Developing a Document Lifecycle using Oracle ADF, BI Publisher and Universal Content Management

1 Introduction

1.1 Service-oriented Reporting with Oracle BI Publisher

In almost every application there is a requirement to generate documents and reports for the business departments. In the past the output functionality was often implemented in every application using different reporting products and approaches which was expensive in development and maintenance.
With the new paradigm of Service-oriented Architecture (SOA) and technologies like Web Services, Business Process Execution Language (BPEL) etc. it is a much better approach to have a centralized **Reporting Service** delivering all the required documents and reports requested by different applications. Consequently the Reporting Service has to satisfy the sum of requirements from business applications concerning formatting functionality, output formats, scheduling, distribution channels, performance and requires appropriate service interfaces for integration. **Oracle BI Publisher** offers this broad functionality and can be integrated using HTTP, Java APIs or web services. Further information about Oracle BI Publisher can be found at:
http://www.oracle.com/technology/products/xml-publisher/index.html

Generating a document or report often cannot be considered as an isolated step. In most cases it is part of a business process with requirements to store the document together with contextual information about the process the document belongs to (date, owner, recipients, process parameters).
Looking at a single document there is a kind of a **document lifecycle** starting with the requirement for the document, followed by generating, delivering, consuming and archiving it.
In this example **Oracle Universal Content Management (UCM)** will be used to store the generated output together with metadata about the process itself. Further information about Oracle Universal Content Management can be found at:
http://www.oracle.com/technology/products/content-management/ucm/index.html

When implementing business processes **Oracle BPEL Process Manager** can be used as a backbone to control the execution of the process steps in the required sequence. This has also advantages for integrating a Reporting Service based on Oracle BI Publisher. As an example there could be a requirement that campaign letters should be produced and send to customers when a product in stock exceeds a certain threshold value. The scheduler of BI Publisher can be used to define a certain time or frequency for the execution of a report. If like in the example the execution depends from certain conditions this is outside of the scheduler's scope. With BPEL Process Manager it is

possible to implement such a kind of **Conditional Reporting**.
In this example BPEL Process Manager will not be used to keep the number of integrated components small. Further information about Conditional Reporting with BI Publisher and BPEL Process Manager can be found at:
http://www.slideshare.net/kanaugust/oracle-bi-publisher-and-bpel-integration
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1.2 Components used in the Example

In the example the following components will be used:

- Oracle JDeveloper 11.1.1.2 with embedded WebLogic Application Server
- Oracle Database 11*g* with
    - demo schema HR
    - UCM content store
- Oracle BI Publisher Enterprise 10.1.3.4.1
- Oracle Universal Content Management 10.1.3.3

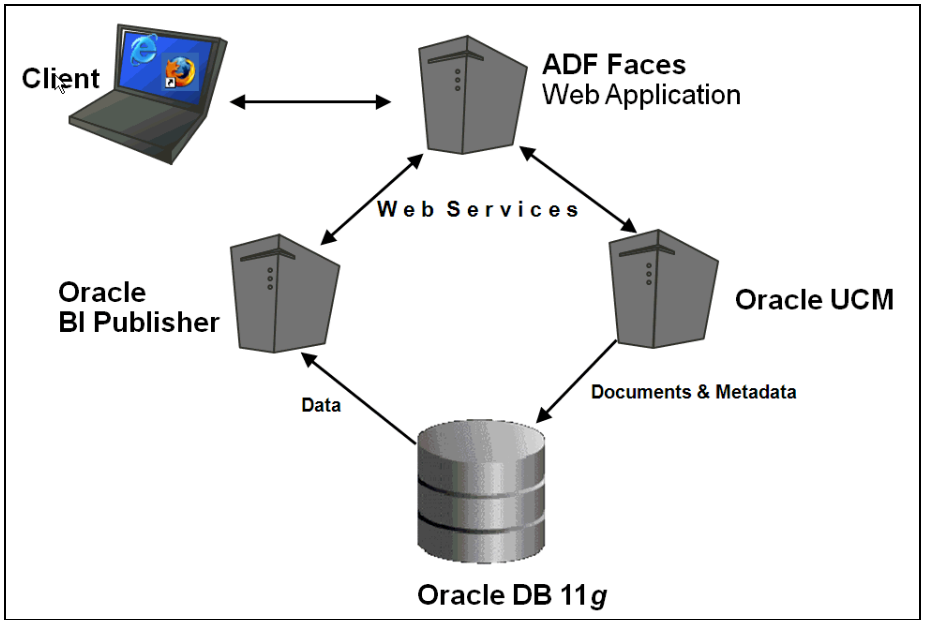


Figure 1 Components used in the example

1.3 Annotations to the Example

For the sake of simplicity the following aspects are excluded from the example.

- In the example no report-specific parameters will be used. Therefore all reports can be executed when
    - they are defined without parameters
    - they are defined with parameters allowing the selection of all values
- The example does not implement an integrated identity and access management solution. No LDAP is used to store the user credentials. BI Publisher and Oracle UCM will be used with their own credential stores to maintain users and roles. In

this example it is assumed that the same user (adam) exists in Oracle BI Publisher and UCM.

The complete sample code of the ADF application is found in *BipIntegration.zip* included in the *Sample Code* package.

2 Developing the ADF Application

2.1 Overview of the ADF Application

Oracle Application Development Framework (ADF) is a comprehensive and integrated set of JEE frameworks and standards to develop and run enterprise applications. Further information about Oracle Application Development Framework can be found at:
http://www.oracle.com/technology/products/adf/index.html

In this example the following components of Oracle ADF are used in the layered application:

Application Layer	ADF Component
Business Service Layer	Web Services
Model Layer	Data Binding
Presentation Layer (GUI)	ADF Faces

In the business service layer web services of Oracle BI Publisher and Oracle UCM will be called in a sequential order.

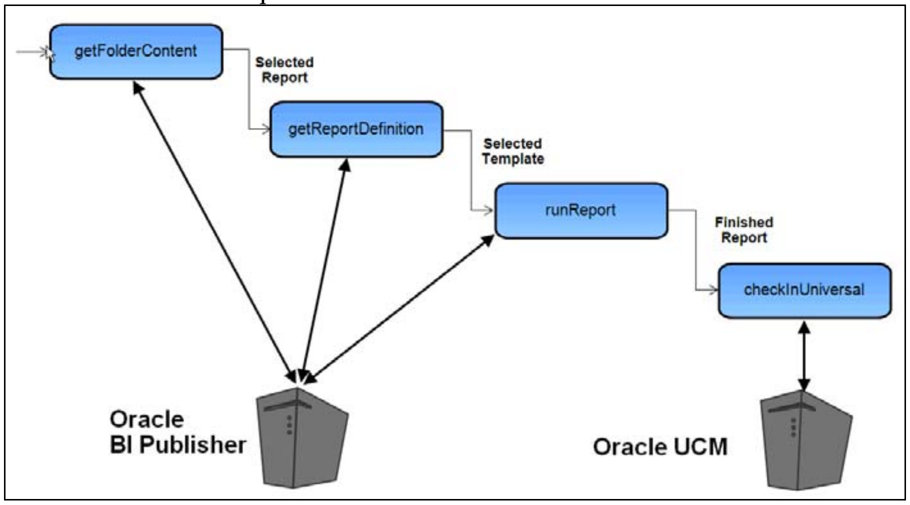


Figure 2 Sequential order of web service calls

The response of one call is the input to the next call. This sequence of calls determines the functional flow of the application which consists of the following steps:

- display a list of available reports in a folder of the BI Publisher server (*getFolderContents*)
- user selects one report from the list

- display a list of registered templates for the selected report (*getReportDefinition*)
- user selects one template from the list
- user enters options for the report (format, name, etc. of the generated report)
- user starts the execution of the report (*runReport*)
- user can view the generated report
- user enters metadata to describe the generated report
- user checks-in the generated report into Oracle UCM (*checkInUniversal*)

A description of these web service methods can be found at:

- Oracle BI Publisher
  http://download.oracle.com/docs/cd/E12844_01/doc/bip.1013/e12188/T421739T524310.htm
- Oracle UCM
  http://download.oracle.com/docs/cd/E10316_01/cs/cs_doc_10/documentation/addons/soap_wsdl_10en.pdf
  http://download.oracle.com/docs/cd/E10316_01/cs/cs_doc_10/sdk/soap/wwhelp/wwhimpl/js/html/wwhelp.htm

Using web services in Oracle ADF there are two possible implementations:

