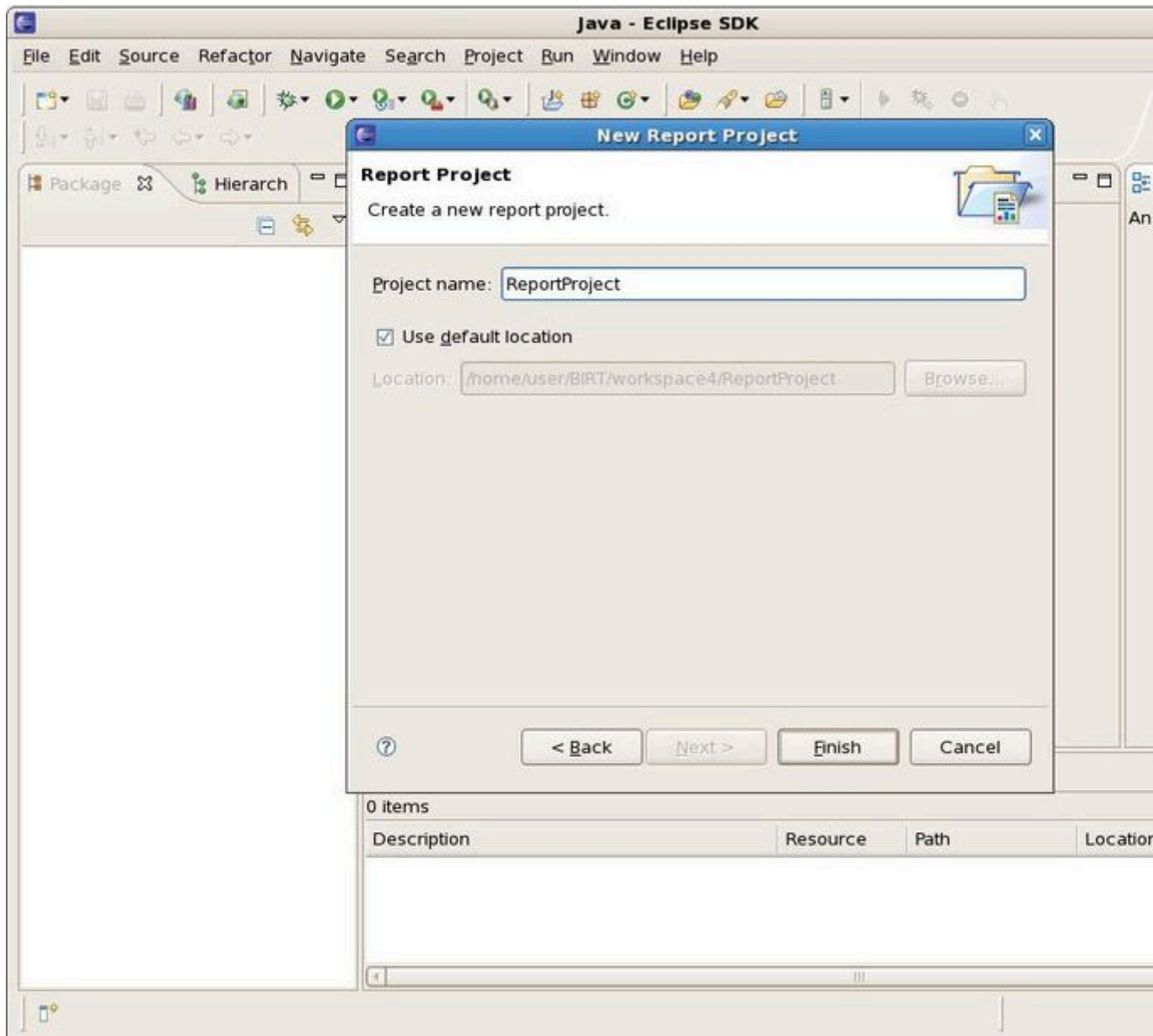
First create a Report project. Select *File > New > Project...* in the main menu bar or context menu. The new project dialog appears. Choose *Business Intelligence and Reporting Tools > Report Project*.



**Figure 2.1. New Report Project Creation**

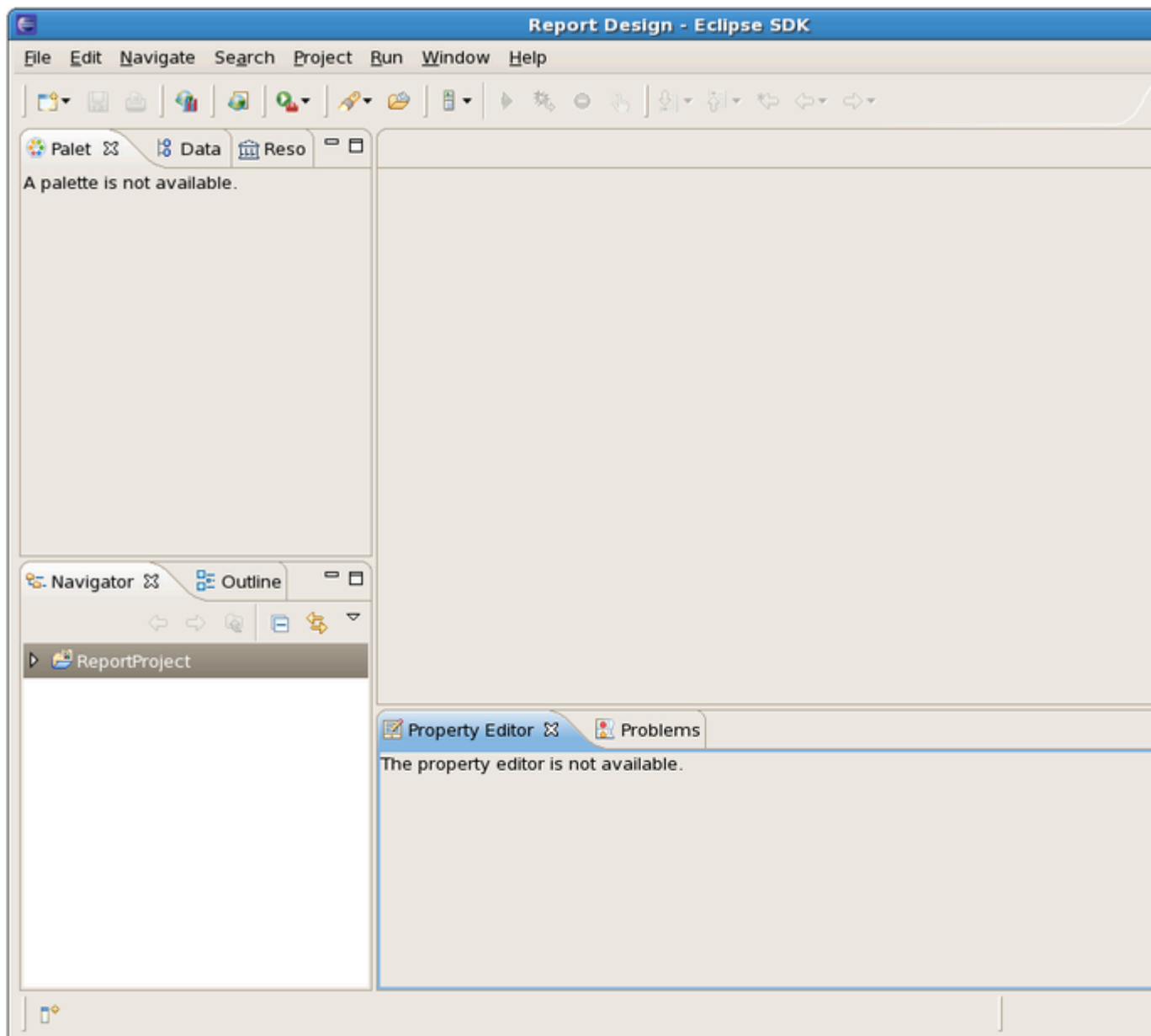
Click on the *Next* button. Specify a name for the project and change location if necessary:





**Figure 2.2. Specify a Name for the Report Project**

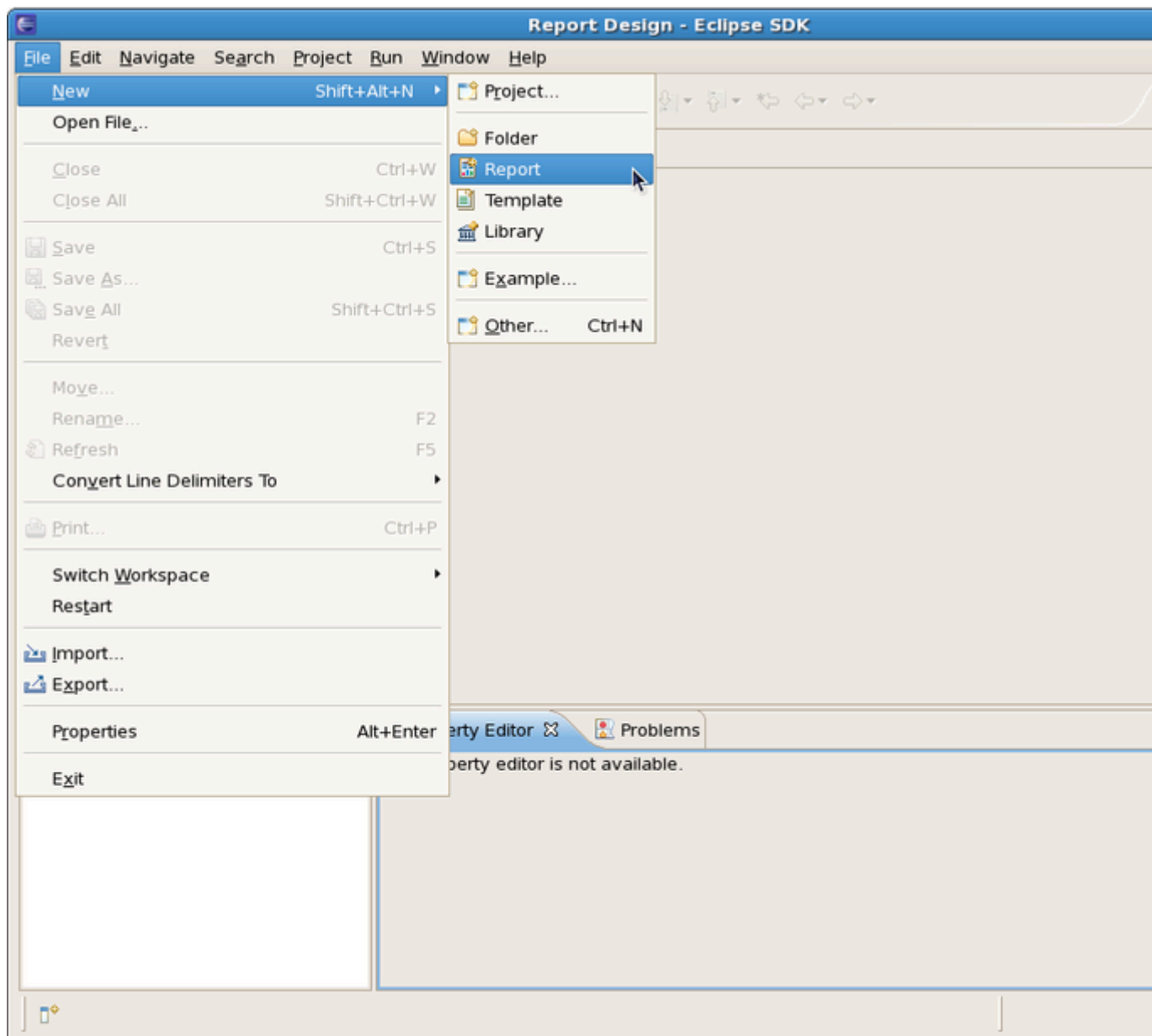
Click on the *Finish* button. Click *Ok* to switch to the Report Design perspective. Your Report Project is now created:



**Figure 2.3. New Report Project Created**

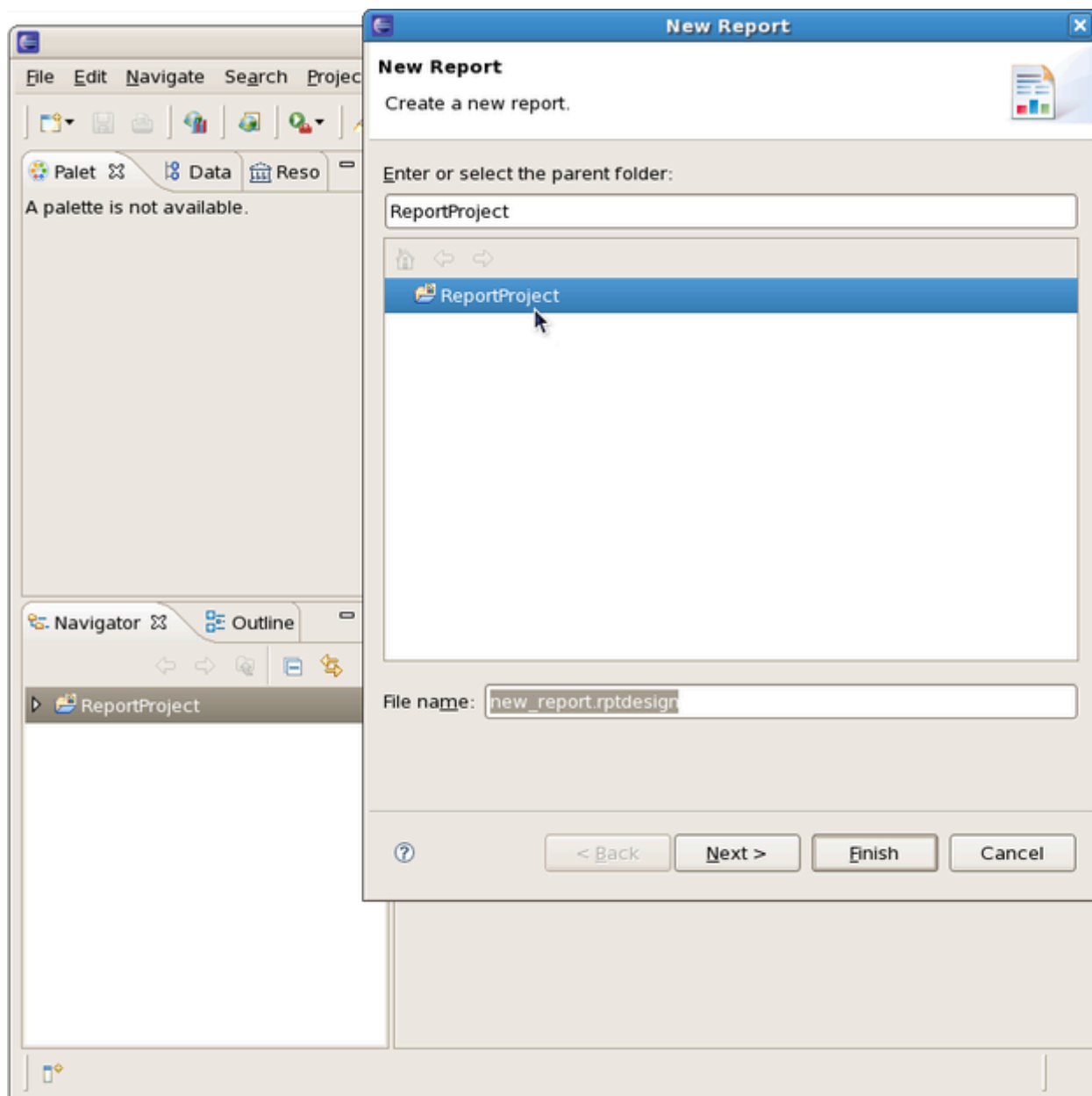
### 2.3.2. Create a Report

Now you can create a Report. Go to [File > New > Report...](#):



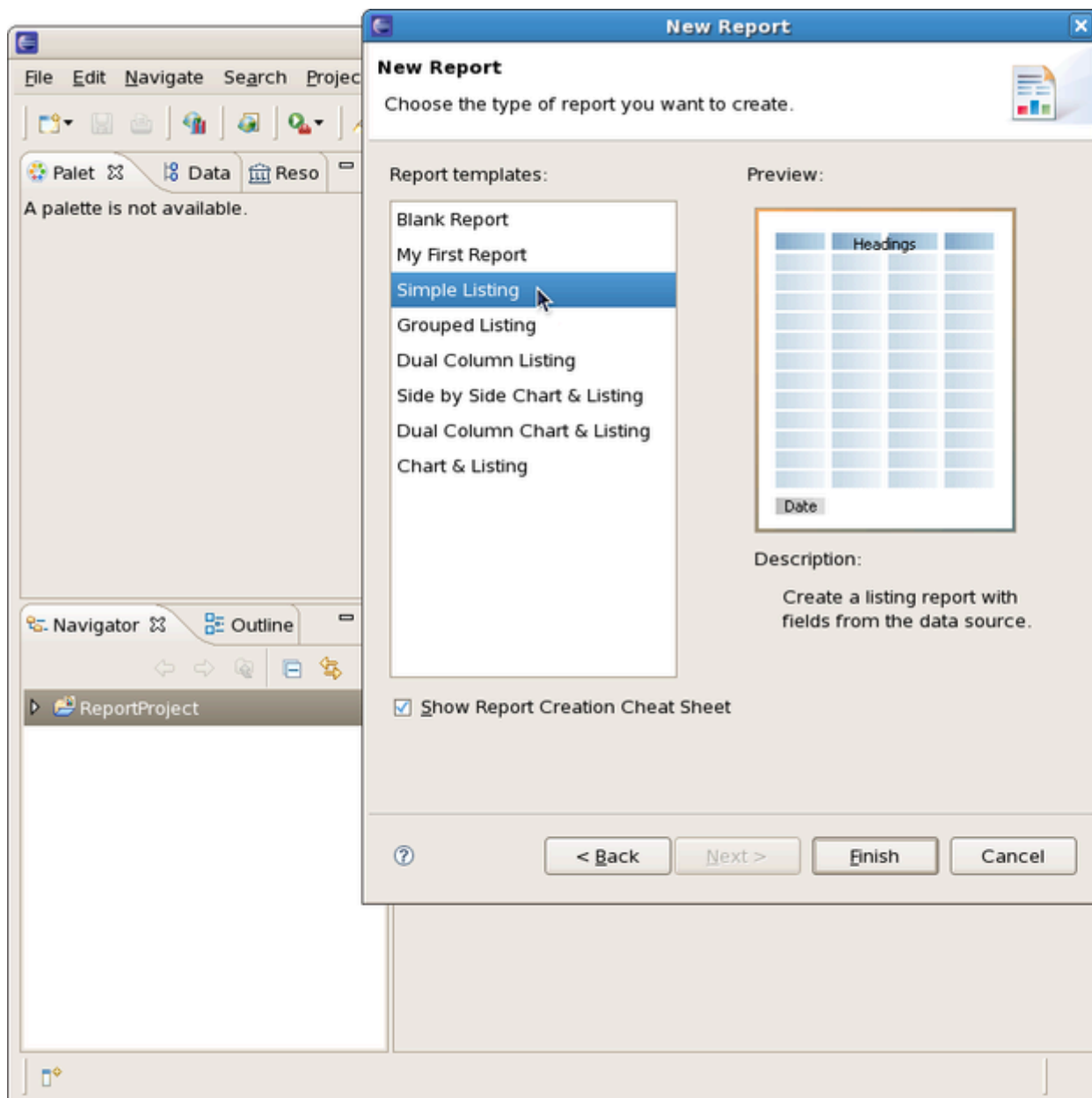
**Figure 2.4. Create a New Report**

The new report dialog appears. Select the created project as a parent folder in the tree view:



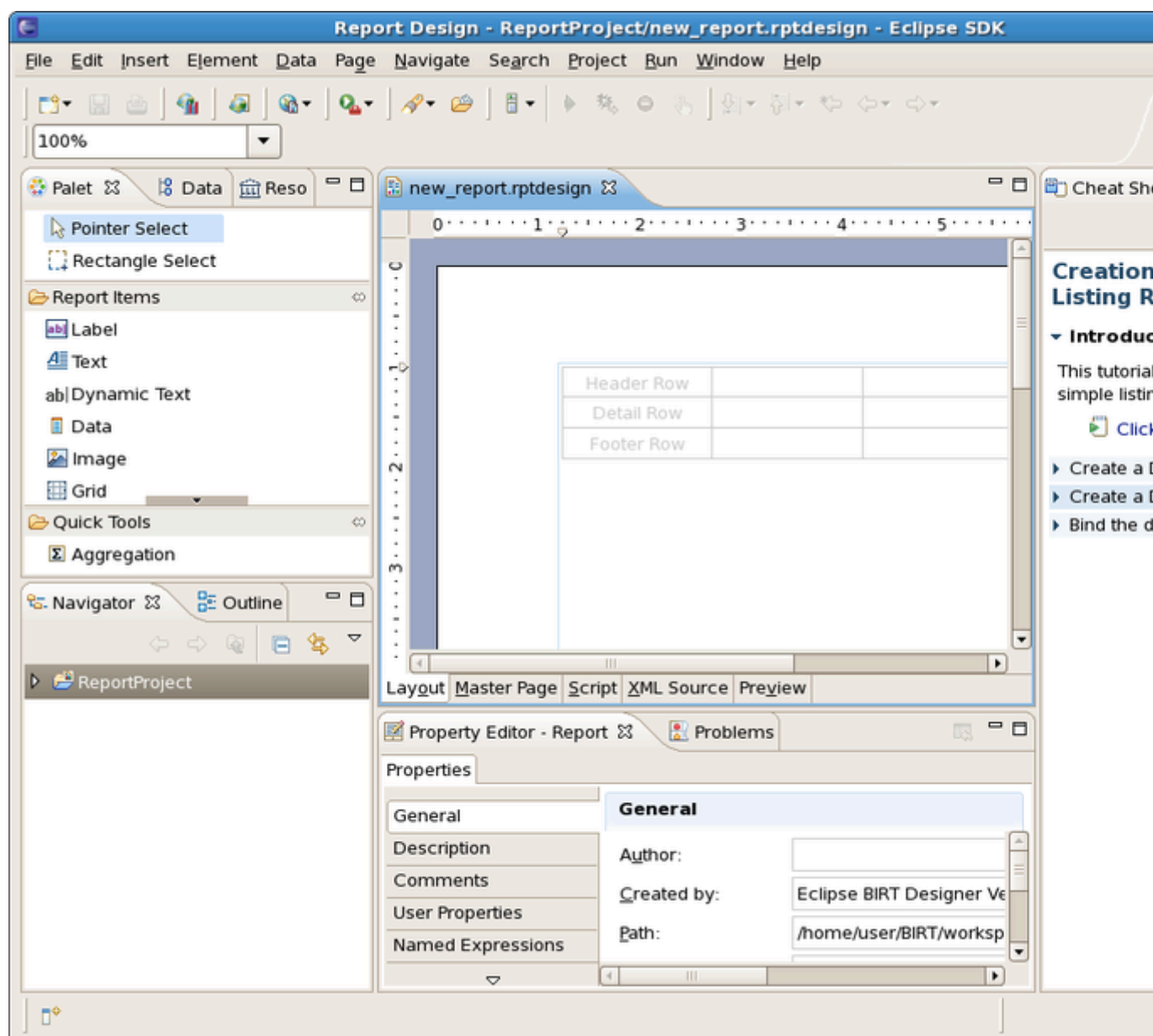
**Figure 2.5. Select a Parent Folder**

Click on the [Next](#) button. Then select the type of the template to use for your report. Each template is shown in the Preview window and is described below. Tick off the "Show Report Creation Cheat Sheet" checkbox if you don't need the Cheat Sheets view to be displayed. The Cheat Sheets view can walk you through the process of creating a report based on the template you selected.



**Figure 2.6. Choose a Report Template**

Click on the *Finish* button to open the newly created report in the workspace:

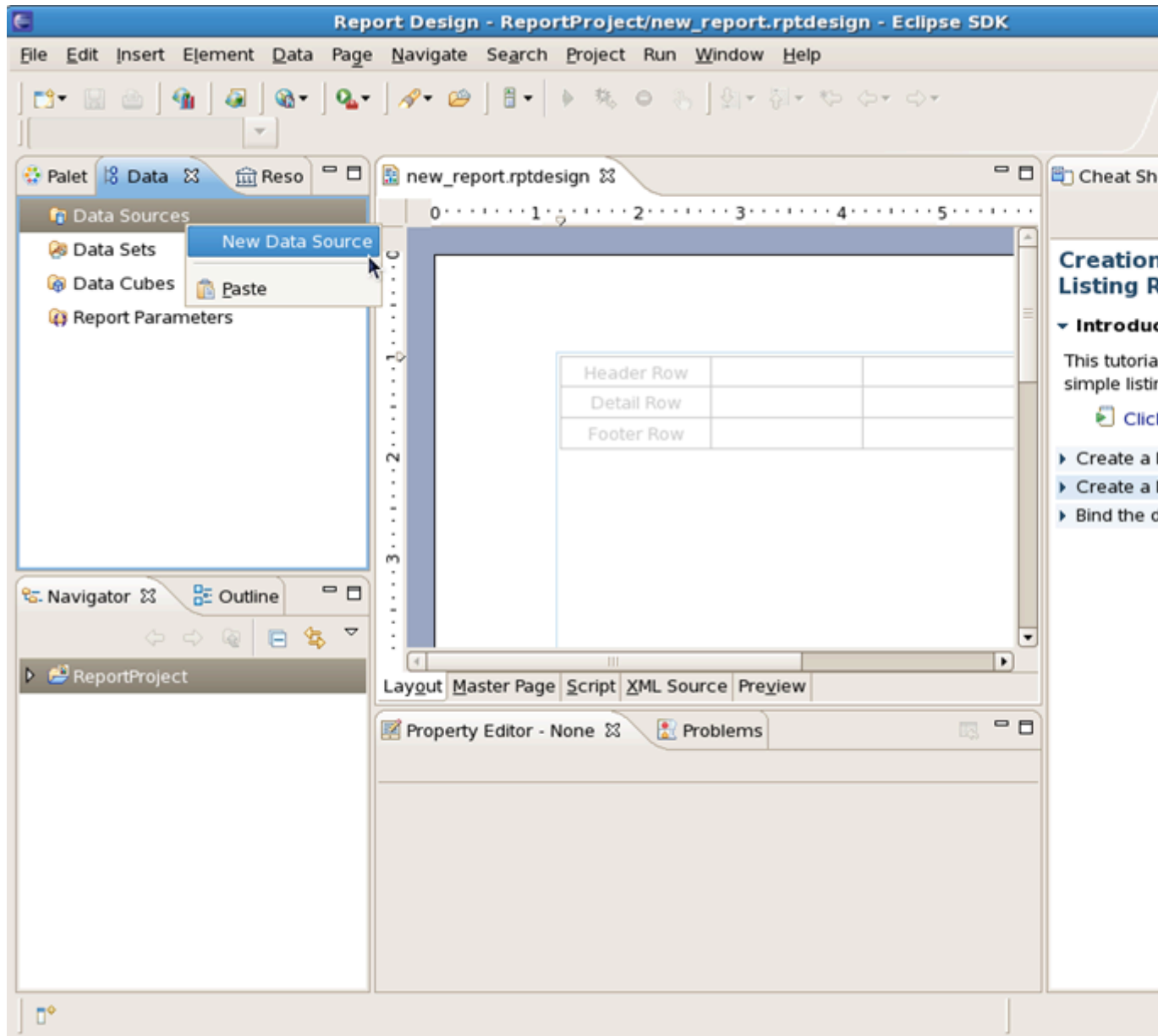


**Figure 2.7. Report Opened in the Workspace**

### 2.3.3. Build a Data Source

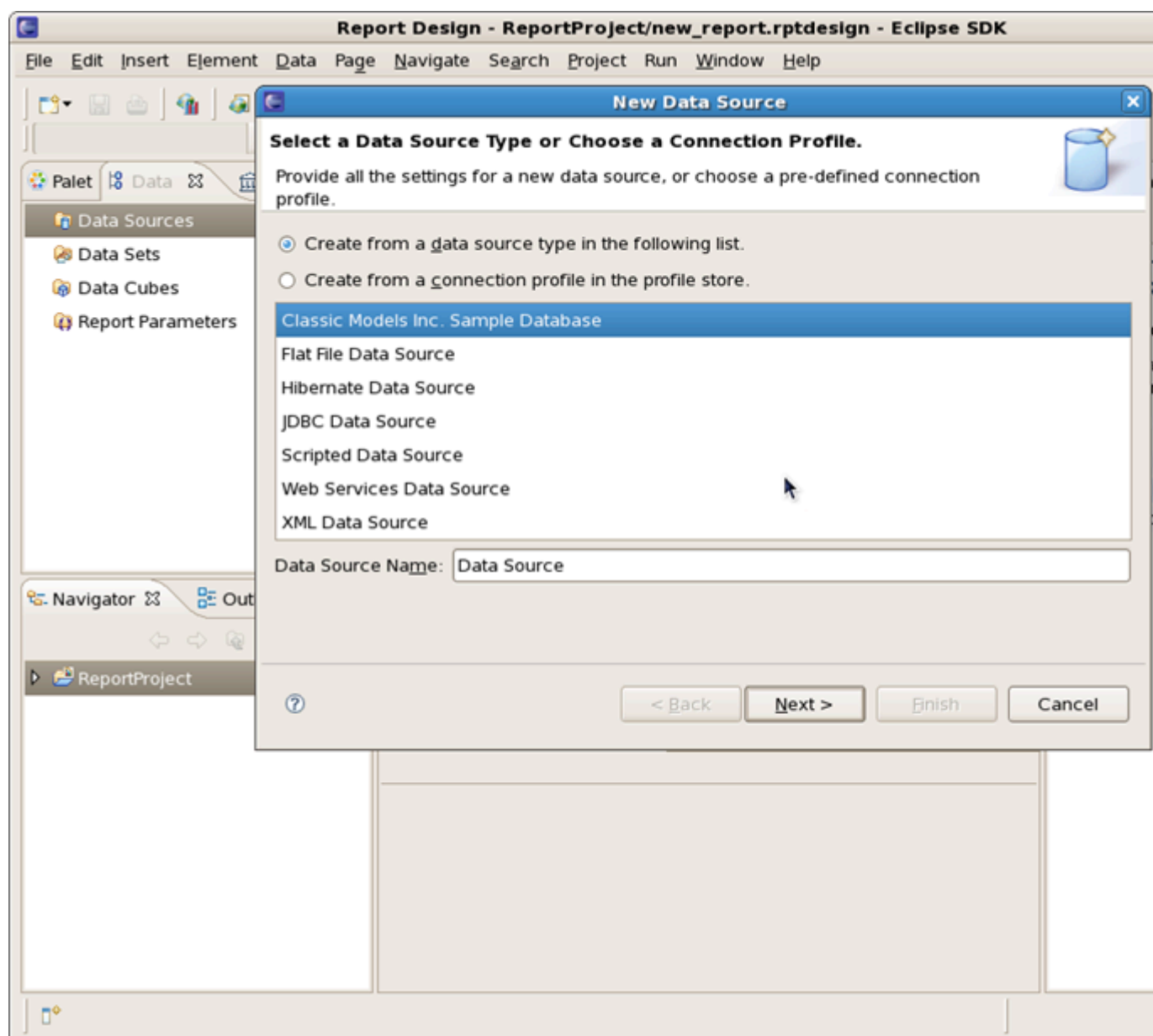
Data source is used to connect to the database. In order to create a data source for your report follow these steps:

Open the Data Explorer View. Select Data Sources, right-click on it and choose New Data Source:



**Figure 2.8. Create a Data Source**

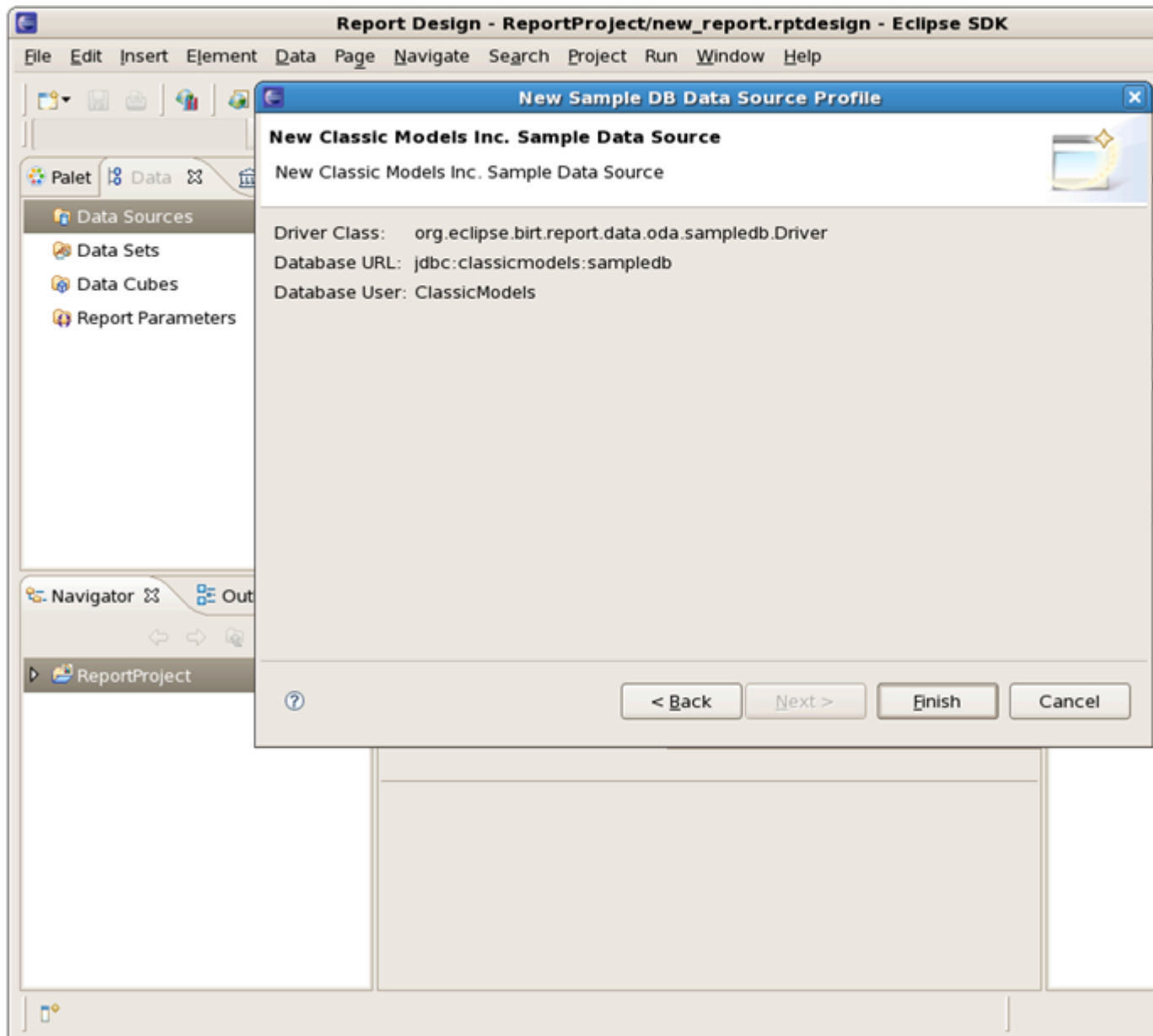
The New Data Source dialog appears. Choose the "Create from a data source type in the following list" radio button and then "Classic Models Inc. Sample Database". Click on the [Next](#) button:



**Figure 2.9. New Data Source**

The newly created data source details will be displayed: Driver Class, Database URL and Database User:





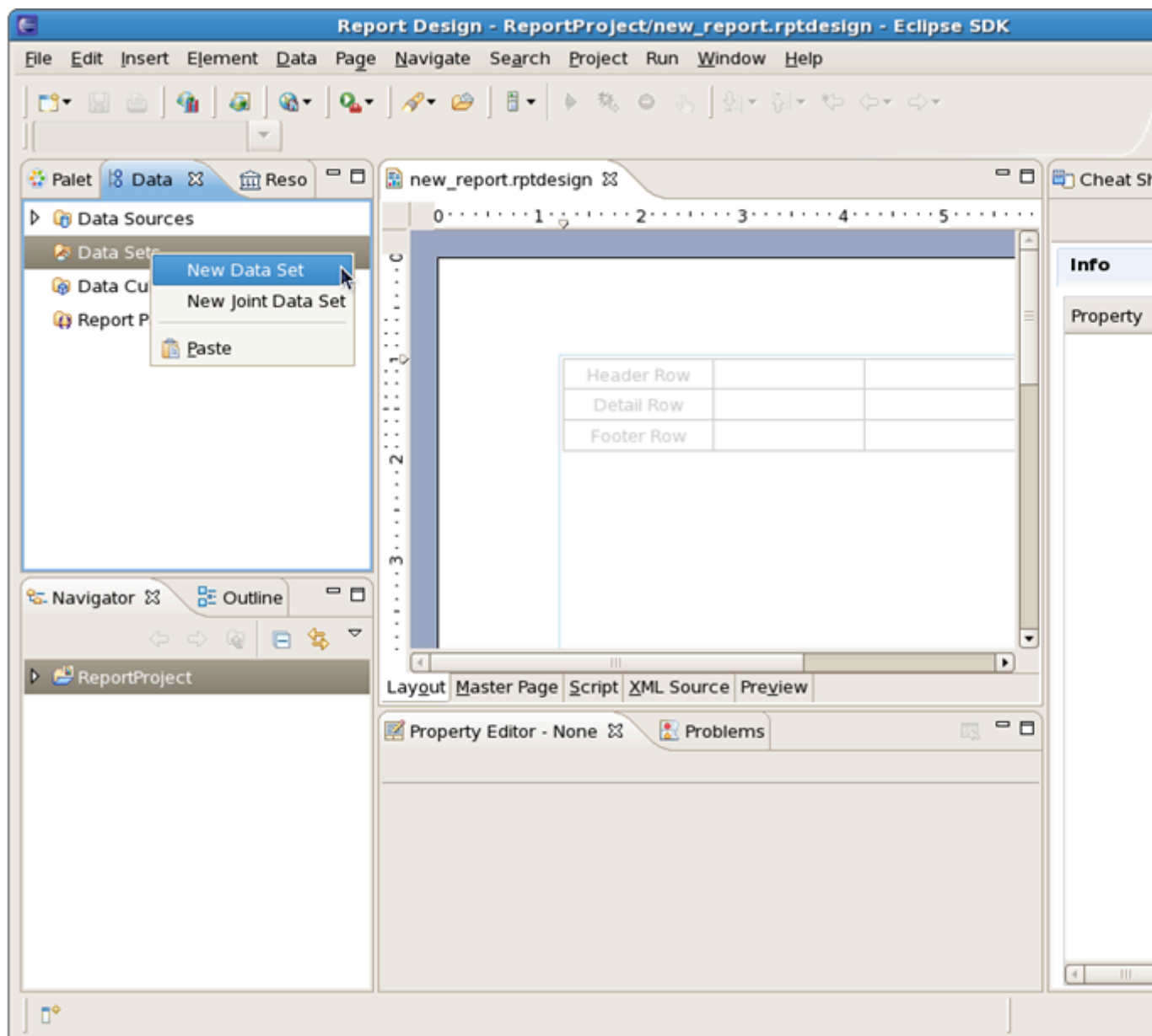
**Figure 2.10. New Data Source Details**

Click on the [Finish](#) button to add the data source to the data source for your report.