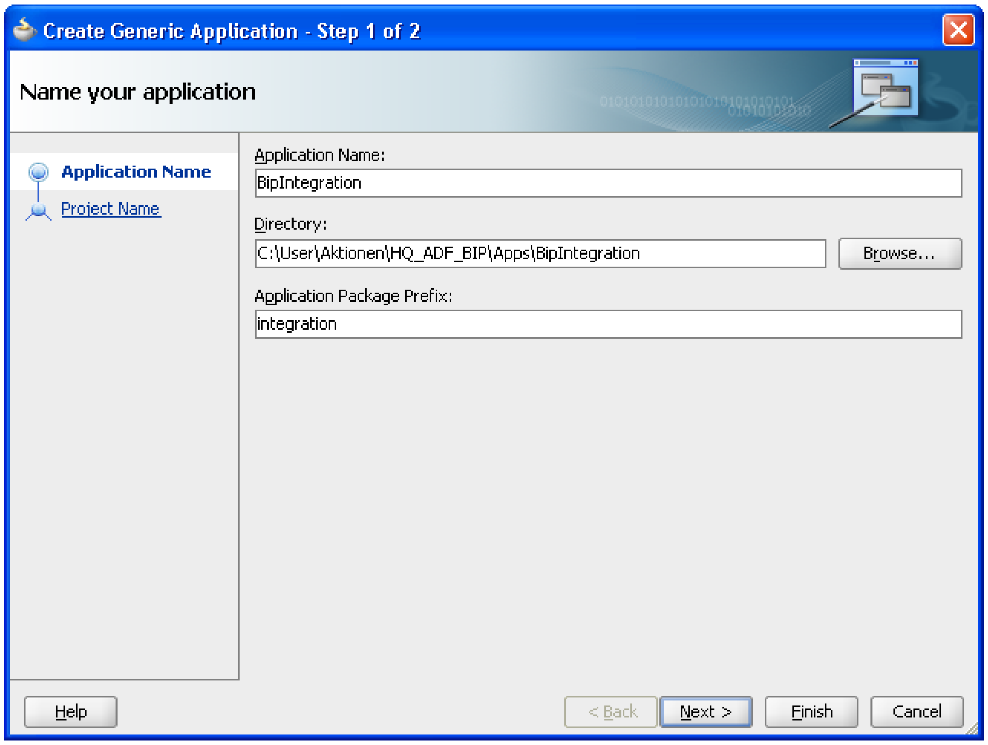
1. Generating the data controls directly for the WSDL of the web service
   This approach is more straightforward and easier to implement but there are certain limitations especially with complex datatypes.
2. Generating a Java client proxy for the web service and expose that class as a data control.
   This approach is more powerful and flexible but requires an additional layer and more effort to implement.

In *Oracle JDeveloper* both implementations are supported by wizard-driven functionality. In the example the first implementation was used to explore the possibilites and limitations of that approach in *JDeveloper 11.1.1.2*.

2.2 The Business Service for BI Publisher Web Wervices

2.2.1 Creating the Application and Project *Model*

In the first step the data controls for accessing the BI Publisher web services will be generated. Create an application *BipIntegration* of type *Generic Application* (package *integration*) in Oracle JDeveloper and a project *Model* (package *integration.model*) with the technology *Web Services* selected. (See screenshots.)

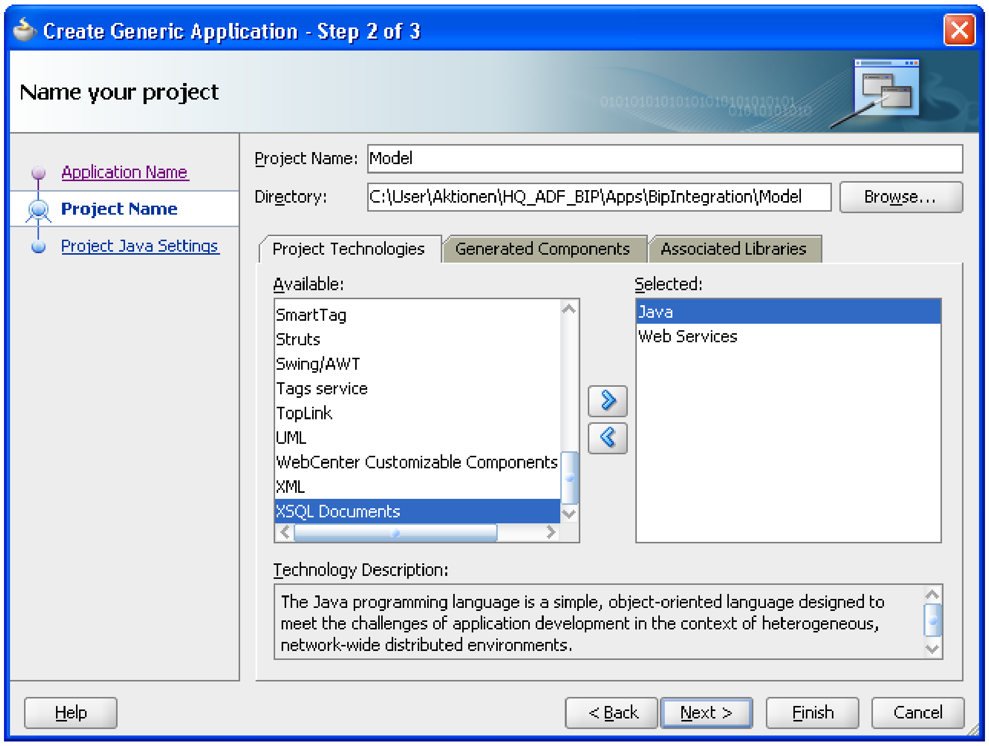

Create Generic Application - Step 1 of 2

Name your application

Application Name: BipIntegration

Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration

Application Package Prefix: integration


Create Generic Application - Step 2 of 3

Name your project

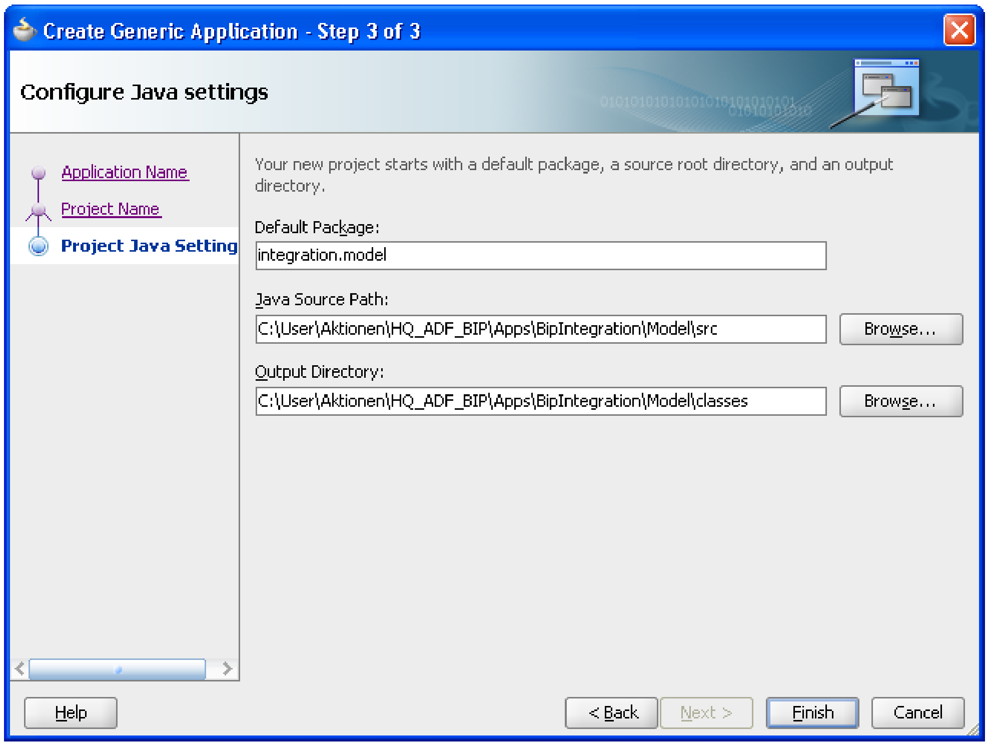
Project Name: Model

Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\Model

Available: SmartTag, Struts, Swing/AWT, Tags service, TopLink, UML, WebCenter Customizable Components, XML, XSQL Documents

Selected: Java, Web Services

Technology Description: The Java programming language is a simple, object-oriented language designed to meet the challenges of application development in the context of heterogeneous, network-wide distributed environments.


Create Generic Application - Step 3 of 3

Configure Java settings

Your new project starts with a default package, a source root directory, and an output directory.

Default Package: integration.model

Java Source Path: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\Model\src

Output Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\Model\classes

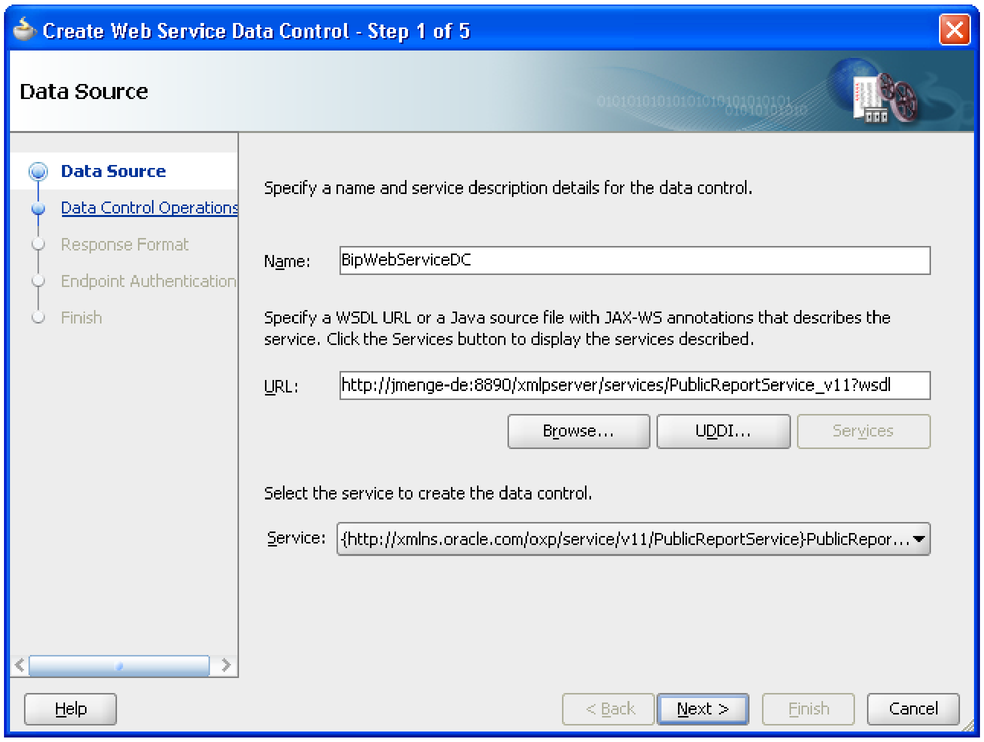
2.2.2 Generating the Data Controls for the Web Service

In the project *Model* select File => New => Business Tier => Web Services => Web Service Data Control. In the wizard enter the following details:

Name of data Control. BipWebServiceDC

WSDL

http://<host>:<port>/xmlpserver/services/PublicReportService_v11?wsdl


Create Web Service Data Control - Step 1 of 5

Data Source

Specify a name and service description details for the data control.

Name: BipWebServiceDC

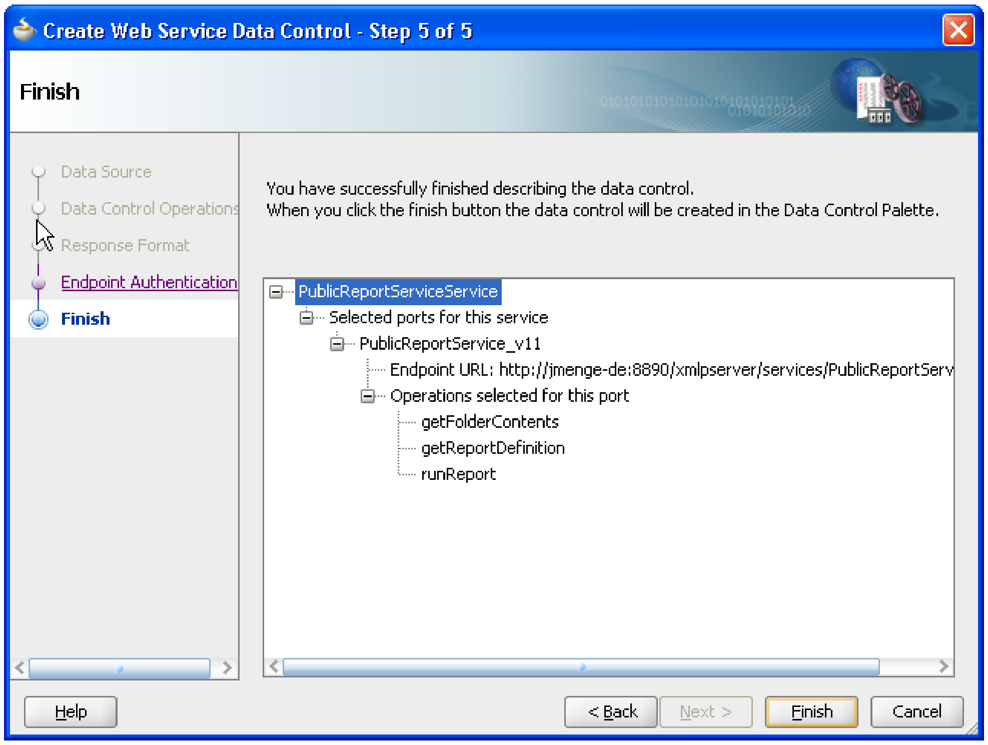
Specify a WSDL URL or a Java source file with JAX-WS annotations that describes the service. Click the Services button to display the services described.

URL: http://jmenge-de:8890/xmlpserver/services/PublicReportService_v11?wsdl

Select the service to create the data control.

Service: {http://xmlns.oracle.com/oxp/service/v11/PublicReportService}PublicRepor...

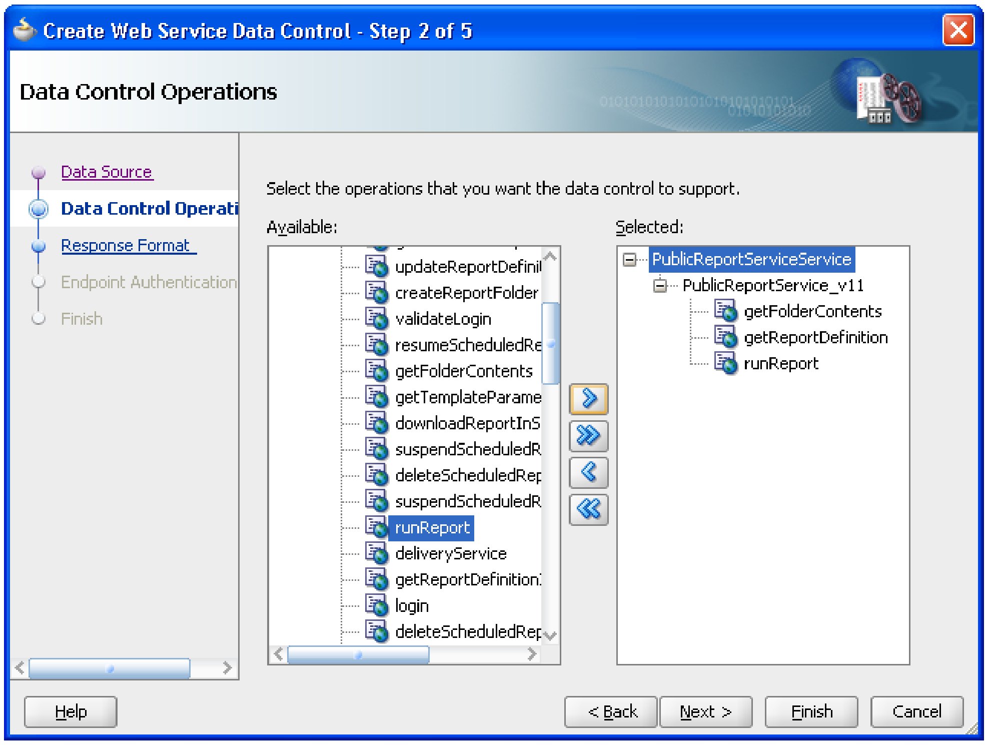
Select the methods: *getFolderContents*, *getReportDefinition*, *runReport* from the list of available methods of the web service endpoint.


Create Web Service Data Control - Step 5 of 5

Finish

You have successfully finished describing the data control.
When you click the finish button the data control will be created in the Data Control Palette.

```
PublicReportServiceService
  Selected ports for this service
    PublicReportService_v11
      Endpoint URL: http://jmenge-de:8890/xmlpserver/services/PublicReportServ
      Operations selected for this port
        getFolderContents
        getReportDefinition
        runReport
```


Create Web Service Data Control - Step 2 of 5

Data Control Operations

Select the operations that you want the data control to support.