If you need to edit the data source, right-click on it and select the corresponding option.

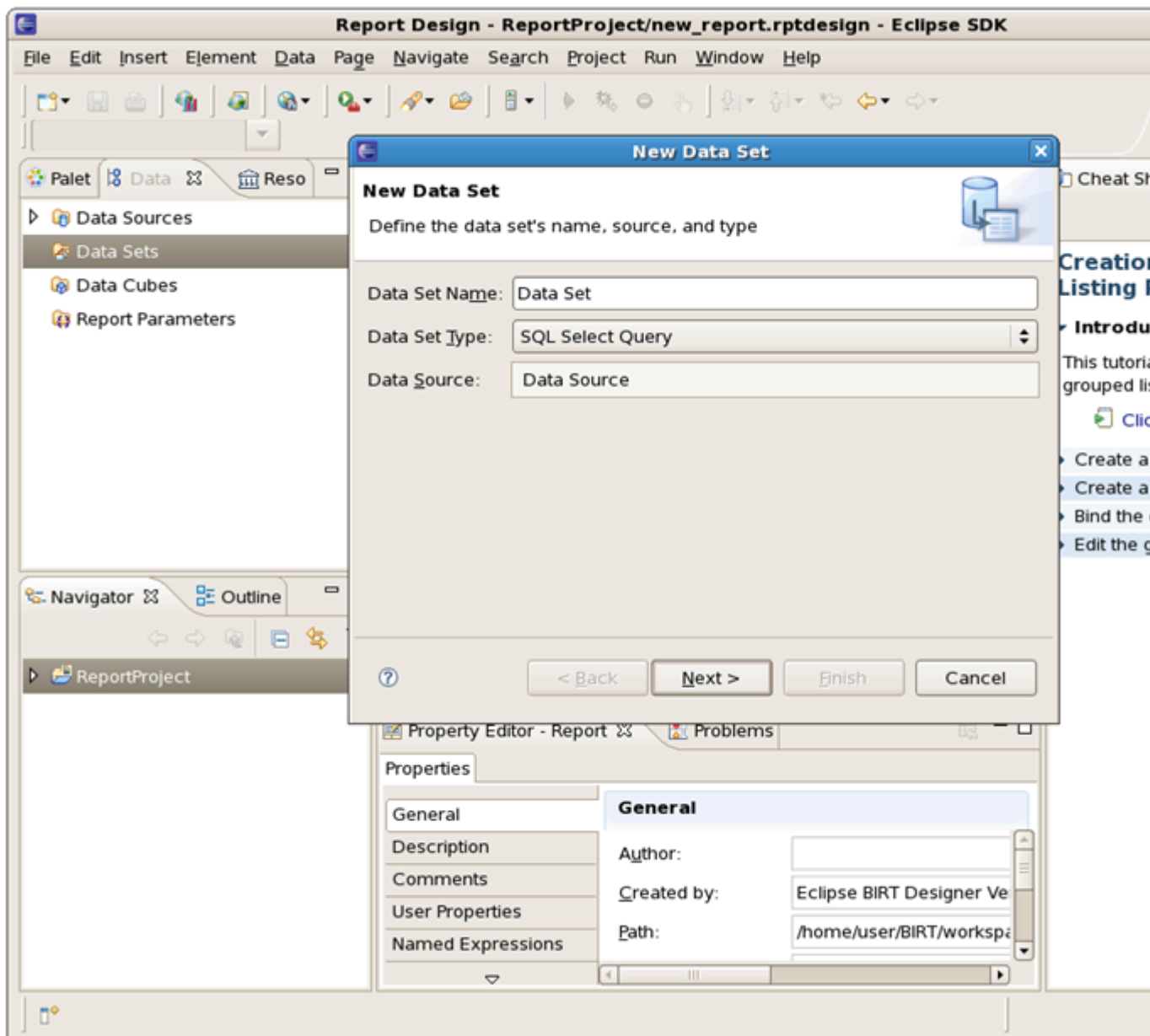
### 2.3.4. Build a Data Set

Data Set is a query to get and represent necessary column data from the data source specified. Select Data Sets in the tree view, right-click on it and select New Data Set:



**Figure 2.11. Create a Data Set**

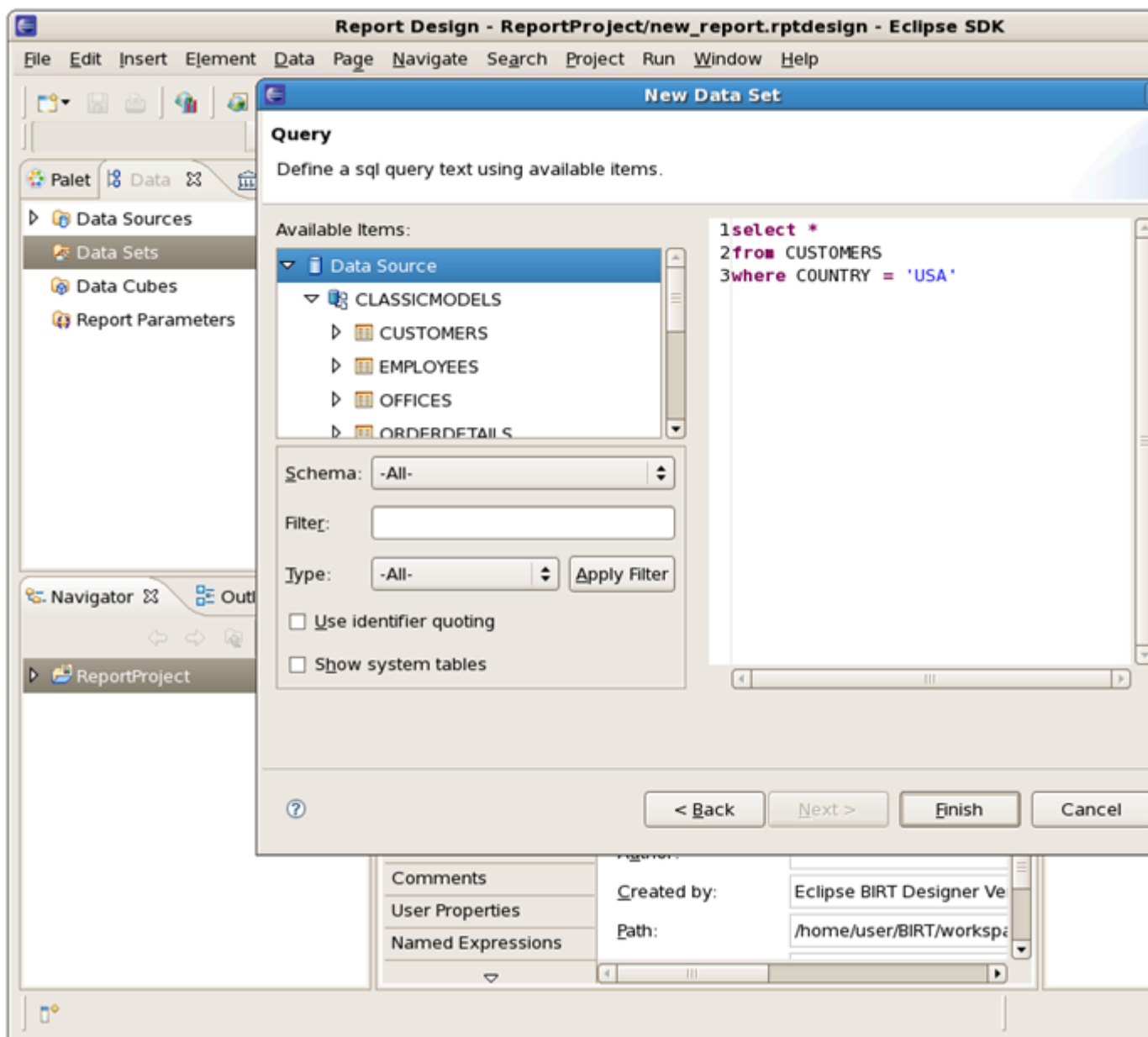
The New Data Set dialog will appear. Enter a name for the Data Set Name field and ensure that the Data Source field shows the data source already created and that the Data Set Type field is set to "SQL Select Query". Then click on the [Next](#) button:



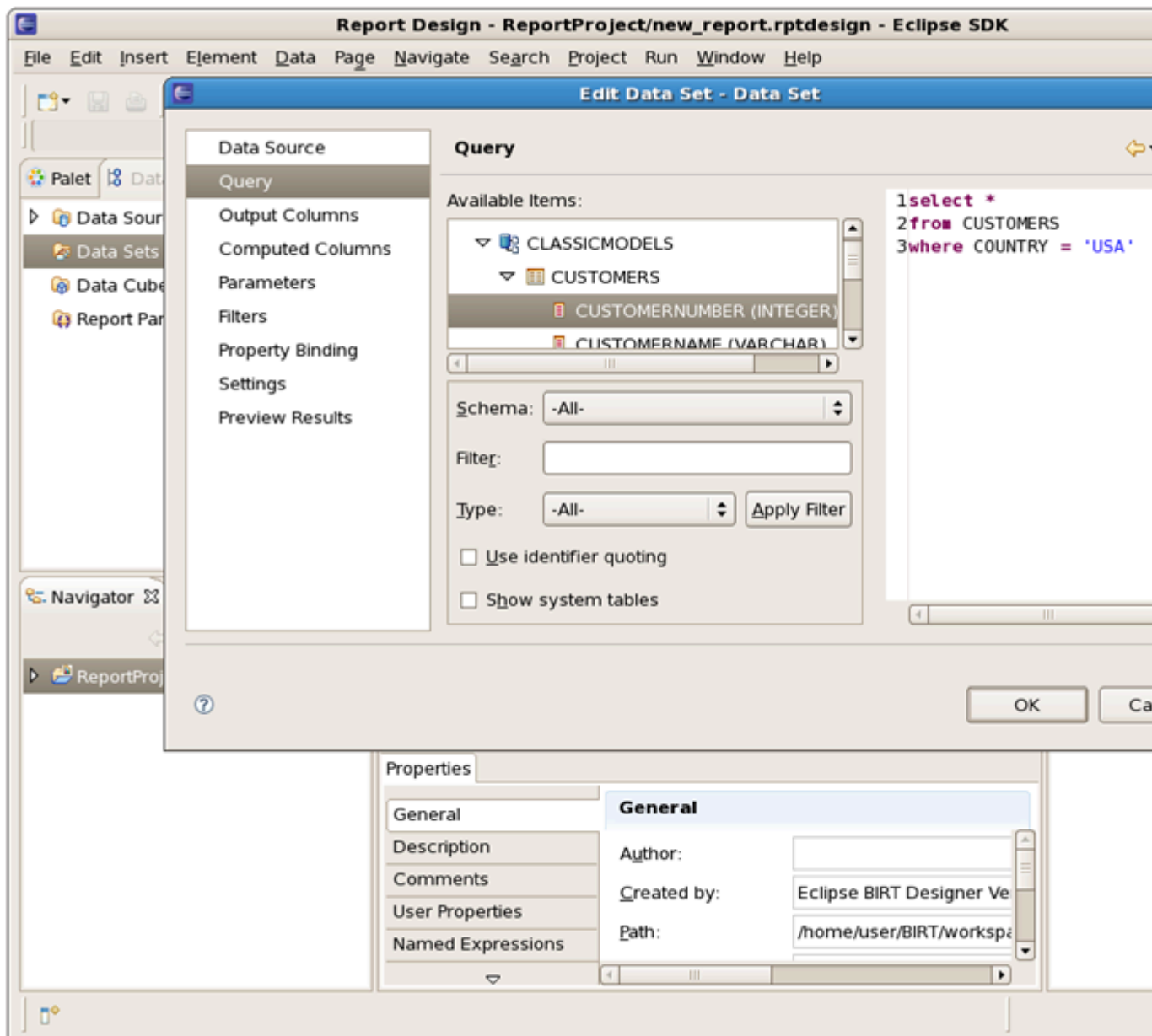
**Figure 2.12. New Data Set Details**

Enter the following details into the query:

```
SELECT *  
FROM CUSTOMERS  
WHERE COUNTRY = 'USA'
```

**Figure 2.13. Query Details**

Click on the [Finish](#) button. The Edit Data Set window opens where you can change Data Source, Settings, Parameters and other details for the Data Set created. If switched to the Query page you can check the schemas within this database, you can expand them to see the list of tables with their columns:



**Figure 2.14. Edit the Data Set**

Switch to the Preview page to test your query and verify whether the list of customers appears:

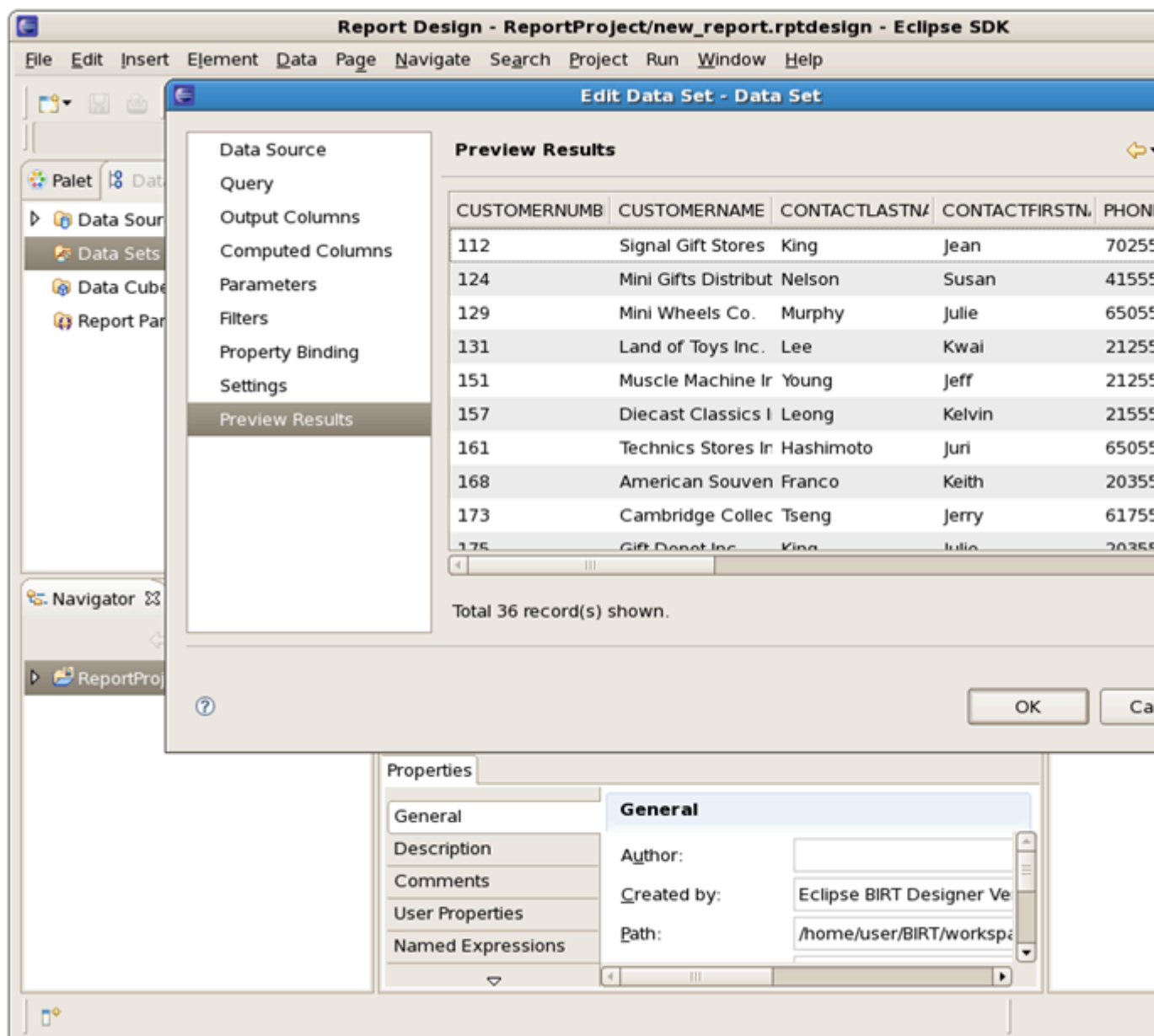


Figure 2.15. Test the Query

Click on the [Ok](#) button.

### 2.3.5. Create Report Layout

After the Data source and Data set are specified you can continue with the report layout. Please see the [Birt\\_Designer](#) chapter to learn more about BIRT Report Designer.

# BIRT Report Designer

BIRT Designer is an intuitive and quite easy Eclipse-based set of plugins to make reports. In this chapter we will describe its interface and its features to you.

## 3.1. BIRT User Interface

The central part of the user interface is the [Layout Editor](#). It displays the whole process of building a report and contains the following tabs:

- **Layout** - this is an area where you can edit your report design;
- **Preview** - runs your report created and shows the output;
- **Script** - on this page you can add JavaScript to your report to customize its behavior;
- **XML Source** - this is an area where you can view and modify the XML source of your report;
- **Master Page** - use it to format page data.

The next part of user interface is different [Views](#) that can be arranged around the Layout Editor area the way you like:

- **Palette** - shows the standard report items you can add to your report using drag and drop.
- **Outline** - shows the structure of your report as a tree view.
- **Navigator** - shows your projects and reports within the projects.
- **Data Explorer** - shows your data sources, data sets and report parameters. You also can use this view to add data set columns to your report layout.
- **Property Editor** - displays properties for many report items.
- **Properties View** - shows all properties for a report item as a simple list.
- **Library Explorer View** - allows the reuse of report objects, such as tables, data sources and styles. Objects created for reuse are stored in a library file. The Library Explorer will display Libraries that exist in the Resource folder. Developed libraries can be added to the resource folder by selecting *File#Publish Library in Resource Folder*. The resource folder location can be configured.

## 3.2. BIRT Report Designer Features

Here are the main BIRT Report Designer features:

- **Palette** - contains tables, labels, and charts. It is used in conjunction with the Layout View to design reports.

- **Data Explorer** - organizes your data sources and data sets. The Data Sets editor enables testing your data set to check whether the report receives the correct data. You can also create cubes using your data sets (when building any dynamic cross tables) and design necessary report parameters.
- **Resource Explorer** - BIRT allows the reuse of report objects, such as tables, data sources and styles. Objects created for reuse are stored in a library file. To browse the contents of report libraries BIRT supplies the Resource Explorer view. This view lists all libraries within the resource folder, in addition to other shared content such as images and JavaScript files.
- **Property Editor** - shows the most commonly used properties. BIRT also integrates with the standard Eclipse property view to display a detailed listing of all properties for an item.
- **Layout View** - WYSIWYG editor. You can select any element from the Palette, drag and drop it to the report and then edit the way you like.
- **Script Editor** - scripting adds business logic to reports during data access, report generation, or viewing. The code editor provides standard features for editing scripts: syntax coloring, auto-complete etc. You also can debug scripts when the report is running.
- **Report Preview** - Report Preview is used to test your newly created report with some real data.
- **Chart Builder** - using the Chart Builder you can add any charts to the design of your report. Just select a chart type, then data and, finally, format the chart.
- **Expression Builder** - expressions are simple scripts that return a value. They are used to assign data values to report elements, build image locations, hyperlinks, parameter default values etc.
- **Cheat Sheets** - Cheat sheets are small pices of useful documentation that lead you through a report creation process. Just select what you need and then follow the instructions.
- **Outline** - this view provides a compact overview of the entire report structure.

In this guide we made a short overview of the BIRT plugin: its installation, support, features etc. that will help you to make your first steps with it.



# Birt Integration

This chapter covers the steps required for BIRT Integration

## 4.1. Adding JBoss BIRT functionality to the standard Seam web project

In this section you'll find out how to create a web project including Seam and BIRT capabilities

### 4.1.1. Prerequisites

These are the prerequisites required to create a Seam web project including with BIRT functionality:

- [Eclipse Version 3.4 SDK](http://download.eclipse.org/eclipse/downloads/drops/R-3.4-200806172000/index.php) [http://download.eclipse.org/eclipse/downloads/drops/R-3.4-200806172000/index.php]
- [DTP Version 1.6 Release](http://www.eclipse.org/downloads/download.php?file=/datatools/downloads/1.6/dtp-sdk_1.6.0.zip) [http://www.eclipse.org/downloads/download.php?file=/datatools/downloads/1.6/dtp-sdk\_1.6.0.zip]
- [EMF Version 2.4 Release EMF+XSD](http://www.eclipse.org/modeling/emf/downloads/?project=emf) [http://www.eclipse.org/modeling/emf/downloads/?project=emf]
- [GEF Version 3.4 Release runtime](http://www.eclipse.org/gef/downloads/) [http://www.eclipse.org/gef/downloads/]
- [WTP Version 3.0 Release](http://download.eclipse.org/webtools/downloads/drops/R3.0/R-3.0-20080616152118/) [http://download.eclipse.org/webtools/downloads/drops/R3.0/R-3.0-20080616152118/]
- [BIRT Report Designer SDK 2.3.0 Release](http://www.eclipse.org/downloads/download.php?file=/birt/downloads/drops/R-R1-2_3_0-200806191030/birt-report-framework-sdk-2_3_0.zip) [http://www.eclipse.org/downloads/download.php?file=/birt/downloads/drops/R-R1-2\_3\_0-200806191030/birt-report-framework-sdk-2\_3\_0.zip] or [BIRT Report Designer 2.3.0 Release](http://www.eclipse.org/downloads/download.php?file=/birt/downloads/drops/R-R1-2_3_0-200806191030/birt-report-framework-2_3_0.zip) [http://www.eclipse.org/downloads/download.php?file=/birt/downloads/drops/R-R1-2\_3\_0-200806191030/birt-report-framework-2\_3\_0.zip]
- [JBoss Application Server 4.2.2 GA](http://sourceforge.net/project/showfiles.php?group_id=22866&package_id=163777) [http://sourceforge.net/project/showfiles.php?group\_id=22866&package\_id=163777]
- [JBoss Seam 2.0.1 GA](http://sourceforge.net/project/showfiles.php?group_id=22866&package_id=163777) [http://sourceforge.net/project/showfiles.php?group\_id=22866&package\_id=163777]
- [BIRT Web Tools Integration](http://www.eclipse.org/downloads/download.php?file=/birt/downloads/drops/R-R1-2_3_0-200806191030/birt-wtp-integration-sdk-2_3_0.zip) [http://www.eclipse.org/downloads/download.php?file=/birt/downloads/drops/R-R1-2\_3\_0-200806191030/birt-wtp-integration-sdk-2\_3\_0.zip]
- [JBoss Tools nightly build](http://download.jboss.org/jbosstools/builds/nightly/latestBuild.html) [http://download.jboss.org/jbosstools/builds/nightly/latestBuild.html]
- [JBoss BIRT integration feature](http://jira.jboss.com/jira/secure/attachment/12320944/org.jboss.tools.birt.feature.zip) [http://jira.jboss.com/jira/secure/attachment/12320944/org.jboss.tools.birt.feature.zip]

### 4.1.2. Creating a web project

Follow the next steps to create a web project

- Create a new Seam Web Project
- Choose the 2.0 version of the Seam facet
- Add the "Birt Reporting Runtime Component" facet

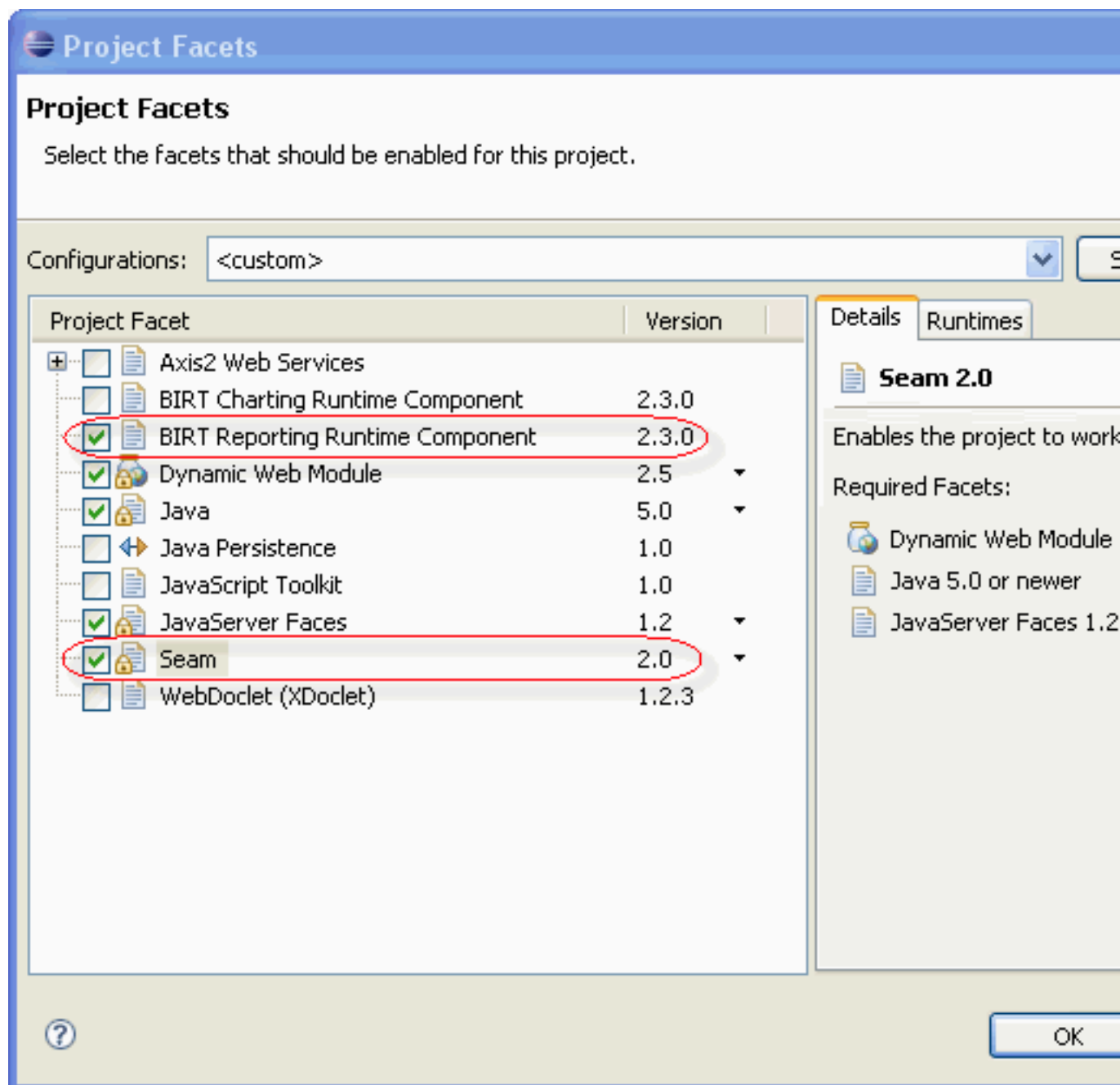


Figure 4.1. Adding "Birt Reporting Runtime Component" Facet

- Or choose the "JBoss BIRT Integration Web Project" configuration

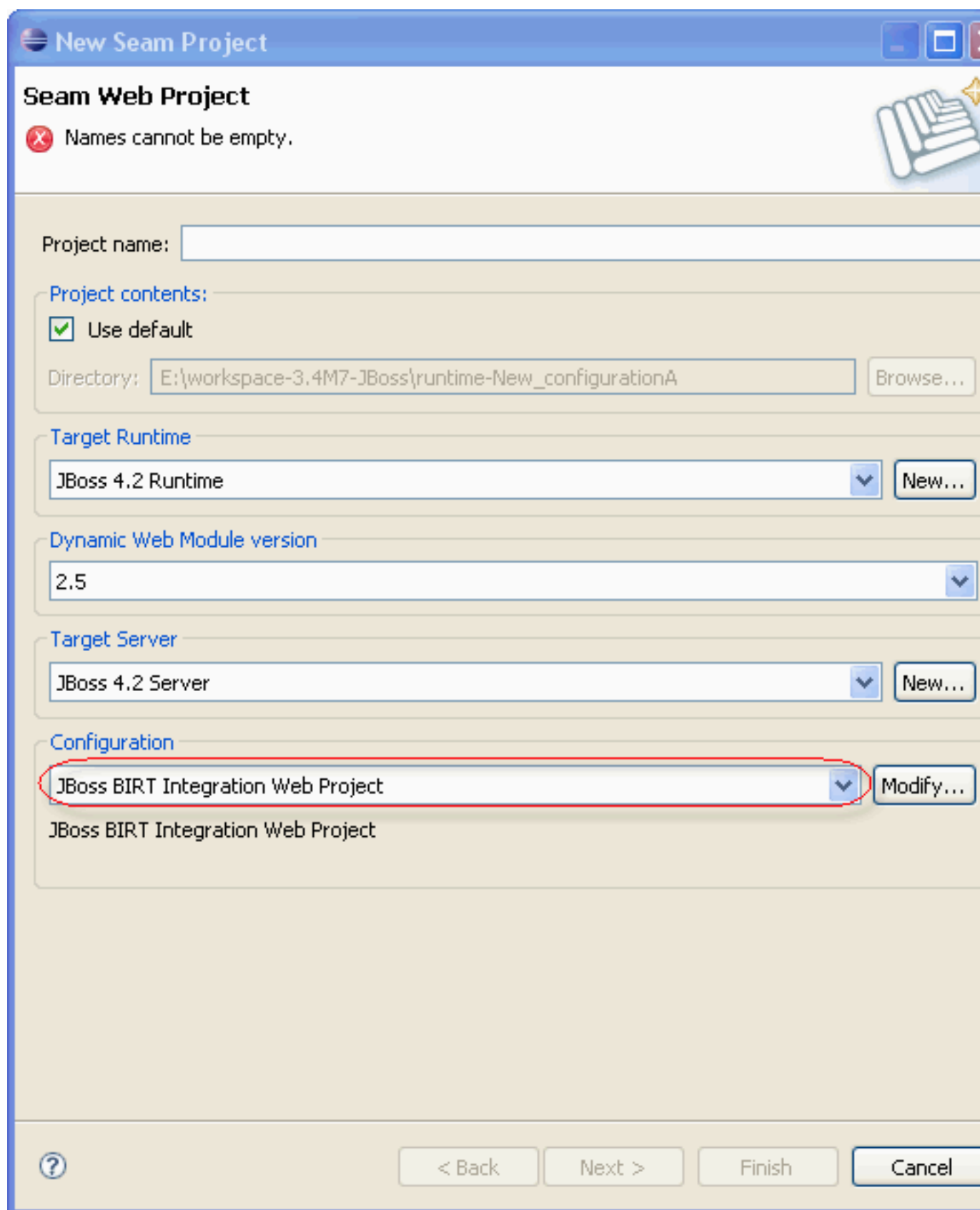


Figure 4.2. Choosing "JBoss BIRT Integration Web Project " Configuration

- Create the birttests.xhtml, testbirt.xhtml and testbirt1.xhtml pages as follows:

**birttests.xhtml:**

```
<!DOCTYPE composition PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<ui:composition xmlns="http://www.w3.org/1999/xhtml"
    xmlns:s="http://jboss.com/products/seam/taglib"
    xmlns:ui="http://java.sun.com/jsf/facelets" xmlns:f="http://java.sun.com/jsf/core"
    xmlns:h="http://java.sun.com/jsf/html"
    xmlns:rich="http://richfaces.org/rich"
    template="layout/template.xhtml">

    <ui:define name="body">
        <h:messages globalOnly="true" styleClass="message"/> <rich:panel>
        <f:facet name="header">Welcome to JBoss BIRT!</f:facet>
        <ul>
            <li><s:link view="/testbirt.xhtml" value="Test Birt" /></li>
            <li><s:link view="/testbirt1.xhtml" value="Test Birt 1" /></li>
        </ul>
        </rich:panel>
    </ui:define>
</ui:composition>
```

**testbirt.xhtml:**

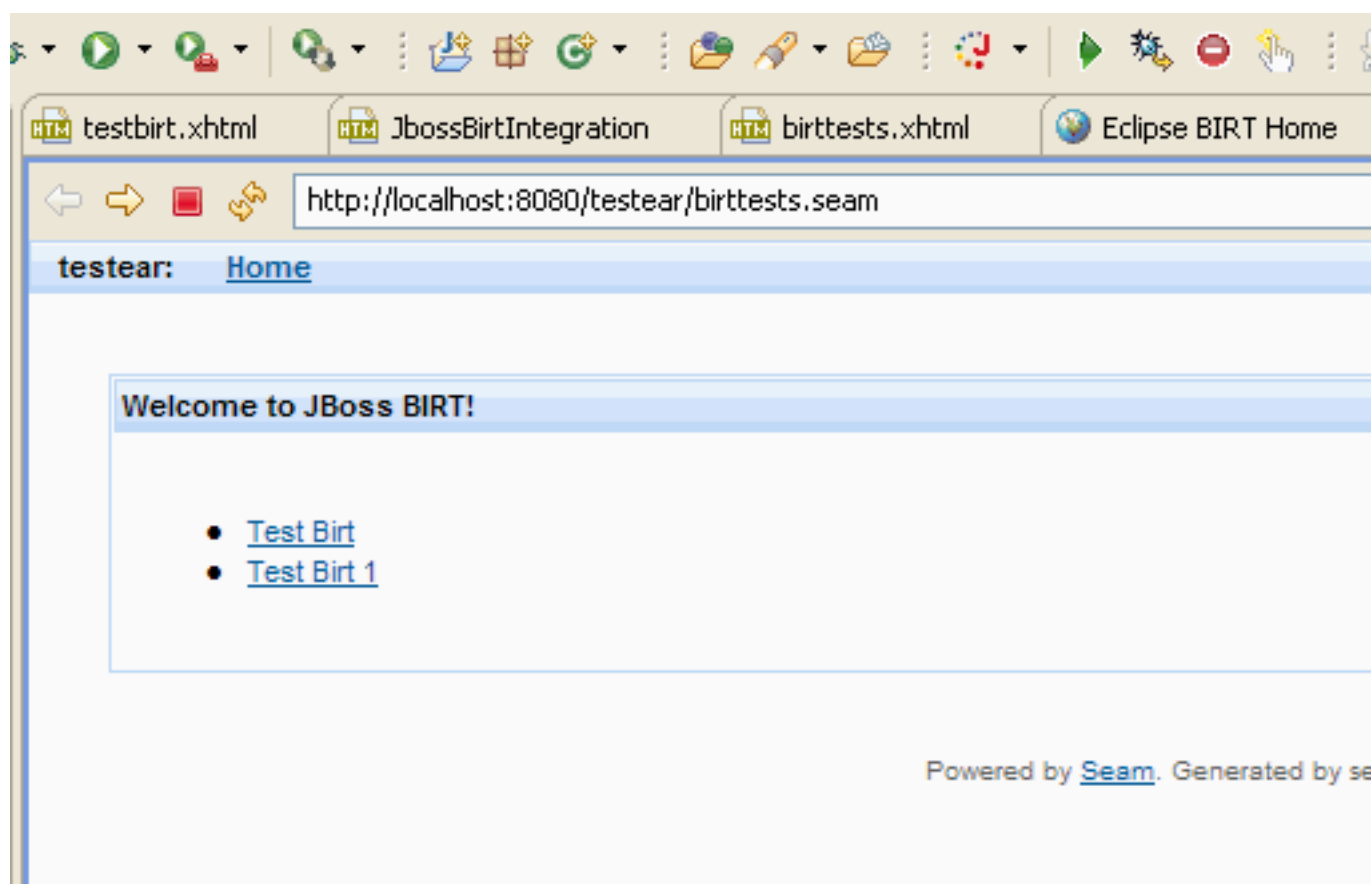
```
<p:birt xmlns:ui="http://java.sun.com/jsf/facelets"
    xmlns:s="http://jboss.com/products/seam/taglib"
    xmlns:p="http://jboss.com/products/seam/birt"
    designType="run"
    format="pdf"
    designName="test.rptdesign"
    title="JBoss Birt Test">

    <p:param name="sample" value="sample param"/>
</p:birt>
```

testbirt1.xhtml:

```
<p:birt xmlns:ui="http://java.sun.com/jsf/facelets"
        xmlns:s="http://jboss.com/products/seam/taglib"
        xmlns:p="http://jboss.com/products/seam/birt"
        designType="frameset"
        designName="test1.rptdesign"
        title="JBoss Birt Test">
</p:birt>
```

- Try the tests out by accessing <http://localhost:8080/birttests.seam> with your web browser.