Available:

```
updateReportDefini
createReportFolder
validateLogin
resumeScheduledRe
getFolderContents
getTemplateParame
downloadReportInS
suspendScheduledR
deleteScheduledRep
suspendScheduledR
runReport
deliveryService
getReportDefinition
login
deleteScheduledRep
```

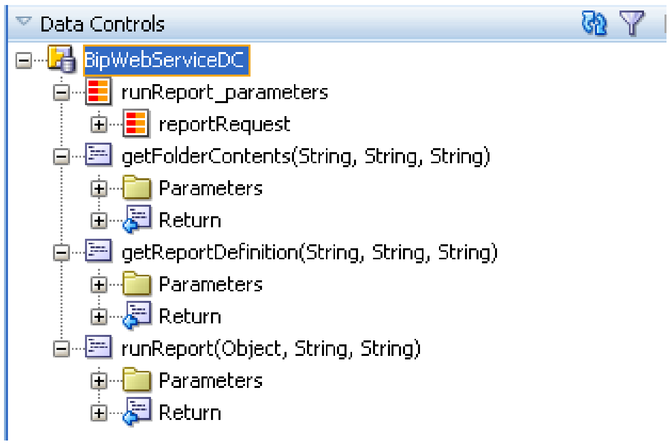
Selected:

```
PublicReportServiceService
  PublicReportService_v11
    getFolderContents
    getReportDefinition
    runReport
```

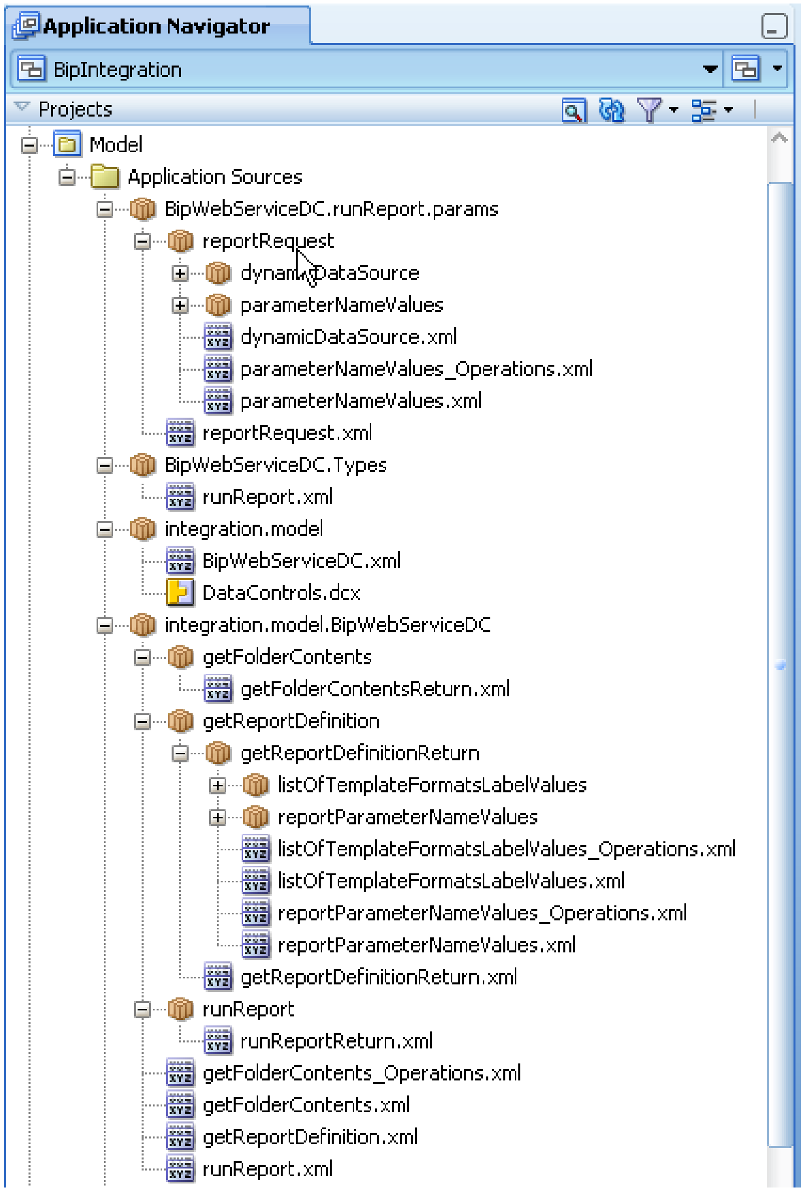
For each of these methods there exists an equivalent method with the prefix *inSession*. To use the *inSession* methods the method *login* has to be called first to get a valid session token from the server. For subsequent method calls the authentication is done by adding this token to the request parameters. In this example the methods without the session token will be used just by adding username and password to every method call.

It is a good idea to use the tool *soapUI* (www.eviware.com) to test if the endpoint of the web service is accessible and the methods are working as expected.

After finishing the wizard there are two results in JDeveloper visible. In the *Data Controls Palette* there is a new data control *BipWebServiceDC*.


Data Controls
BipWebServiceDC
runReport_parameters
reportRequest
getFolderContents(String, String, String)
Parameters
Return
getReportDefinition(String, String, String)
Parameters
Return
runReport(Object, String, String)
Parameters
Return

Because the web service methods from BI Publisher expect complex data types in the request, several xml files in the Application Navigator reflect the structure of the request and response data types.



Application Navigator

BipIntegration

Projects

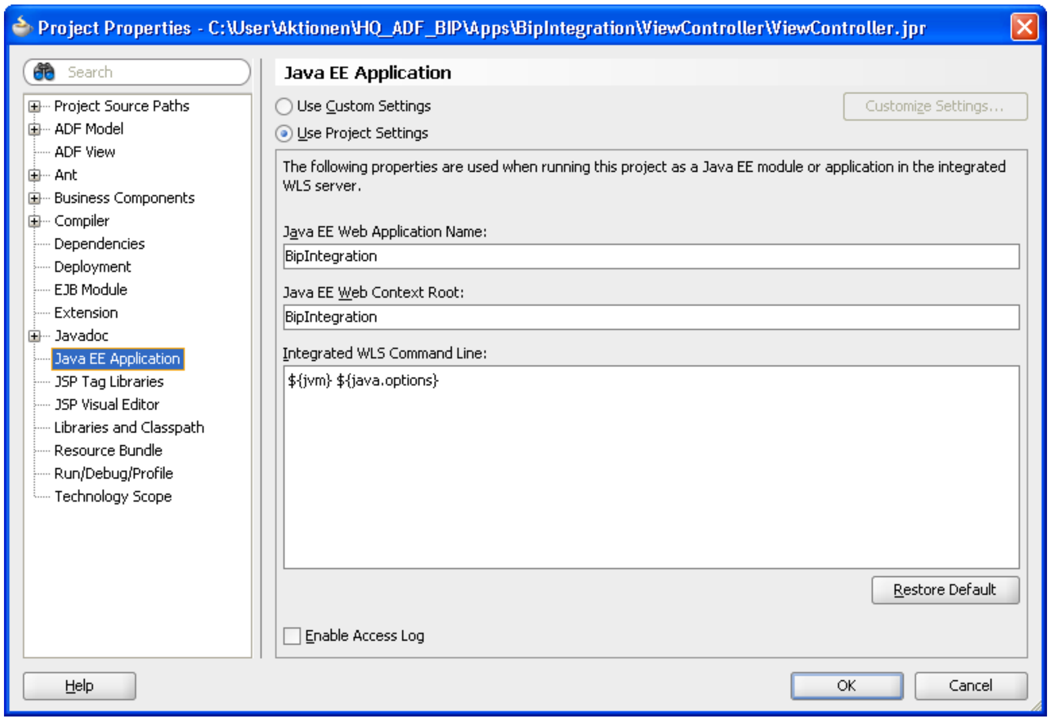
```
Model
  Application Sources
    BipWebServiceDC.runReport.params
      reportRequest
        dynamicDataSource
        parameterNameValues
        dynamicDataSource.xml
        parameterNameValues_Operations.xml
        parameterNameValues.xml
      reportRequest.xml
    BipWebServiceDC.Types
      runReport.xml
    integration.model
      BipWebServiceDC.xml
      DataControls.dcx
    integration.model.BipWebServiceDC
      getFolderContents
        getFolderContentsReturn.xml
      getReportDefinition
        getReportDefinitionReturn
          listOfTemplateFormatsLabelValues
          reportParameterNameValues
          listOfTemplateFormatsLabelValues_Operations.xml
          listOfTemplateFormatsLabelValues.xml
          reportParameterNameValues_Operations.xml
          reportParameterNameValues.xml
        getReportDefinitionReturn.xml
      runReport
        runReportReturn.xml
      getFolderContents_Operations.xml
      getFolderContents.xml
      getReportDefinition.xml
      runReport.xml
```

2.3 The User Interface for BI Publisher Web Services

2.3.1 Creating the Project ViewController

In the application *BipIntegration* create a second project of type *ADF ViewController Project*. Accept the name *ViewController*, the selected technologies and the package name (*integration.view*).