**Figure 4.3. Trying the Tests out. First Page**

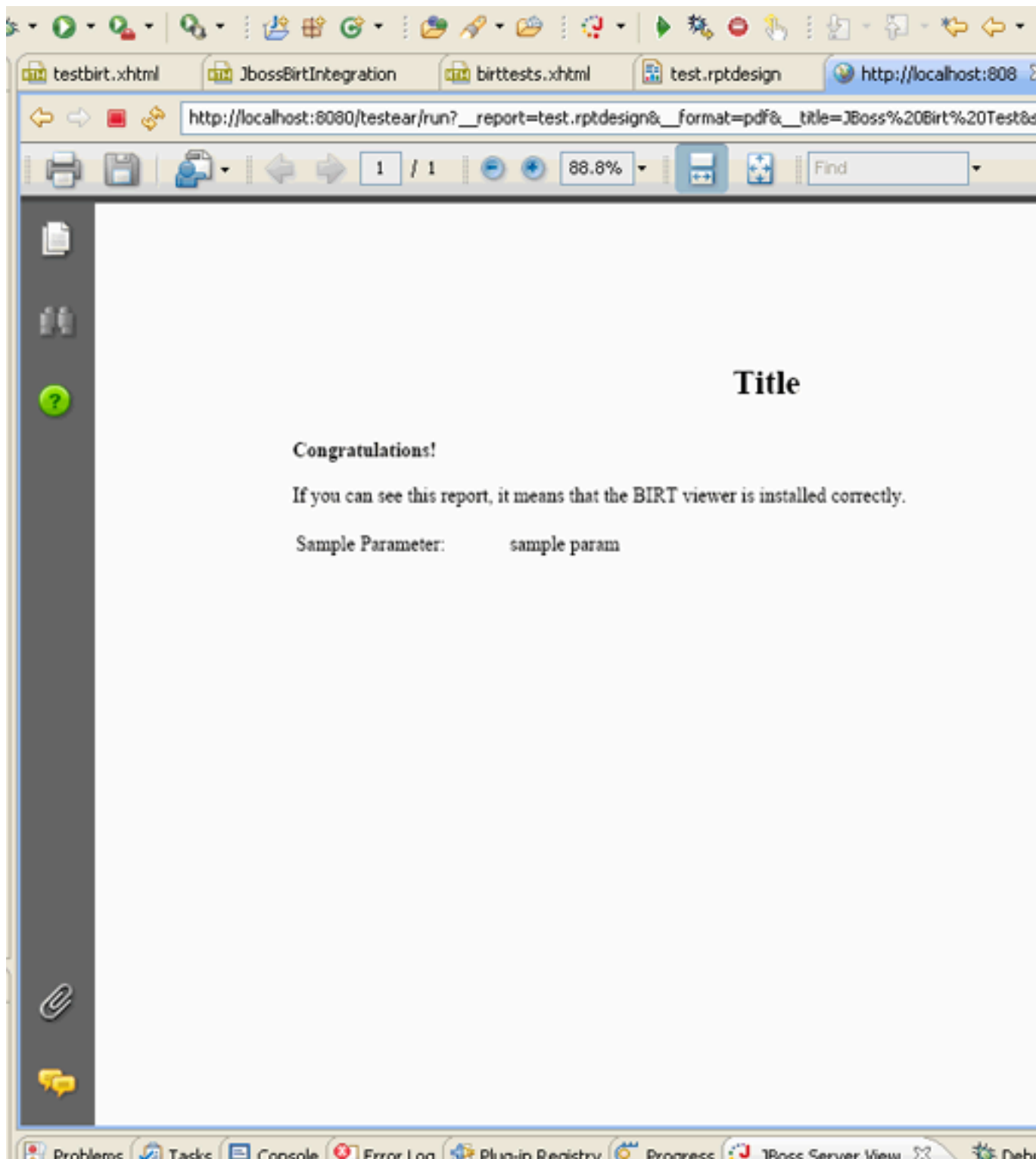


Figure 4.4. Trying the Tests out. Second Page

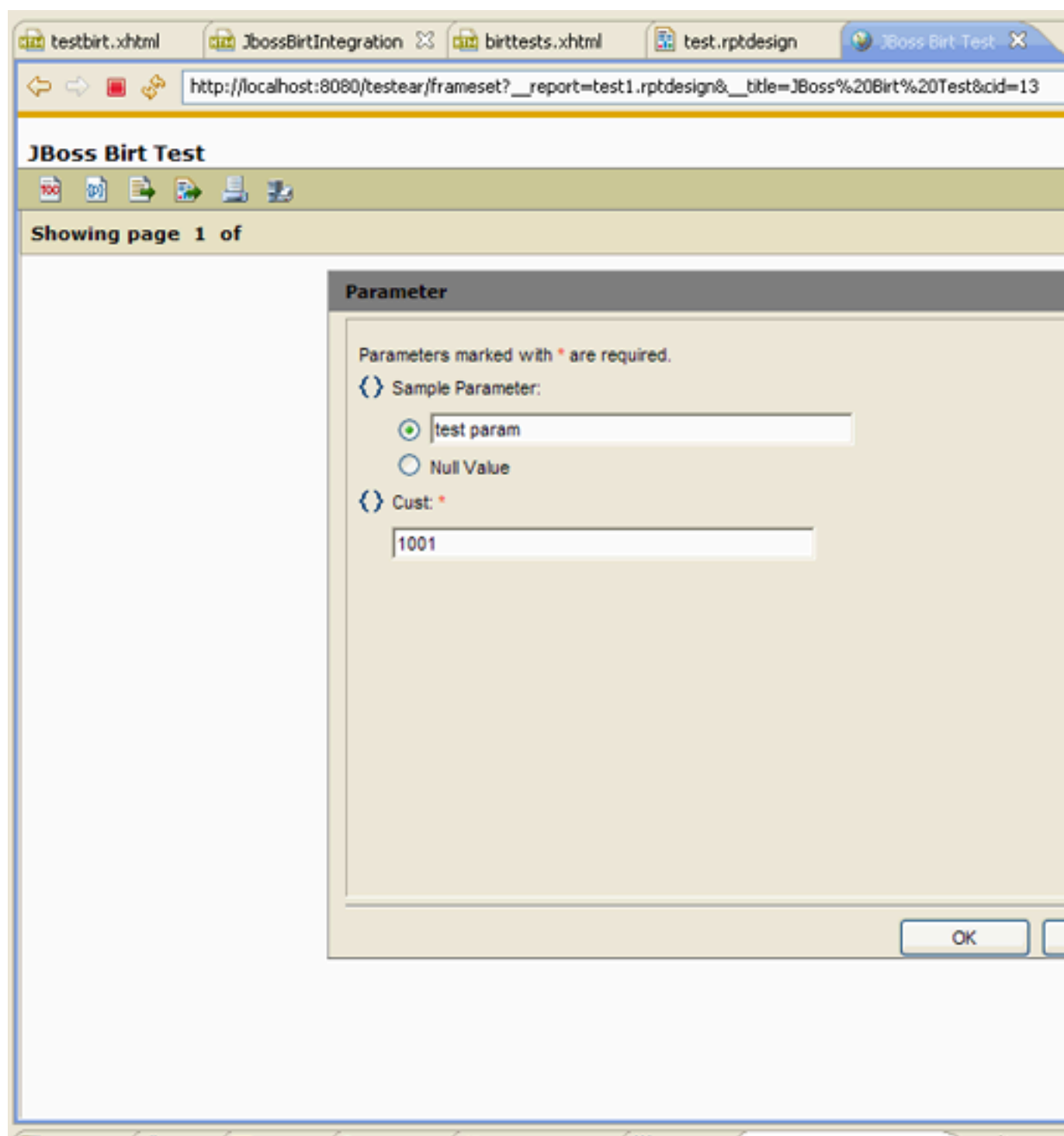
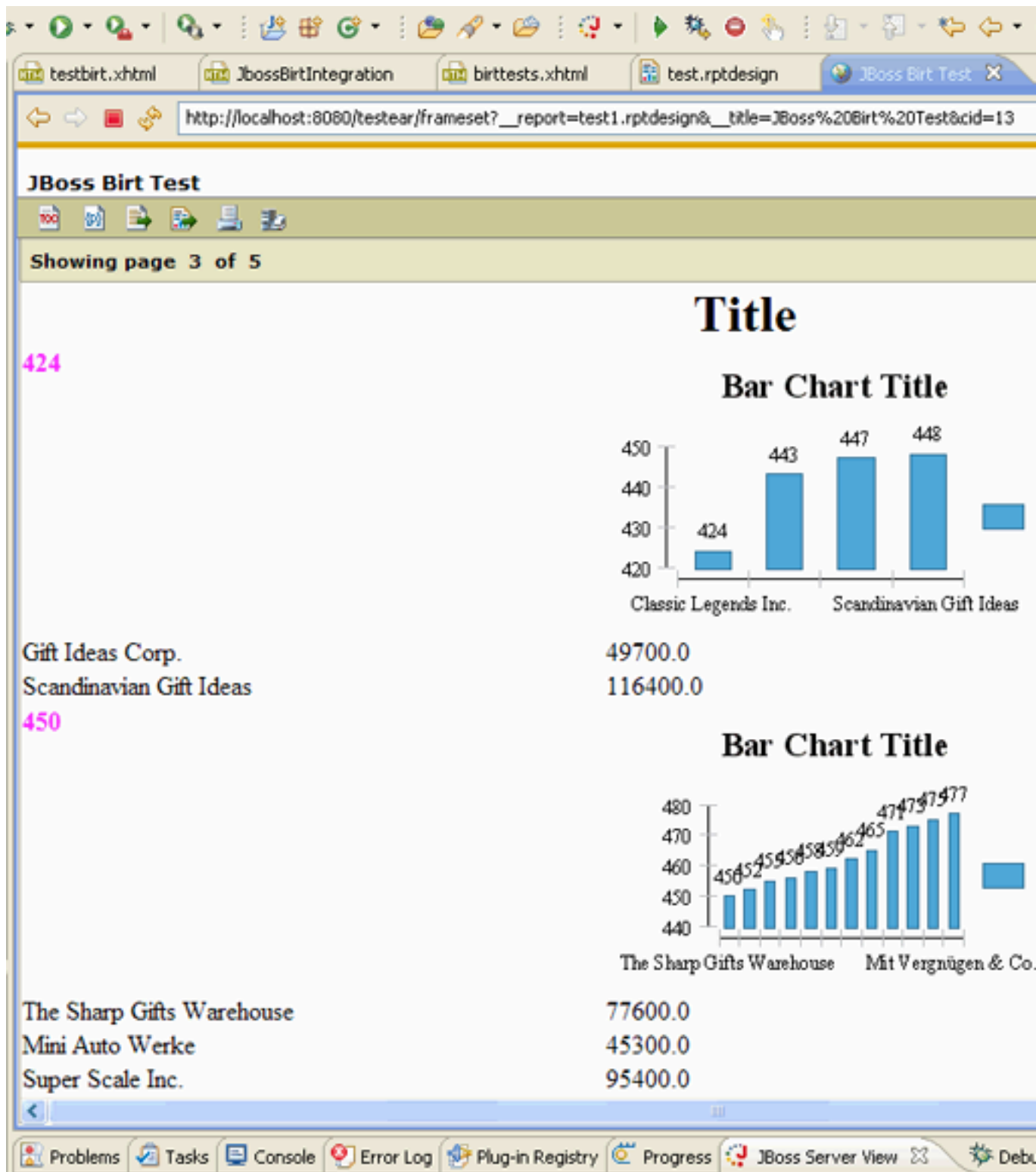


Figure 4.5. Trying the Tests out. Third Page





**Figure 4.6. Trying the Tests out. Forth Page**

The birt tag recognizes most of the parameters described on [the BIRT Report Viewer Parameters page](http://www.eclipse.org/birt/phoenix/deploy/viewerUsage2.2.php#parameters) [http://www.eclipse.org/birt/phoenix/deploy/viewerUsage2.2.php#parameters].

The attributes of the birt tag don't contain the "\_\_\_" prefix. The param tag describes report parameters. It supports the following attributes:

- name - the parameter name (required)
- value - the parameter value (required)
- isnull - specifies that a report parameter has a null value (optional)
- islocale - specifies whether the parameter is localized (optional)

These tags are defined in the org.jboss.birt.core/resources/jboss-seam-birt.jar library that contains source.

It is possible to embed a BIRT report in some Seam xhtml page. For instance:

### Example:

```
<!DOCTYPE composition PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://
www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<ui:composition xmlns="http://www.w3.org/1999/xhtml"
  xmlns:s="http://jboss.com/products/seam/taglib"
  xmlns:ui="http://java.sun.com/jsf/facelets"
  xmlns:f="http://java.sun.com/jsf/core"
  xmlns:h="http://java.sun.com/jsf/html"
  xmlns:rich="http://richfaces.org/rich"
  xmlns:b="http://jboss.com/products/seam/birt"
  template="layout/template.xhtml">
<ui:define name="body">
  <h:messages globalOnly="true" styleClass="message" id="globalMessages"/>
  <rich:panel>
    <f:facet name="header">Products</f:facet>
    <b:birt designType="embed" designName="ProductCatalog.rptdesign" embeddable="true"
masterpage="false"/>
    <div style="clear:both"/>
  </rich:panel>
  <div class="actionButtons">
    <s:button view="/ProductsEdit.xhtml" id="edit" value="Edit"/>
    <s:button view="/BirtProductsPdf.xhtml" id="BirtProductPdf" value="Product Catalog - PDF"/>
    <s:button view="/BirtProductsFrameset.xhtml" id="BirtProductFrameset" value="Product
Catalog - Frameset"/>
    <s:button view="/BirtProductsEmbedded.xhtml" id="BirtProductEmbedded" value="Product
Catalog - Embedded"/>
  </div>
</ui:define>
</ui:composition>
```

```
<s:button view="/TopSellingProducts.xhtml" id="TopSellingProducts" value="Top Selling
Products"/>
<s:button view="/#{empty productsFrom ? 'ProductsList' : productsFrom}.xhtml" id="done"
value="Done"/>
</div>
</ui:define>
</ui:composition>
```

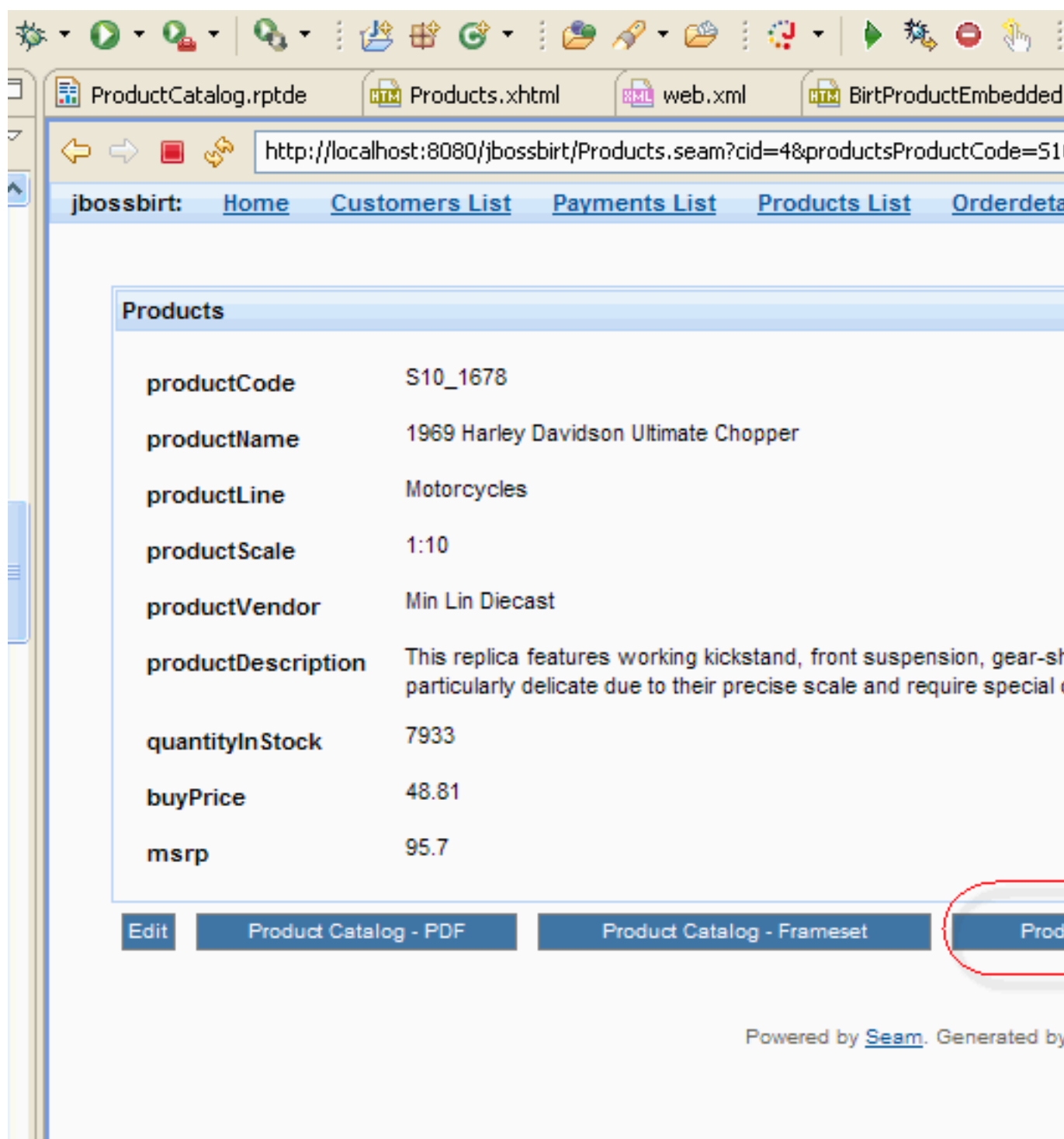



Figure 4.7. Embedding BIRT Report in Seam.xhtml Page. First Page

jbossbirt: [Home](#) [Customers List](#) [Payments List](#) [Products List](#) [Orderdetails List](#) [Productlines List](#)

---

Products



**Classic Models, Inc.**  
701 Gateway Boulevard,  
San Francisco, CA 94107

**Product Catalog**

---

**Product Category:** *Classic Cars*

---

<b>1948 Porsche 356-A Roadster</b>	Scale: 1:18
<b>Model Description:</b> This precision die-cast replica features opening doors, superb detail and craftsmanship including opening forward compartment, opening rear trunk with removable spare, 4 wheel independent suspension, as well as factory baked enamel finish.	
<b>1948 Porsche Type 356 Roadster</b>	Scale: 1:18
<b>Model Description:</b> This model features working front and rear suspension on accurately replicated and accurate chassis, as well as opening engine cover, rear stabilizer flap, and 4 opening doors.	
<b>1949 Jaguar XK 120</b>	Scale: 1:24
<b>Model Description:</b>	

Figure 4.8. Embedding BIRT Report in Seam xhtml Page. Second Page

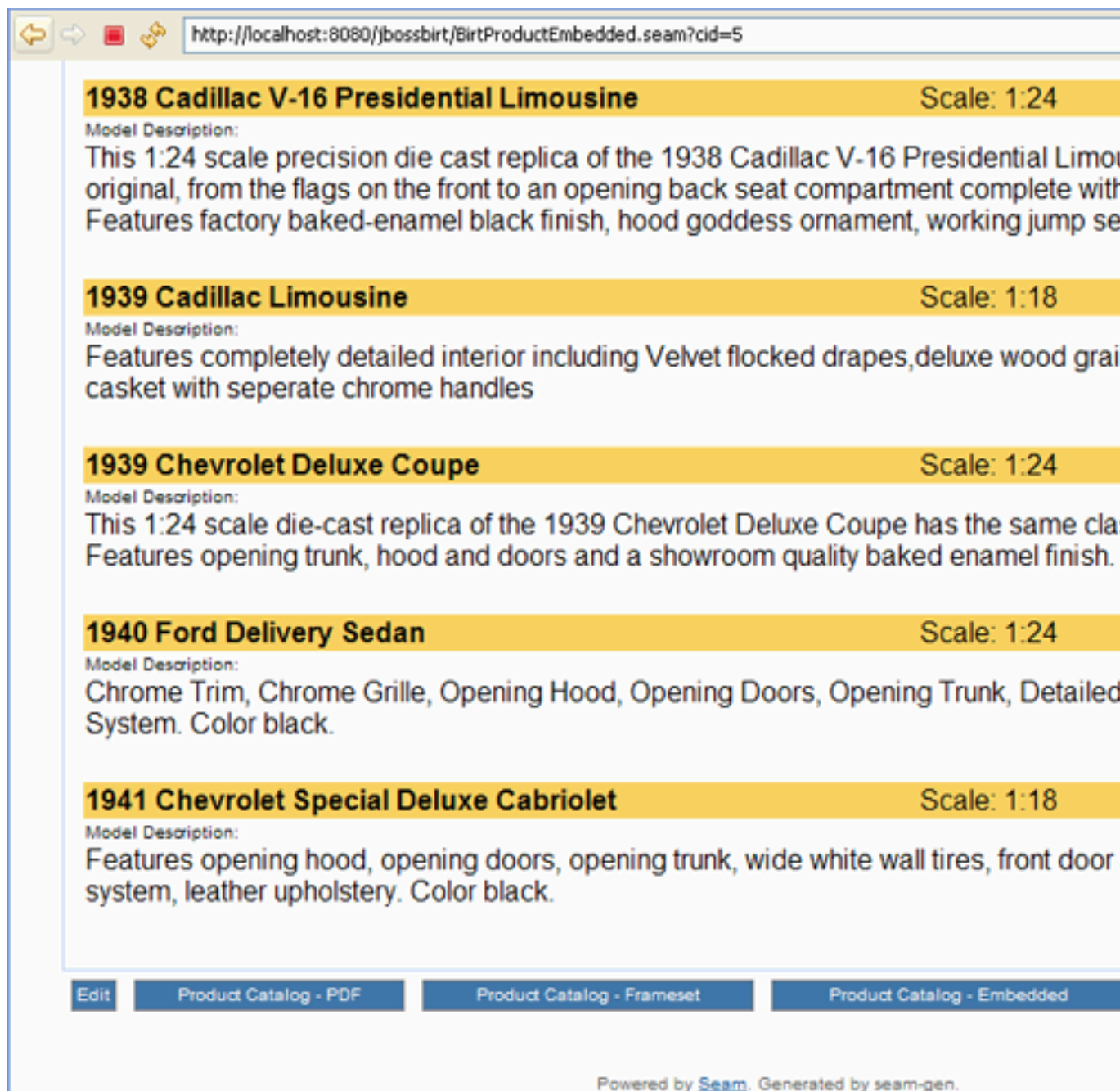


Figure 4.9. Embedding BIRT Report in Seam xhtml Page. Third Page

## 4.2. Hibernate ODA Data Source

The JBoss BIRT Integration feature includes the Hibernate ODA Data Source completely integrated with Hibernate Tools. You can use it in the way you use any of BIRT ODA drivers. For instance,

- run the Seam Generate Entities action

This action will create a Hibernate Console configuration.