Change the application name and the contect root in the project properties to *BipIntegration*.



The following properties are used when running this project as a Java EE module or application in the integrated WLS server.

Java EE Web Application Name: BipIntegration

Java EE Web Context Root: BipIntegration

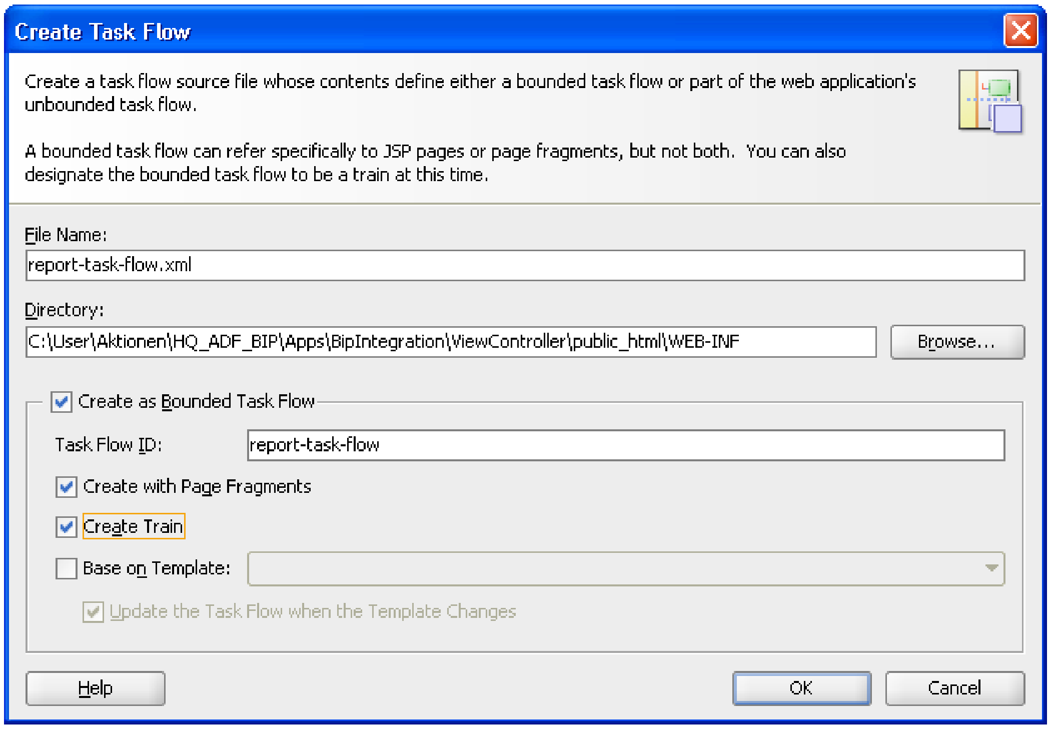
Integrated WLS Command Line:

```
${jvm} ${java.options}
```

2.3.2 Creating the Taskflows and Train Stops

In the project *ViewController* a train will be created as a bounded task flow which gives a better control of the user's input activities as a linear sequence of steps.
In the project *ViewController* select File => New => Web Tier => JSF => ADF Task Flow.
Enter the following details:

File Name	report-task-flow.xml
Create as Boundes Taskflow	Checked
Create with Page Fragments	Checked
Create Train	Checked


Create Task Flow

Create a task flow source file whose contents define either a bounded task flow or part of the web application's unbounded task flow.

A bounded task flow can refer specifically to JSP pages or page fragments, but not both. You can also designate the bounded task flow to be a train at this time.

File Name: report-task-flow.xml

Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\ViewController\public_html\WEB-INF

[✓] Create as Bounded Task Flow

Task Flow ID: report-task-flow

[✓] Create with Page Fragments

[✓] Create Train

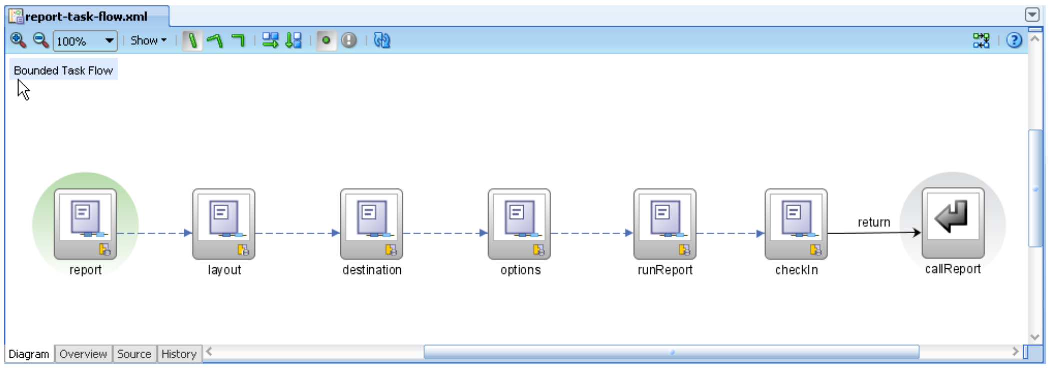
[ ] Base on Template:

[✓] Update the Task Flow when the Template Changes

In the diagram view of the bounded taskflow create the following page fragments by dragging activities of type "View" from the Component Palette into the diagram:

- report.jsff
- layout.jsff
- destination.jsff
- options.jsff
- runReport.jsff
- checkIn.jsff

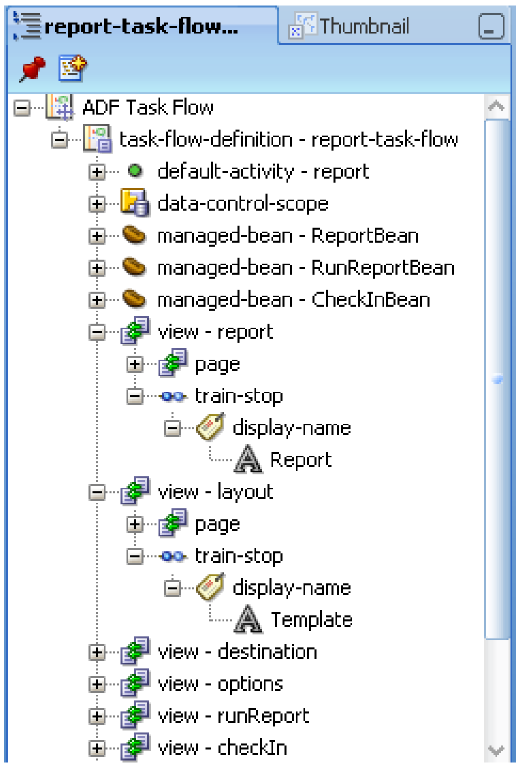
The extension .jsff indicated that these are page fragments. Because they belong to a train they are called "train-stops" and linked together automatically in the sequence they are created.
At the end of the train position an activity of type "Task Flow Return" and name it "callReport". Connect the Task Flow return to the last train-stop using a Control Flow Case and name it "return".



To get meaningful descriptions of the train-stops in the wizard-like interface it is possible to enter a Display Name for every train-stop.

In the structure pane of the task flow, open the view node for every page fragment of the task flow. In the structure will be a train-stop node. Right click on the train-stop node and select "Insert inside train-stop => Display Name". Click on the new display-name node and enter the following display text in the property inspector.

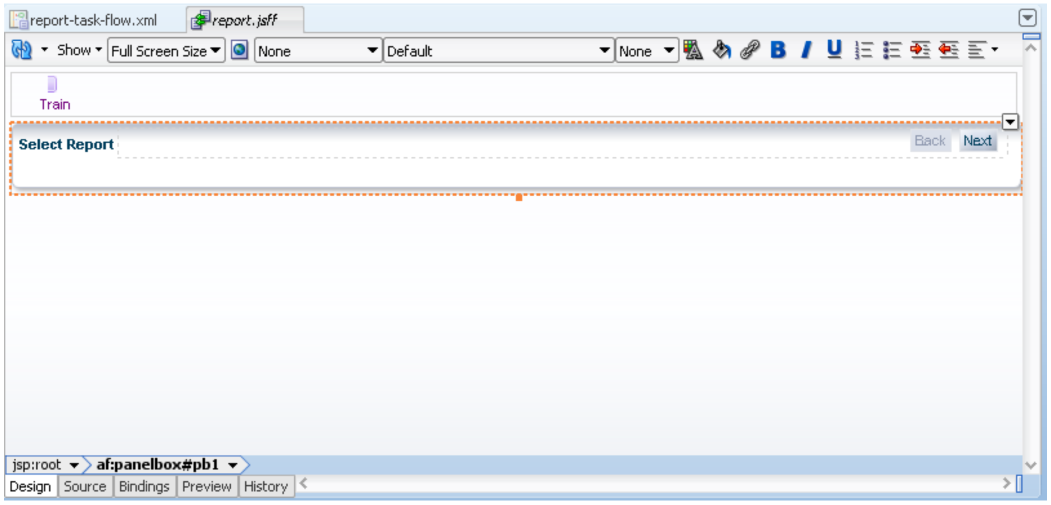
Page Fragment File	Display Name
report.jsff	Report
layout.jsff	Template
destination.jsff	Destination
options.jsff	Options
runReport.jsff	Run Report
checkIn.jsff	Check-In



```
report-task-flow...   Thumbnail
ADF Task Flow
  task-flow-definition - report-task-flow
    default-activity - report
    data-control-scope
    managed-bean - ReportBean
    managed-bean - RunReportBean
    managed-bean - CheckInBean
    view - report
      page
      train-stop
        display-name
          Report
    view - layout
      page
      train-stop
        display-name
          Template
    view - destination
    view - options
    view - runReport
    view - checkIn
```

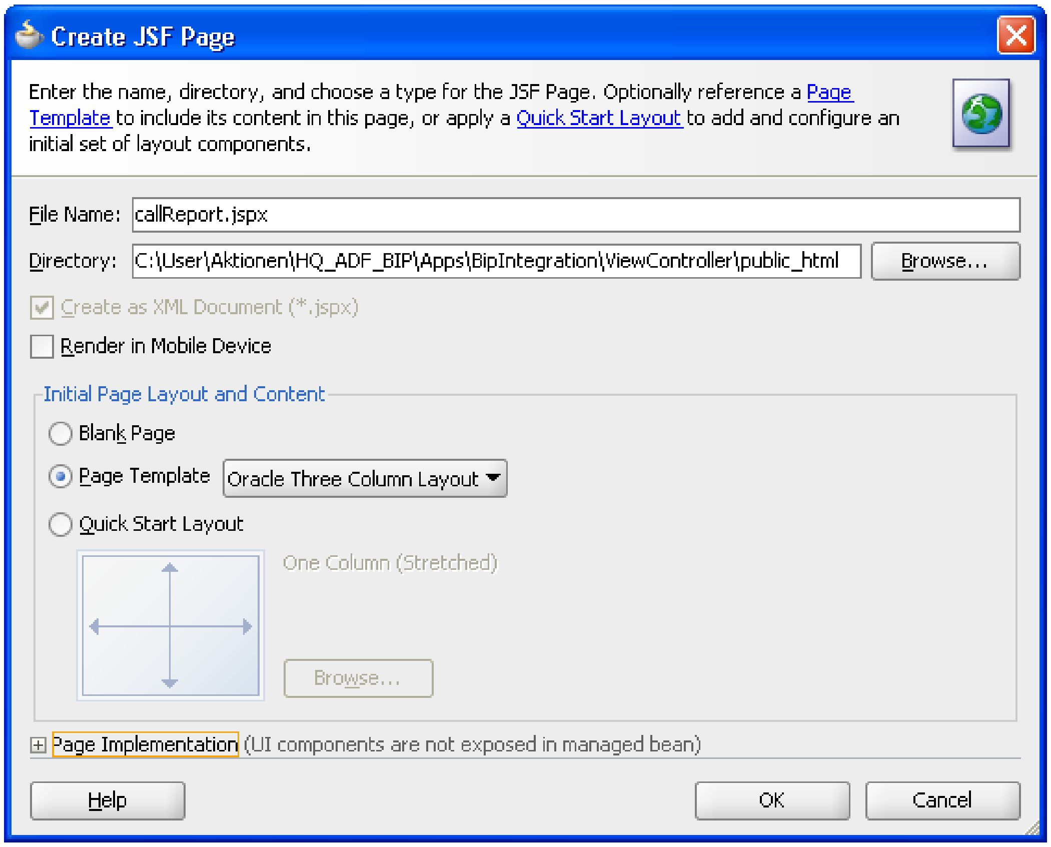
Open each page fragment in JDeveloper and add the following components.

- insert a Train (af:train) from the Common Components
- insert a PanelBox (af:panelBox) below the train
- for the panel box set the property *ShowDisclosure* to false
- for the panel box set the property *Text* to a meaningful heading
- insert a Train Button Bar (af:trainButtonBar) into the facet "toolbar



2.3.3 Creating an unbounded Taskflow with a Page

In this step a new page will be created in the unbounded task flow *adfc-config.xml*. In a region of this page the bounded task flow, i.e. the train with all its page fragments, will be displayed.
Open the file *adfc-config.xml* in the workspace and drag an activity of type "View" into the diagram. Open the new created page, name it *callReport.jspx* and accept the default settings.



Create JSF Page

Enter the name, directory, and choose a type for the JSF Page. Optionally reference a Page Template to include its content in this page, or apply a Quick Start Layout to add and configure an initial set of layout components.

File Name: callReport.jspx

Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\ViewController\public_html

[✓] Create as XML Document (*.jspx)

[ ] Render in Mobile Device

Initial Page Layout and Content

( ) Blank Page

(●) Page Template: Oracle Three Column Layout

( ) Quick Start Layout

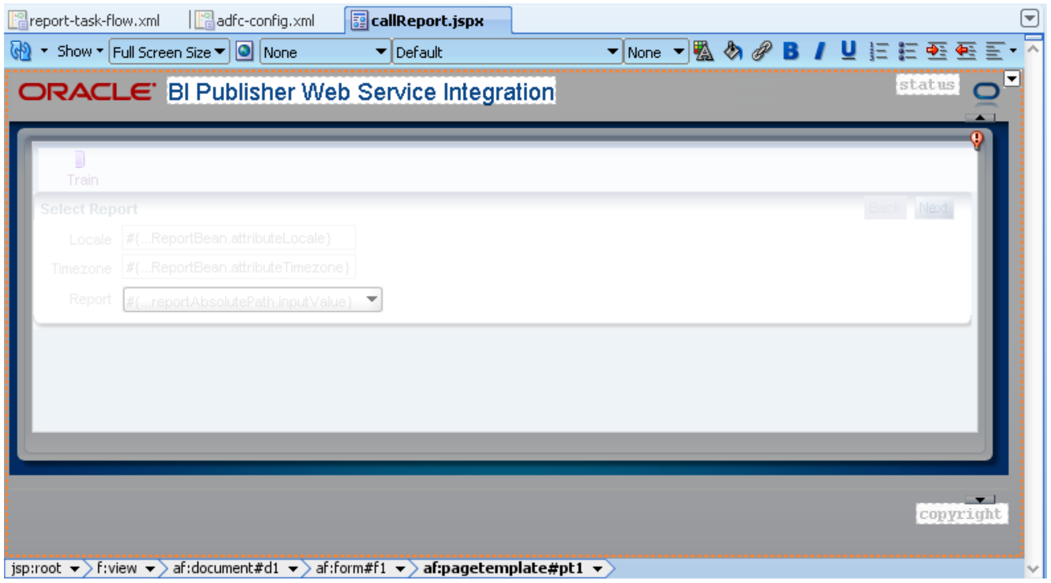
One Column (Stretched)

Page Implementation (UI components are not exposed in managed bean)

To prepare the page to host the bounded task flow

- disable the facets "start" and "end" by deleting them in the diagram view
- insert a heading just by drag a component *outputText* (af:outputText) into the facet "header" and change the value to "BI Publisher Web Service Integration"
- set the display name for the page in the *adfc-config.xml* by selecting the page and enter "BI Publisher Web Service Integration" as the *Display Name* in the Property Inspector.
- Place a Panel Group Layout (af:panelGroup) in the facet "center" and set the properties *Width* and *Height* of the panel group to 100%.

Now drag the bounded task flow *report-task-flow.xml* from the Application Navigator into the Panel Group and accept Region (af:region) from the list of available choices.