- create a new BIRT report

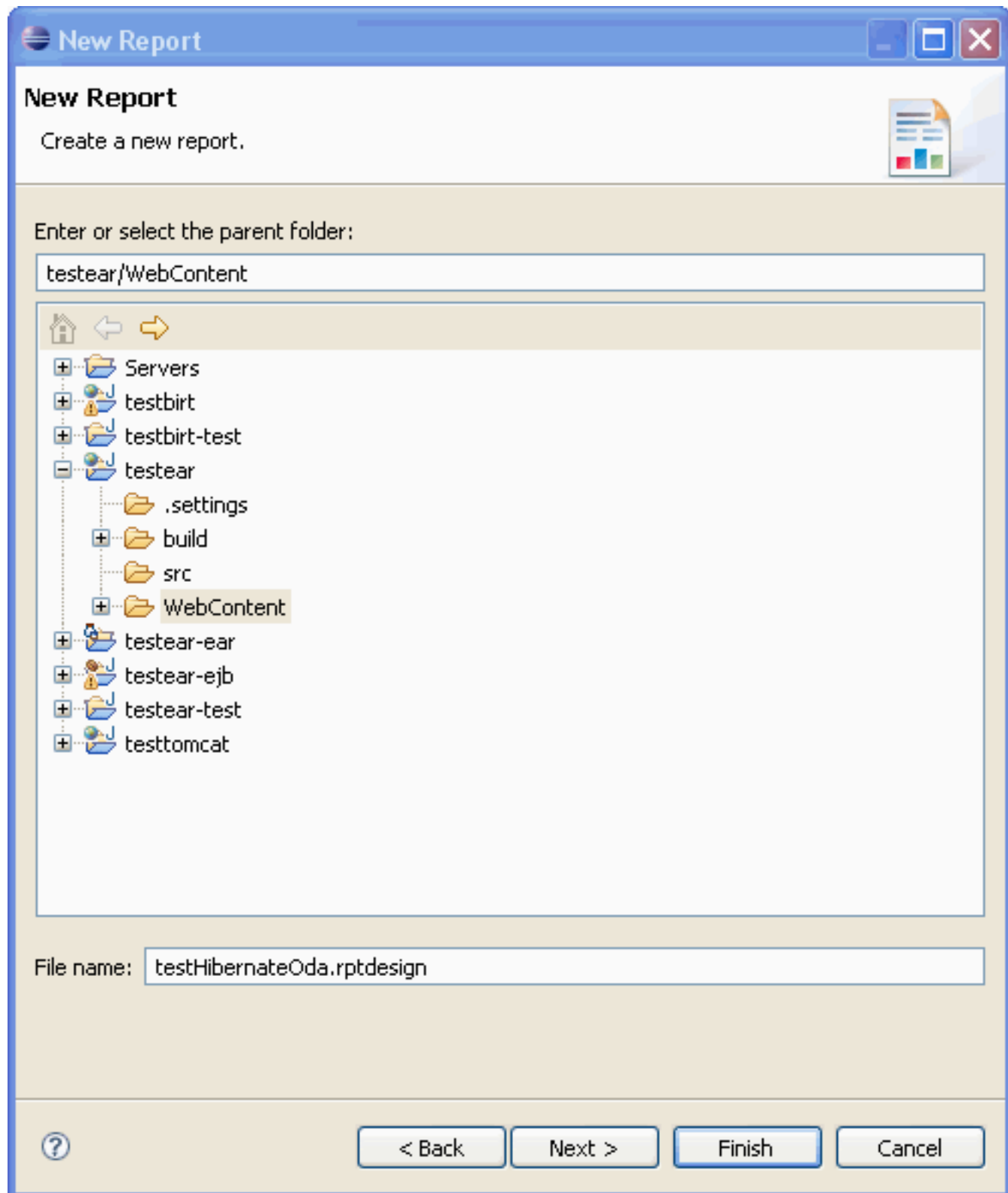


Figure 4.10. Creating New Birt Report

- add the Hibernate ODA datasource



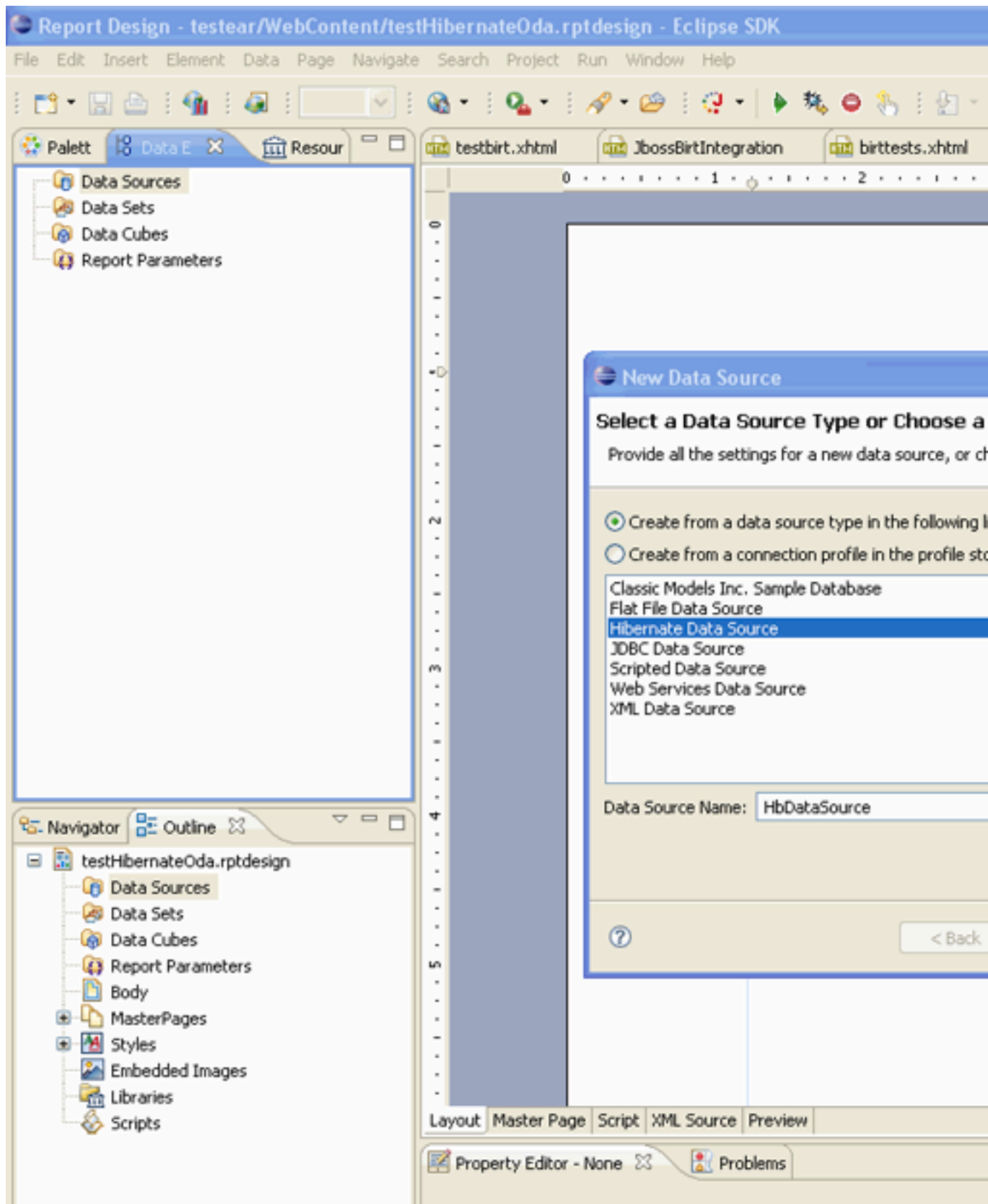
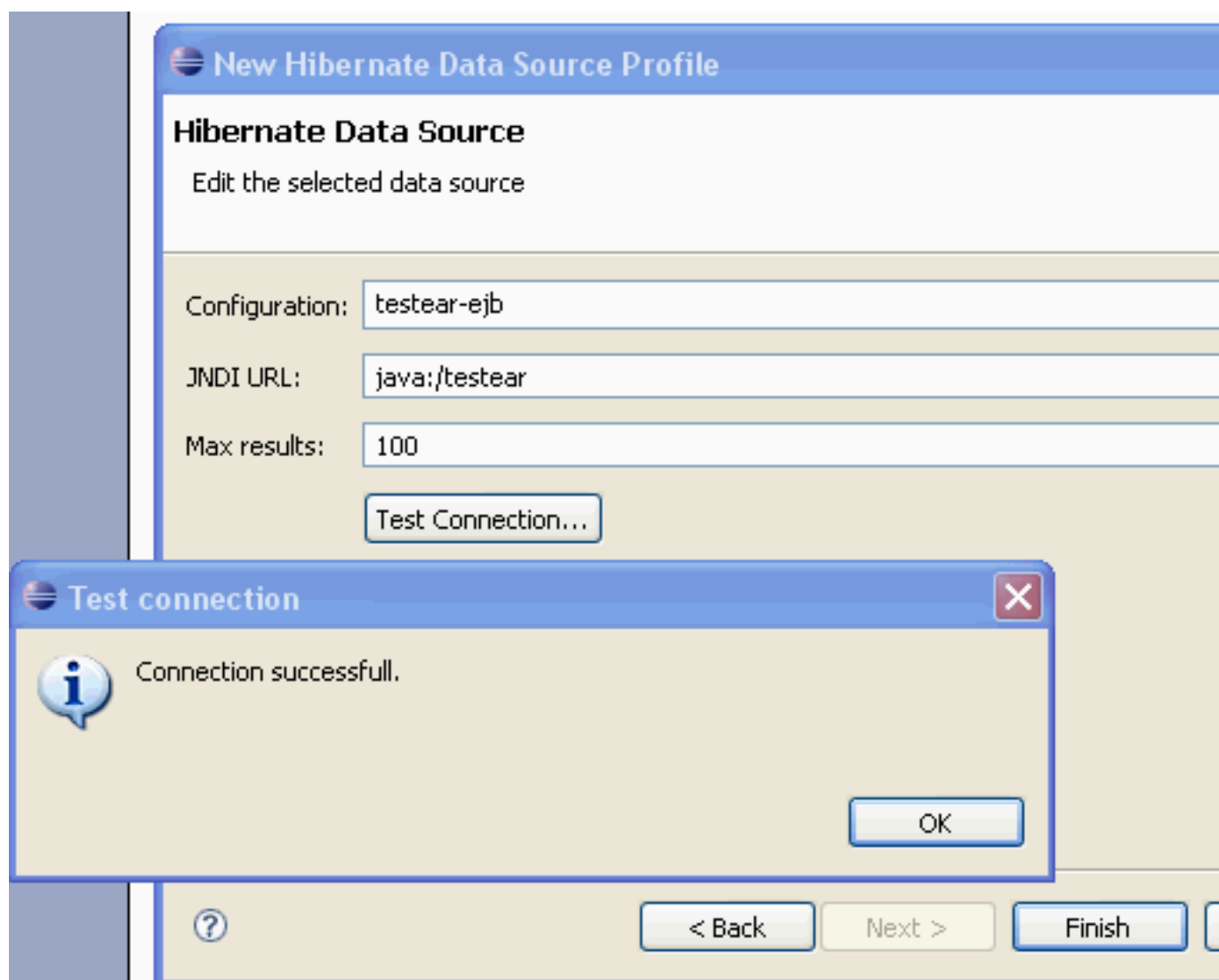
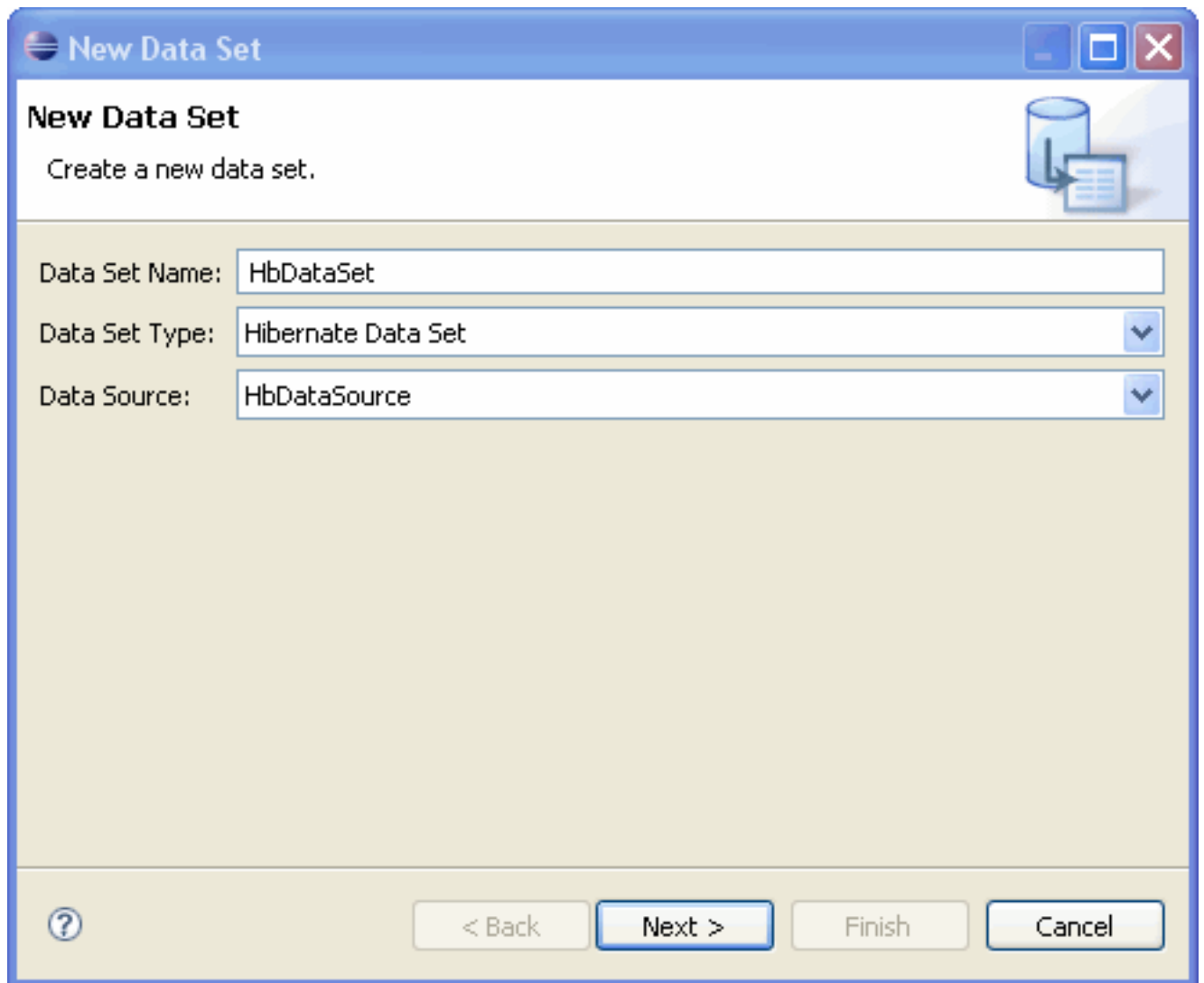