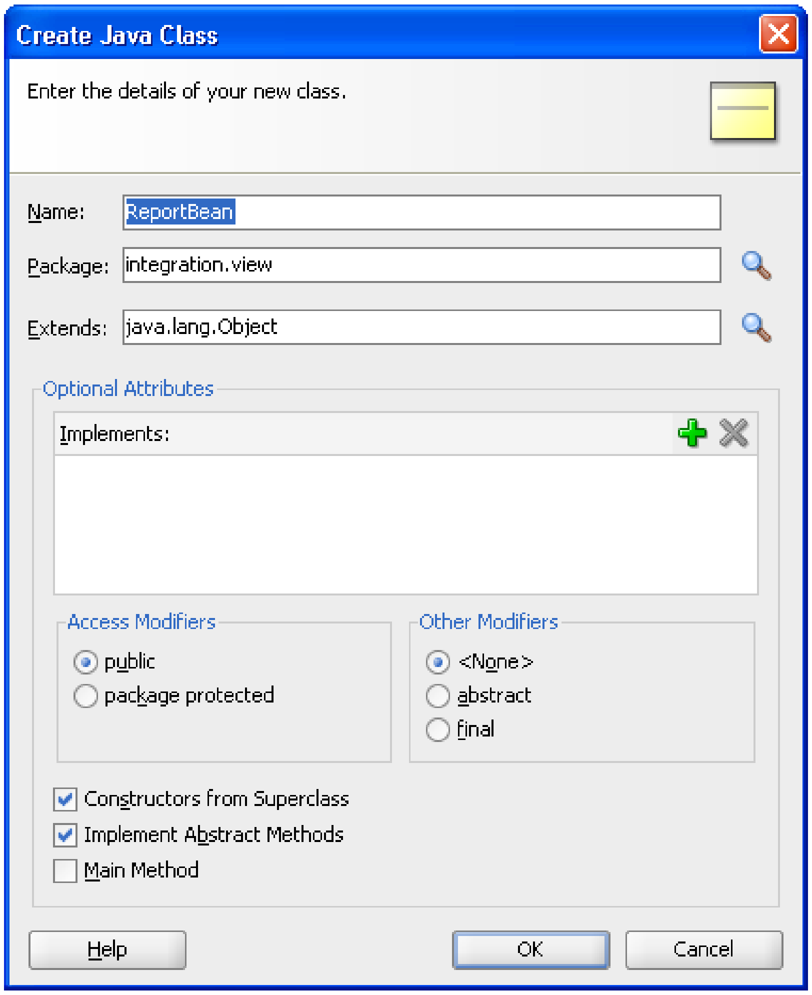


Locale #{...ReportBean.attributeLocale}
Timezone #{...ReportBean.attributeTimezone}
Report #{...reportAbsolutePath.inputValue}

2.3.4 Creating a Managed Bean to store the Request Parameters

To store the parameter values entered by the user in the different train-stops a managed bean is required so that these values are availabe when the report is run.

Create a Java bean in the project ViewController by selecting File => New => General => Java = Java Class.
Name it *ReportBean*, create it in the package *integration.view* and accept the other defaults.



Create Java Class

Enter the details of your new class.

Name:	ReportBean
Package:	integration.view
Extends:	java.lang.Object

Optional Attributes

Implements:

Access Modifiers: [✓ public] package protected

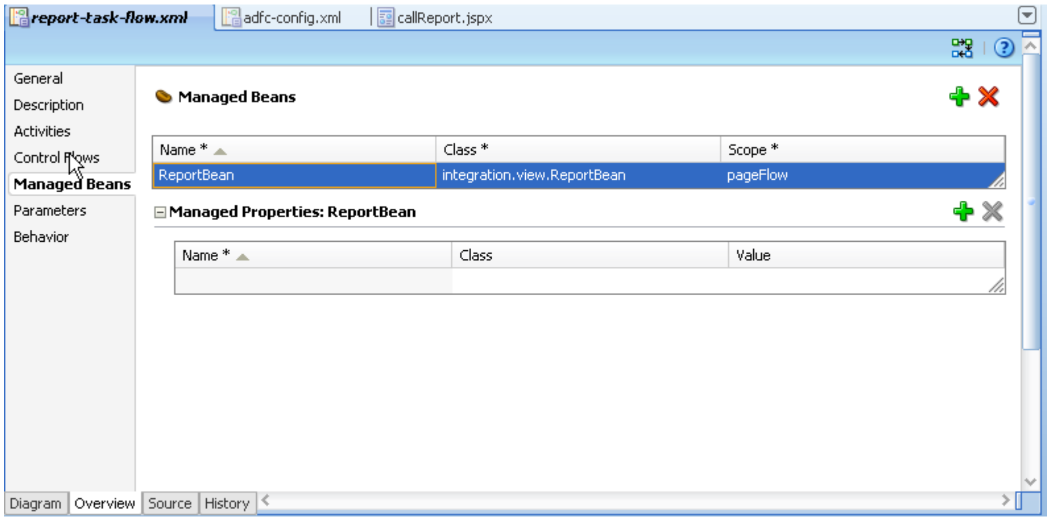
Other Modifiers: [✓ <None>] abstract final

[✓] Constructors from Superclass
[✓] Implement Abstract Methods
[ ] Main Method

In this class define variables for all parameter values. For some of them you can provide default values. With the function *Generate Accessors* from the JDeveloper context menu generate get/set methods for all variables defined.
The complete code of *ReportBean.java* is included in the *Sample Code* package.

The *ReportBean* should be added as a managed bean to the *report-task-flow.xml*. In the Overview tab of the bounded taskflow select *Managed Beans* and create a new entry with the following properties:

Name	ReportBean
Class	integration.view.ReportBean
Scope	pageFlow



Managed Beans

Name *	Class *	Scope *
ReportBean	integration.view.ReportBean	pageFlow

Managed Properties: ReportBean

Name *	Class	Value

2.3.5 Defining the Page Fragments for the Train Stops

In this step we proceed with the already created page fragments. To open a page fragment just double-click on it in the bounded task flow *report-task-flow.xml*.
To get a better alignment of fields drag a Panel Form Layout (af:panelFormLayout) inside the Panel Box of each page fragment. The page fragments are now prepared to hold specific fields.

2.3.5.1 Page Fragment report.jsff

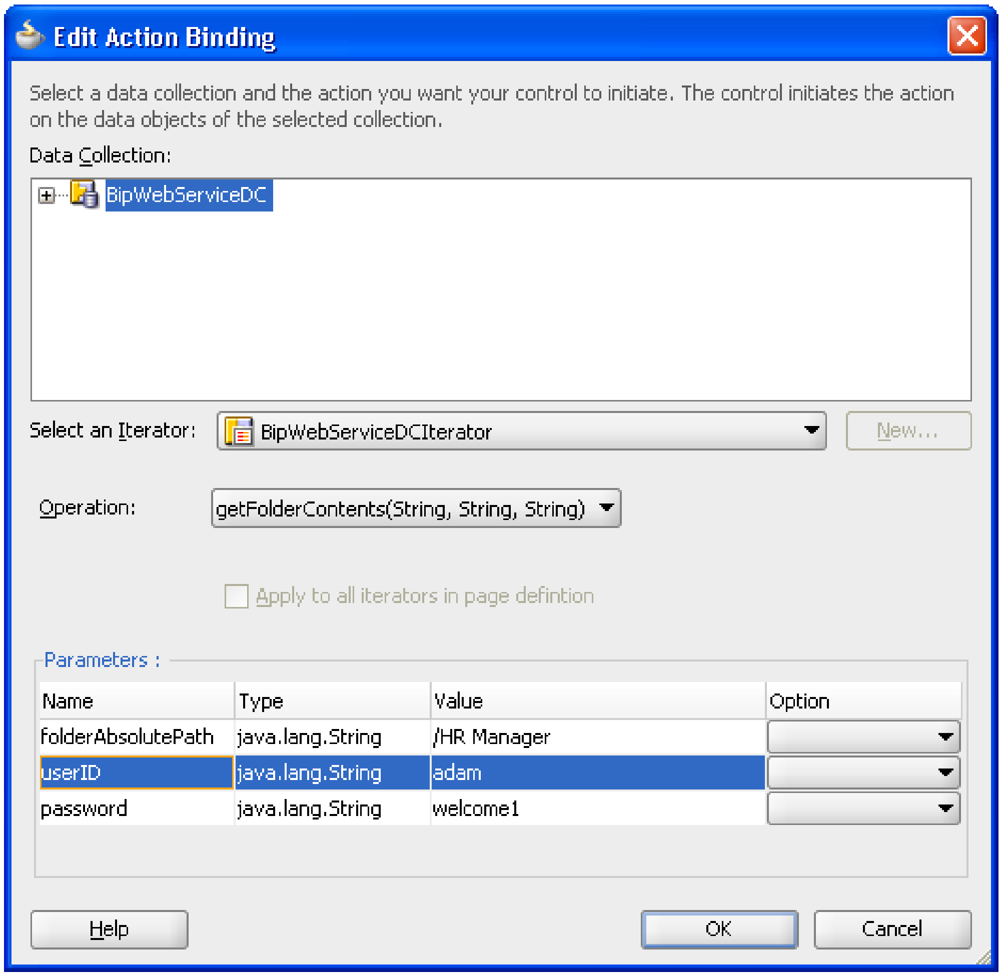
Drag the attributes *atributeLocale* and *attributeTimezone* from the complex type *ReportRequest* in the Data Control Palette as Input Text Fields with Label (af:inputText) into the Form layout container.
For the *attribute reportAbsolutePath* do the same but choose a Select One Choice (af:selectOneChoice) as the implementation. This list of values should display the response from the first web service method *getFolderContents()*.
Leave the Base Data Source as it is and add the following iterator to the List Data Source:

getFolderContents => Return => getFolderContentsReturn

In the *Edit Action Binding* dialogue enter the following values:

folderAbsolutePath	/HR Manager
UserID	adam
Password	welcome1

in the example a hard-coded directory name of the BI Publisher repository is used to keep the example simple. The hard-coded username and password can be replaced later when a piece of ADF security will be implemented.