Figure 4.11. Adding Hibernate ODA Datasource



**Figure 4.12. Testing Connection**

- add the Hibernate ODA dataset



**Figure 4.13. Adding Hibernate ODA Dataset**

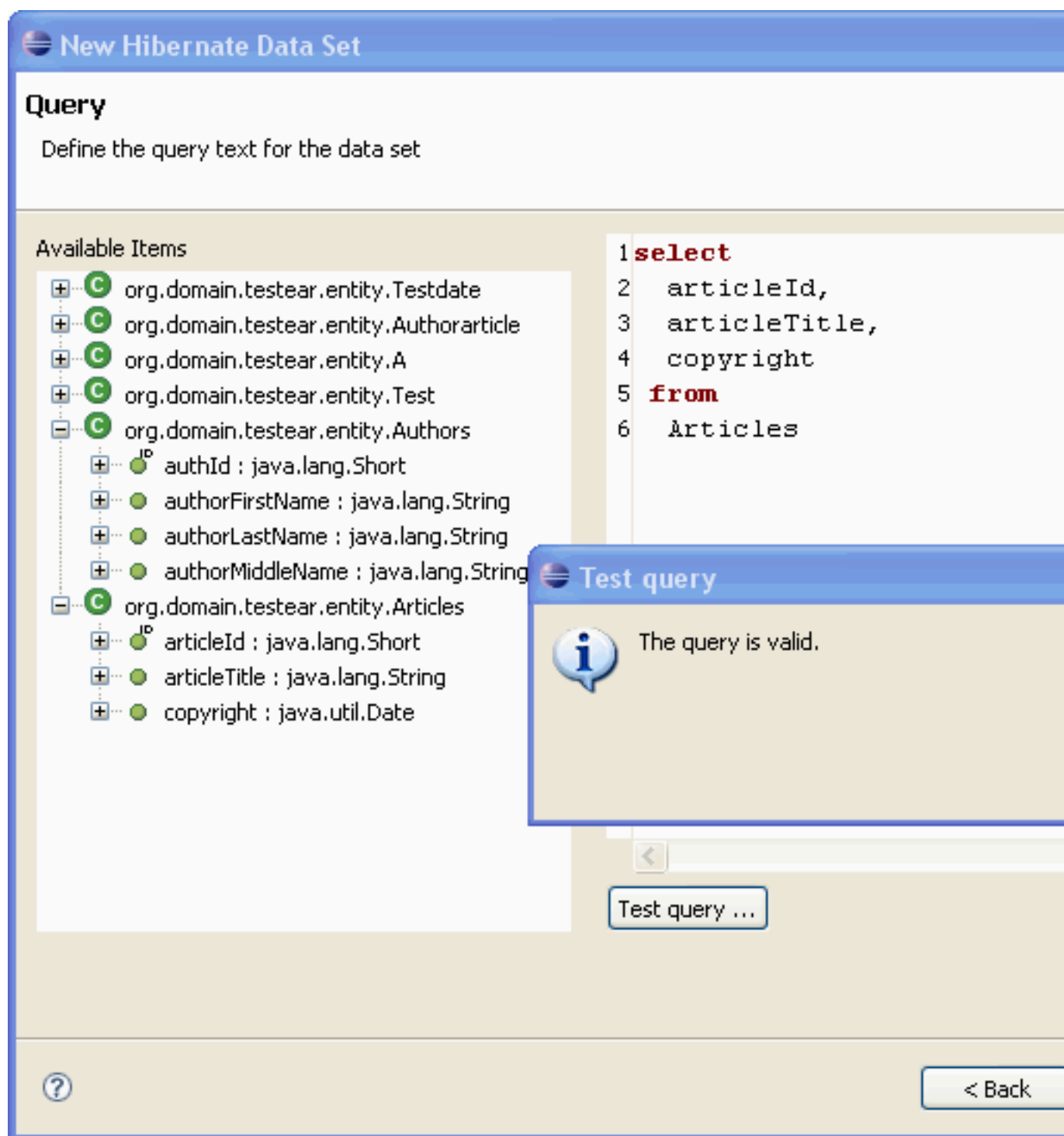
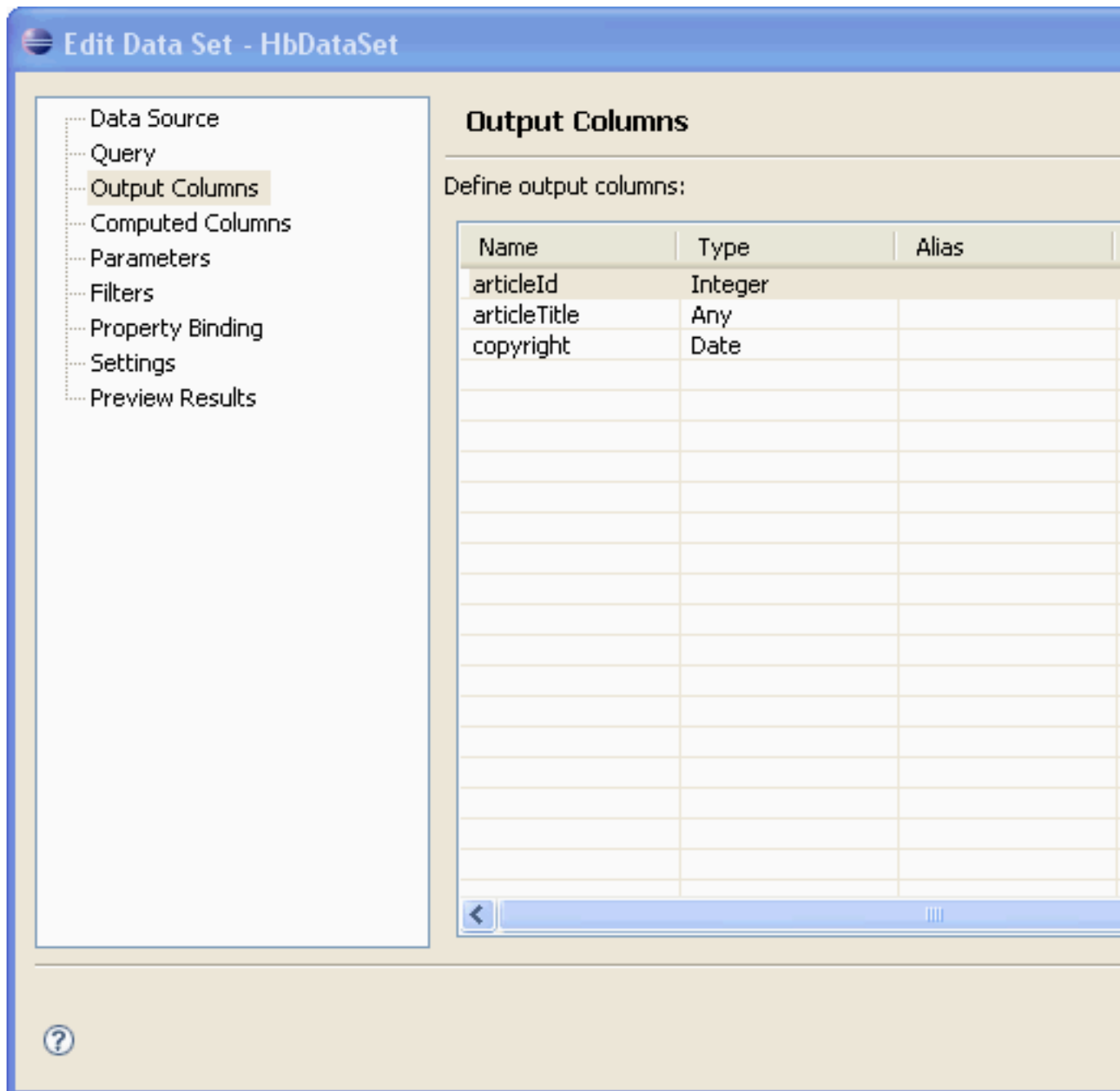
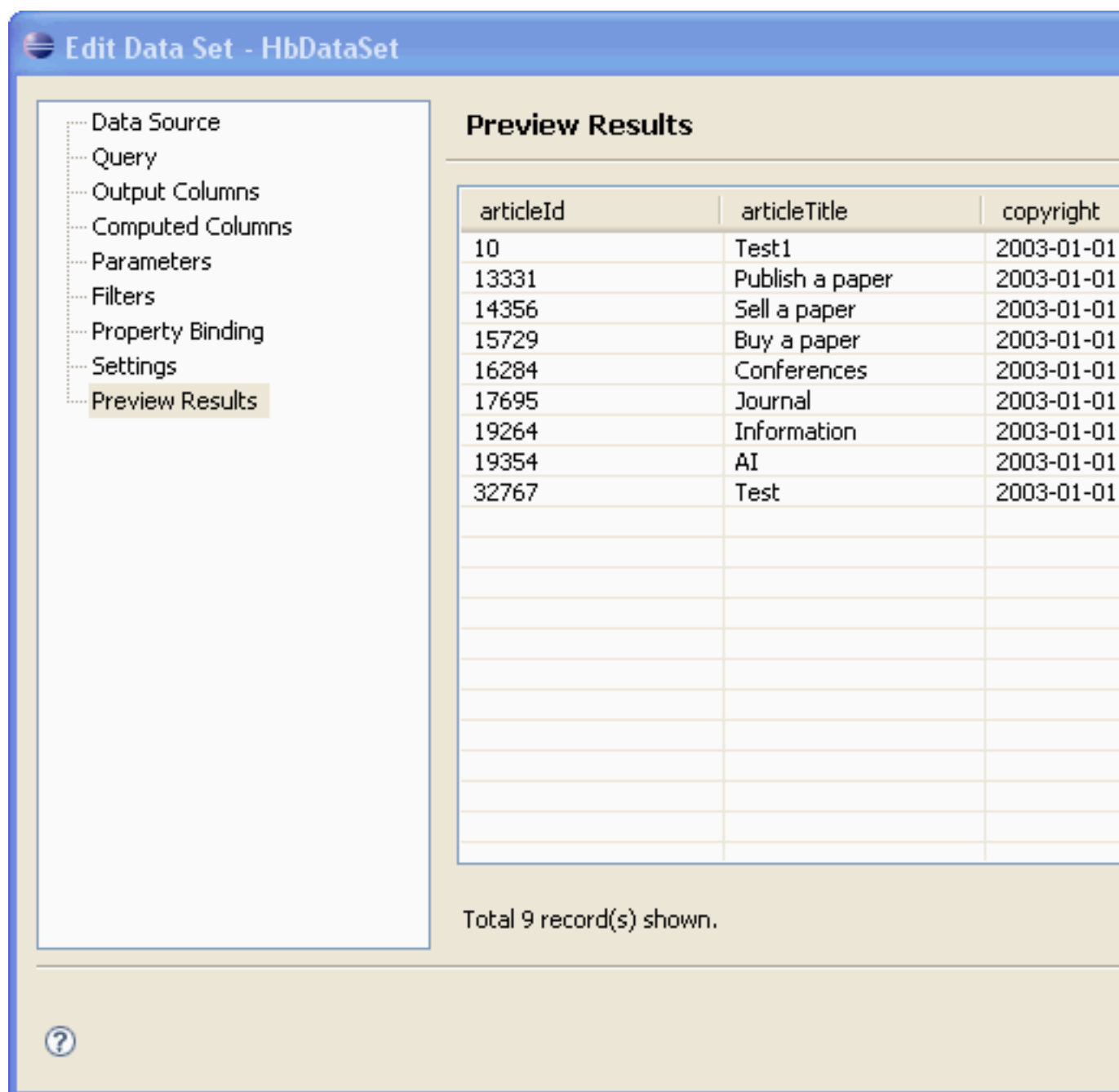


Figure 4.14. Testing Query

- All the HQL features like syntax highlighting, content assist, formatting, Drag and Drop, etc., are available to you here



### Figure 4.15. HQL Features - Output Columns Section



**Figure 4.16. HQL Features - Preview Results Section**

You can create a BIRT report using this data source and data set.

**Figure 4.17. Creating a BIRT report using this data source and data set**

web.xml config.ini home.xhtml home.xhtml testbirt.xhtml JBossBirtIntegration

Show Report Parameters **Note:** Current maximum number of data rows is limited to 500. ([Click to change](#))

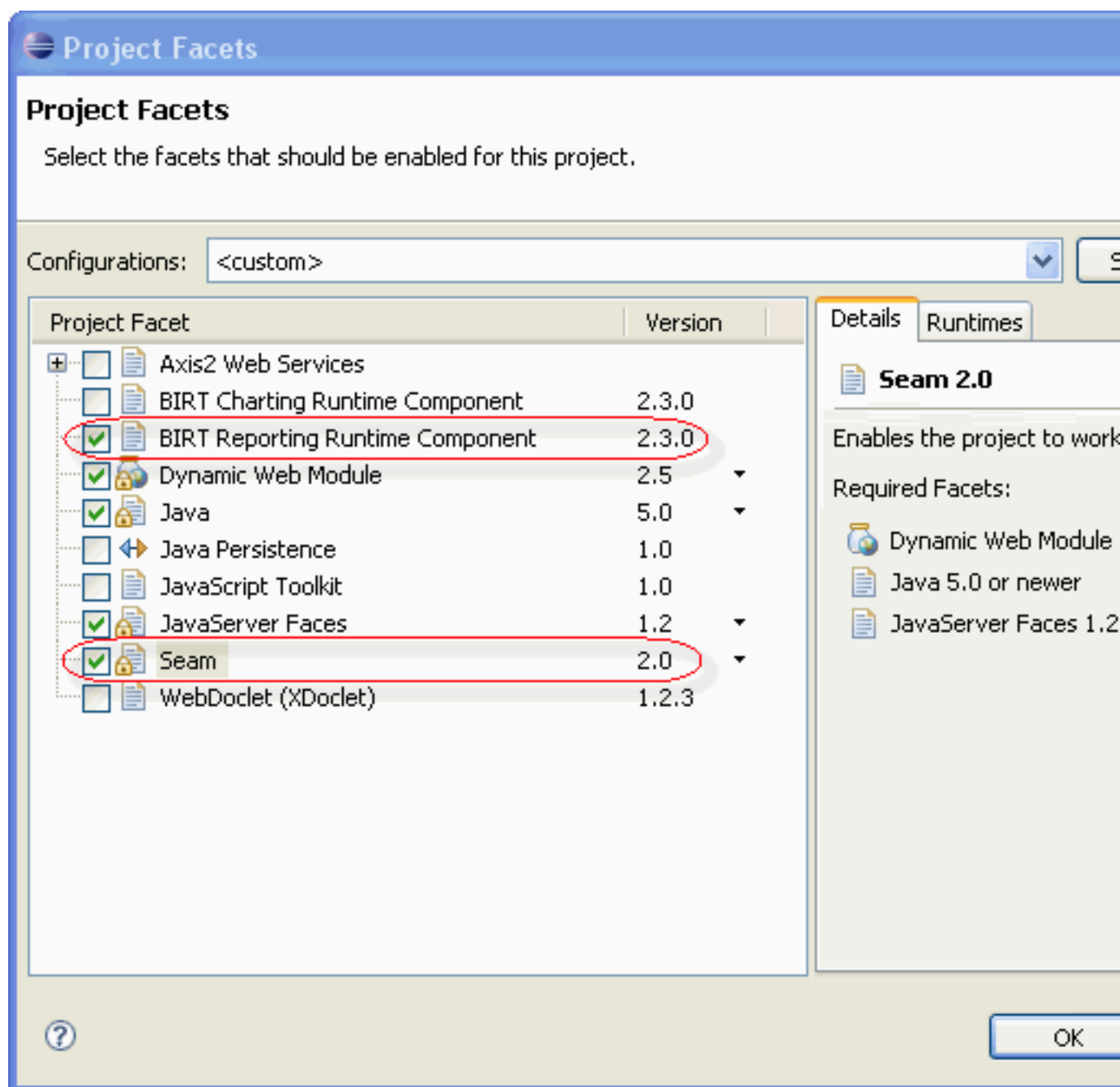
### Articles Catalog

ID	Title
10	Test1
13331	Publish a paper
14356	Sell a paper
15729	Buy a paper
16284	Conferences
17695	Journal
19264	Information
19354	AI
32767	Test

*Jun 24, 2008 7:17 PM*

Layout Master Page Script XML Source Preview

Figure 4.18. BIRT Report -Preview Tab



**Figure 4.19. Adding "Birt Reporting Runtime Component" Facet**

You can also use parameters within the Hibernate ODA driver.



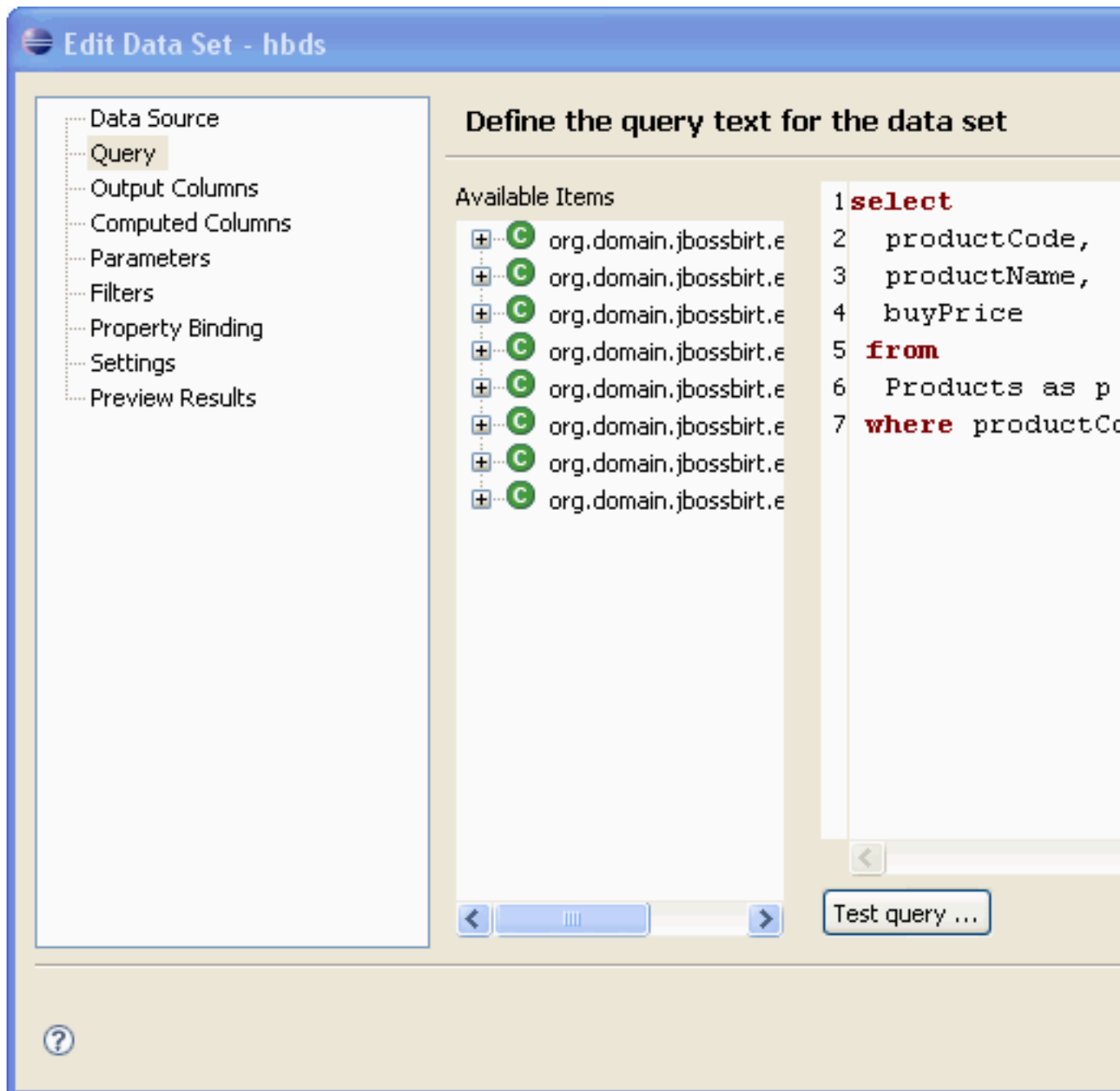


Figure 4.20. Using parameters within the Hibernate ODA driver.

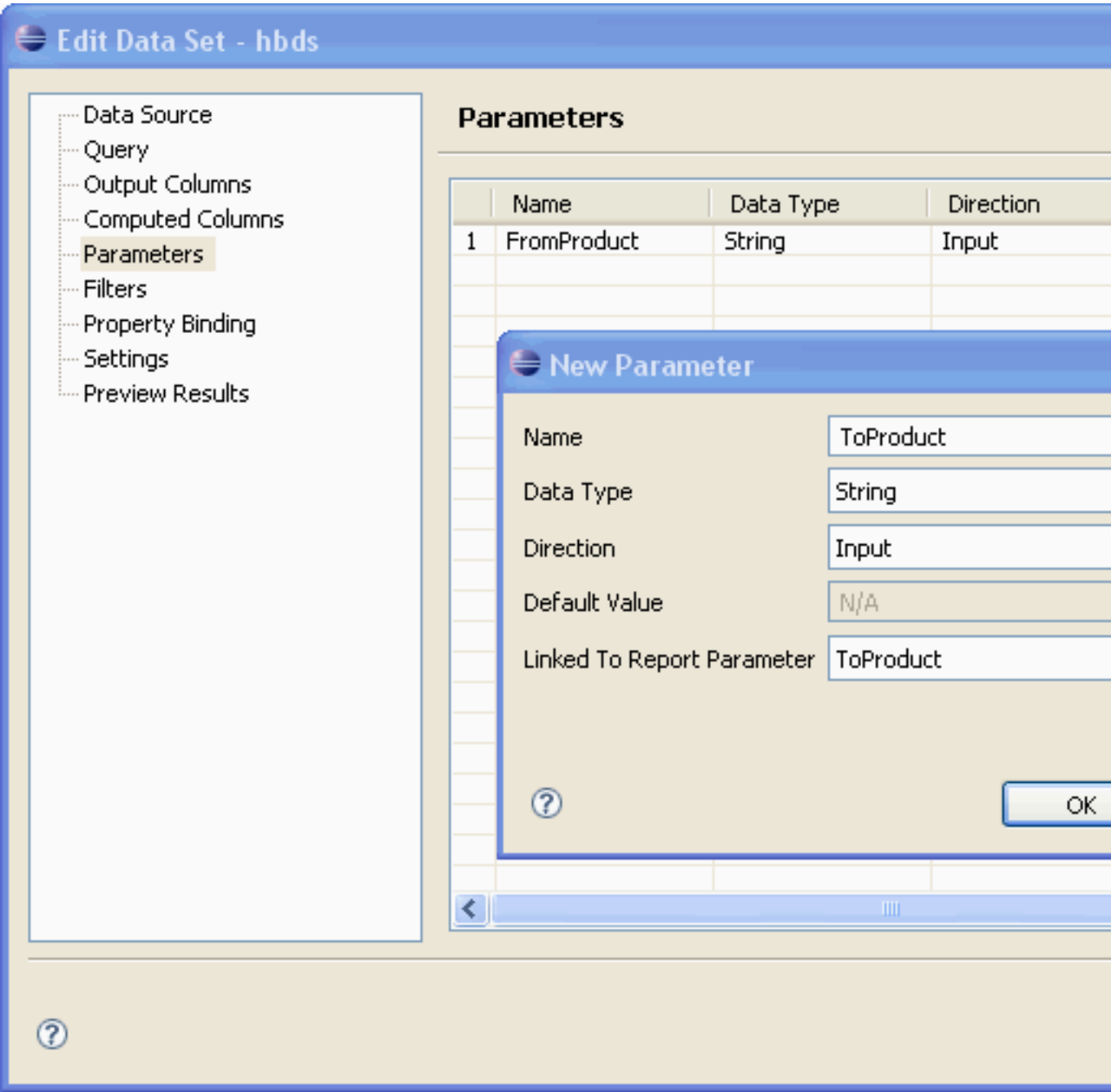
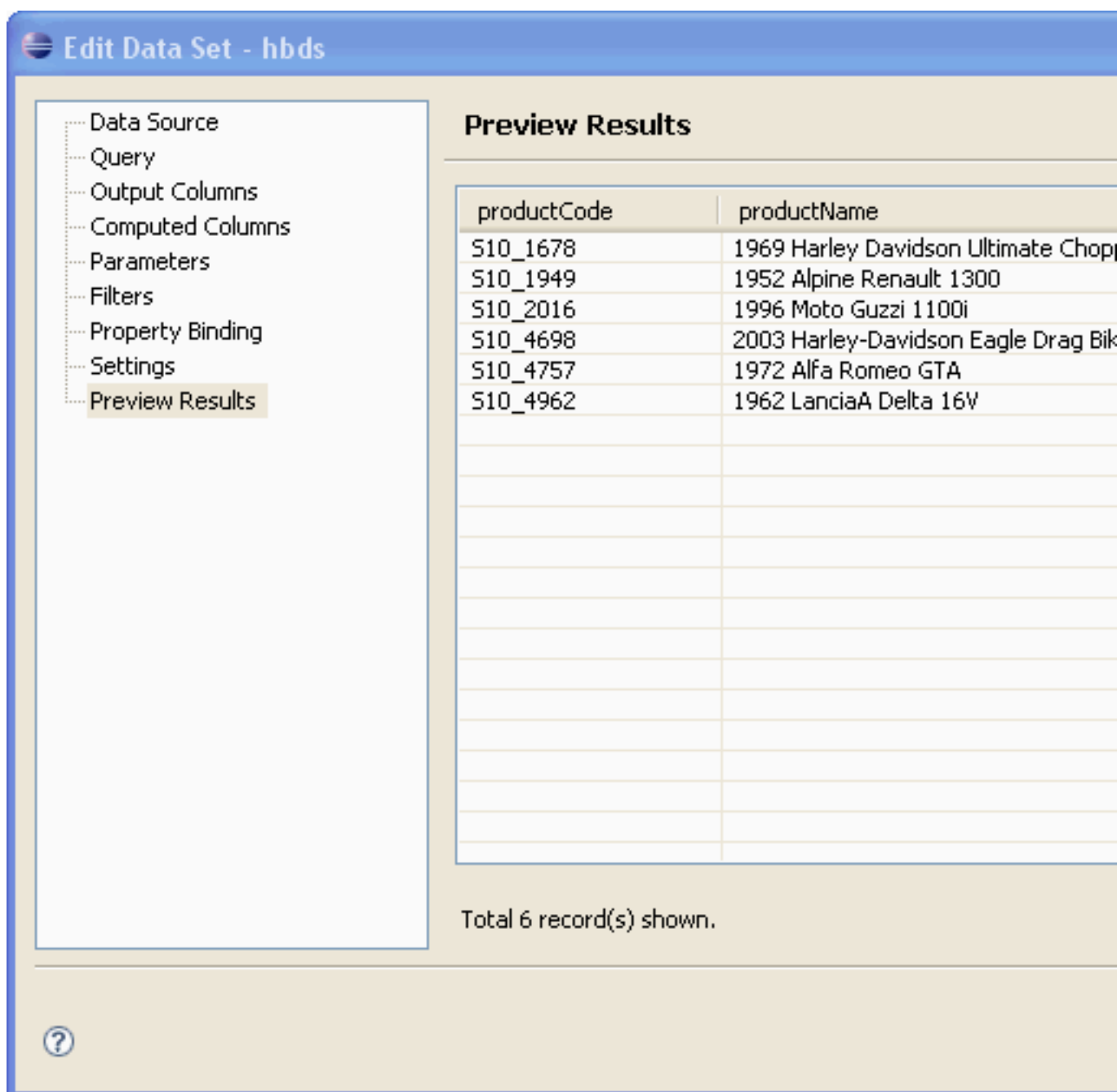


Figure 4.21. Adding New Parameter



### Figure 4.22. Previewing Results

### 4.3. Deploying a BIRT report

You can deploy this report by adding an action button to the Seam's CRUD xhtml file.

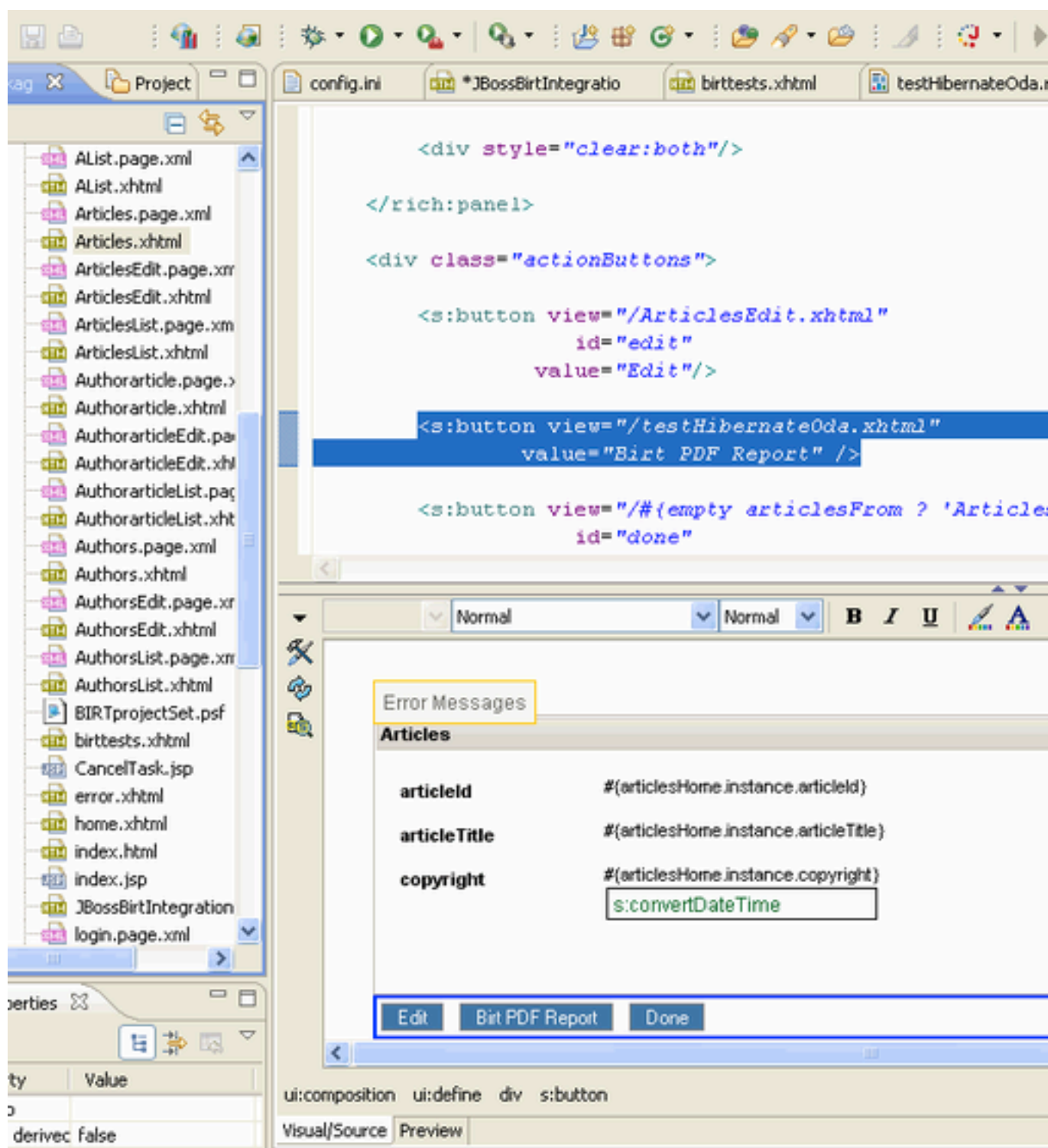


Figure 4.23. Adding Action Button

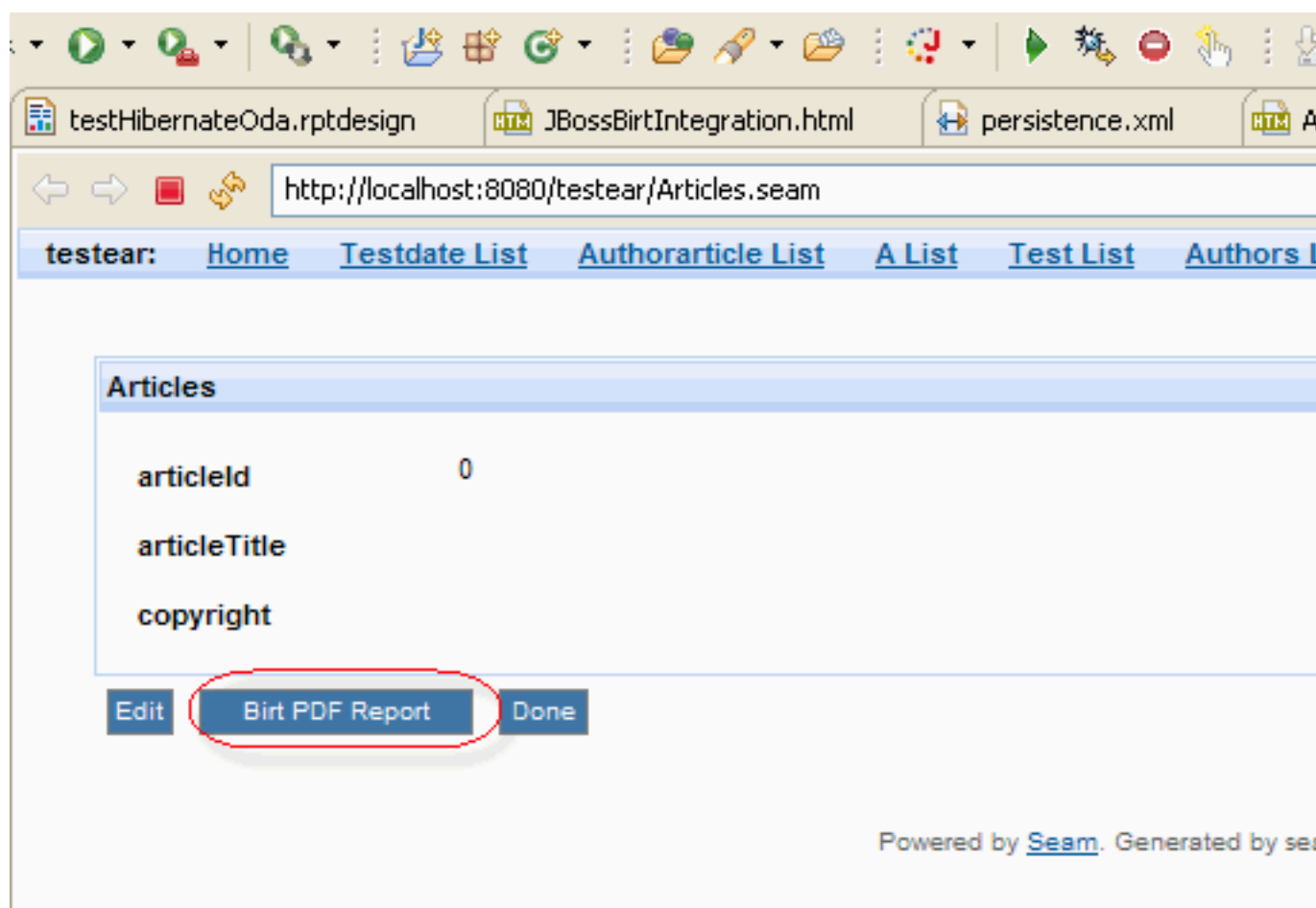
- create the `testHibernateOda.xhtml` file

**birttests.xhtml:**

```
<p:birt xmlns:ui="http://java.sun.com/jsf/facelets"
        xmlns:s="http://jboss.com/products/seam/taglib"
        xmlns:p="http://jboss.com/products/seam/birt"
        designType="run"
        format="pdf"
        designName="testHibernateOda.rptdesign"
        title="JBoss Birt Test">

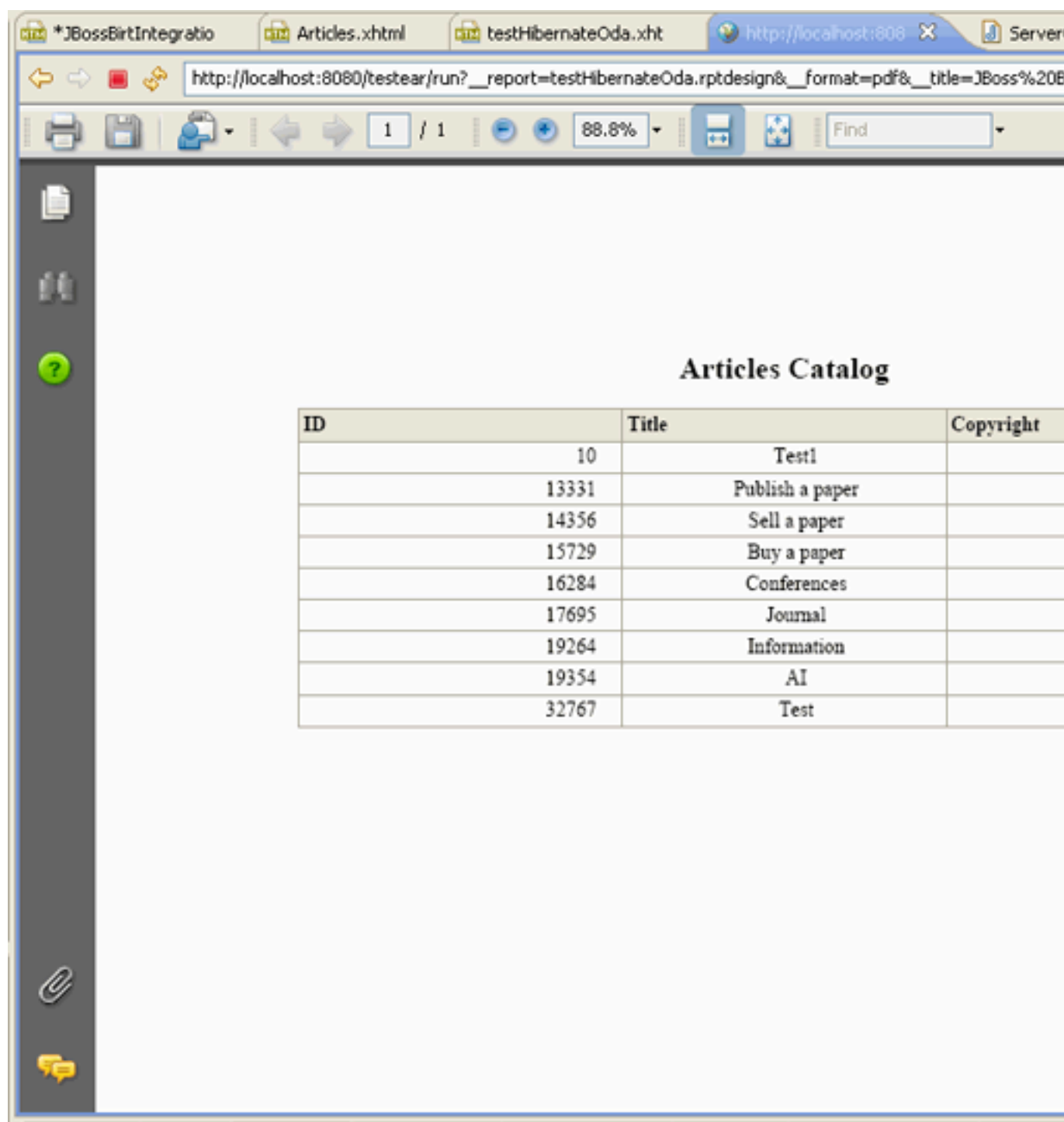
</p:birt>
```

- open the Articles.xhtml page



**Figure 4.24. Opening Articles.xhtml Page**

- click the Birt PDF Report button

**Figure 4.25. Birt PDF Report**

The JNDI URL property can be either Hibernate Session Factory or Hibernate Entity Manager Factory. If a user doesn't specify this property, our engine will try the following JNDI URLs :

- java:./<project\_name>
- java:./<project\_name>EntityManagerFactory

**Note:**

If you want to test this feature using PDE Runtime, you need to add `osgi.dev=bin` to the `WebContent/WEB-INF/platform/configuration/config.ini` file

In conclusion, the main goal of this document is to get you know with a full featureset that JBoss BIRT Tools provides. Thus if you have some questions, comments or suggestions on the topic, please fell free to ask in the JBoss Tools Forum. You can also influence on how you want to see JBoss Tools docs in future leaving your vote on our page [here](#).