Edit Action Binding

Select a data collection and the action you want your control to initiate. The control initiates the action on the data objects of the selected collection.

Data Collection: BipWebServiceDC

Select an Iterator: BipWebServiceDCIterator

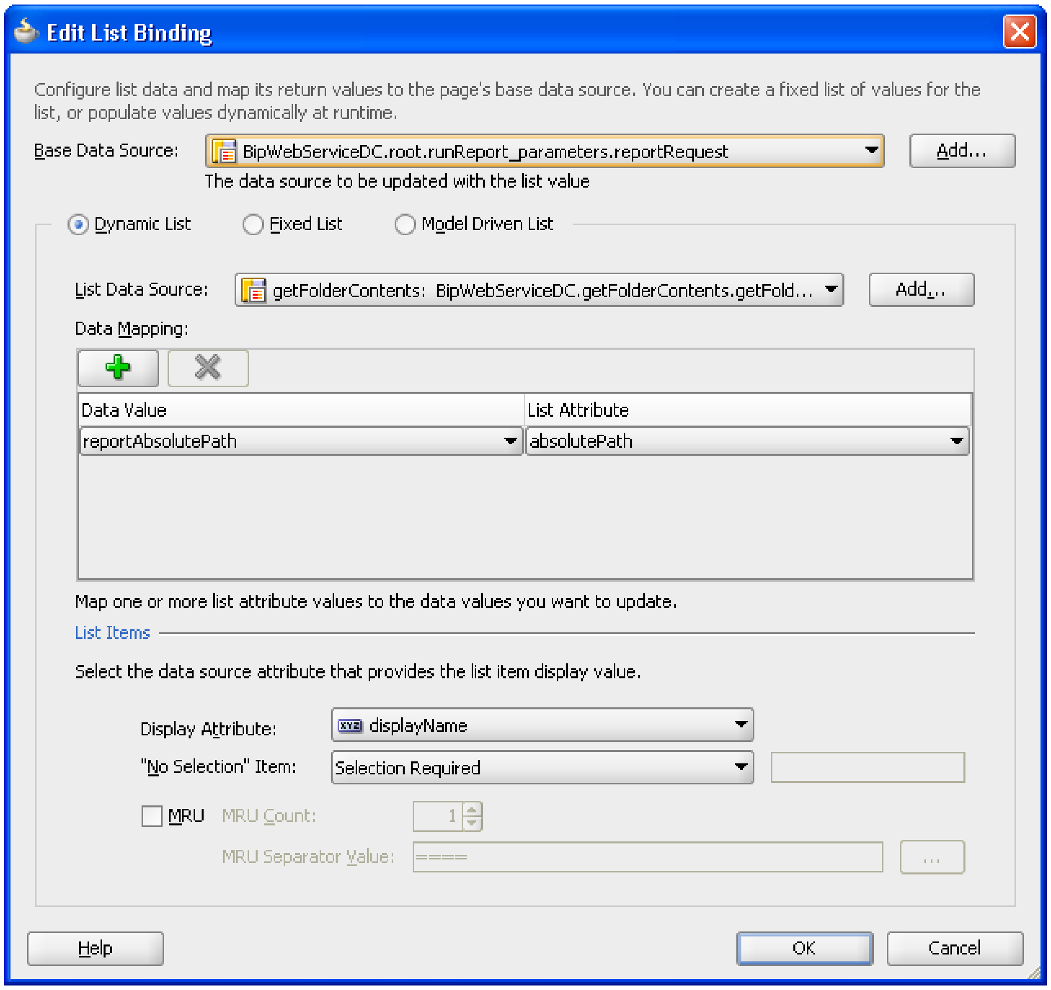
Operation: getFolderContents(String, String, String)

Apply to all iterators in page defintion

Parameters :

Name	Type	Value	Option
folderAbsolutePath	java.lang.String	/HR Manager	
userID	java.lang.String	adam	
password	java.lang.String	welcome1	

Back to the *Edit List Binding* map reportAbsolutePath as the Data Value to absolutePath as the List Attribute and select absolutePath as the Display Attribute.


Edit List Binding

Configure list data and map its return values to the page's base data source. You can create a fixed list of values for the list, or populate values dynamically at runtime.

Base Data Source: BipWebServiceDC.root.runReport_parameters.reportRequest

The data source to be updated with the list value

[✓ Dynamic List] Fixed List Model Driven List

List Data Source: getFolderContents: BipWebServiceDC.getFolderContents.getFold...

Data Mapping:

Data Value	List Attribute
reportAbsolutePath	absolutePath

Map one or more list attribute values to the data values you want to update.

List Items

Select the data source attribute that provides the list item display value.

Display Attribute: displayName

"No Selection" Item: Selection Required

MRU MRU Count: 1

MRU Separator Value: ====

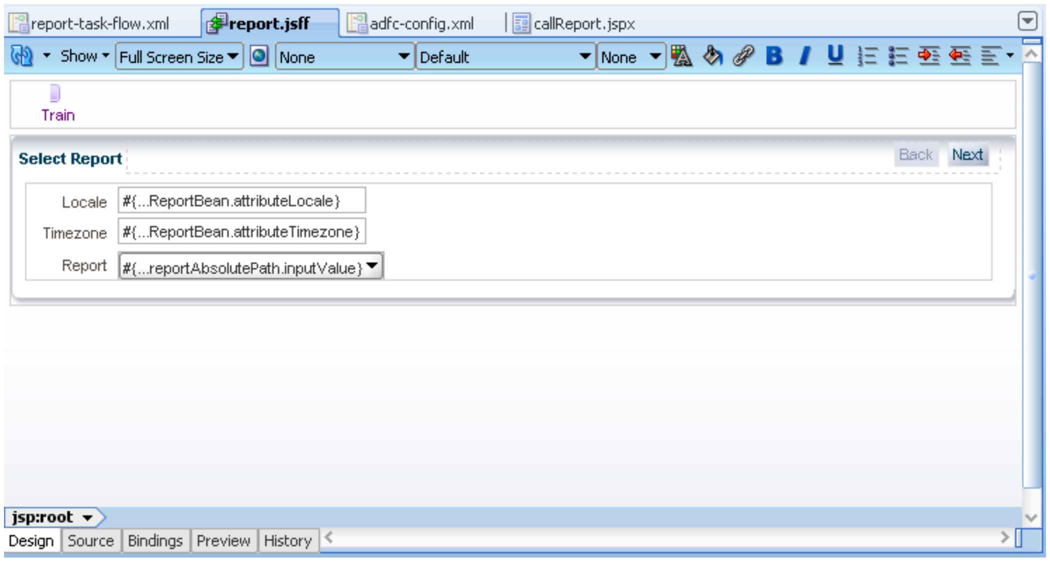
Because the input values should be stored in our *ReportBean* the bindings for the fields have to be changed. Select each text field and open the Expression Builder for the property Value in the *Property Inspector*.
Replace the existing binding by
#{pageFlowScope.ReportBean.attributeLocale} for attributeLocale
#{pageFlowScope.ReportBean.attributeTimezone}for attributeTimezone.

For the Select-One-Choice list another approach is needed because the list does not return the value we are interested in but an index indicating the position of the value in the list. So some program code is required in the *ReportBean*. There are different ways to get the value from the list. Some of these are explained at:

- http://groundside.com/blog/DuncanMills.php?title=adf_the_list_binding_value_problem&more=1&c=1&tb=1&pb=1
- http://sameh-nassar.blogspot.com/2009/11/getting-value-from-selectonechoice-list.html

We will add some code in the *ReportBean* to get the value from the binding definition. This code is part of the method *reportChanged()*. This method was created by defining a ValueChangeListener for the Select-One-Choice list in the Property Inspector. When the user selects a value from the list this listener gets activated and the method *reportChanged()* is executed.

Now the first page fragment is finished.



Select Report

Locale	#{...ReportBean.attributeLocale}
Timezone	#{...ReportBean.attributeTimezone}
Report	#{...reportAbsolutePath.inputValue}

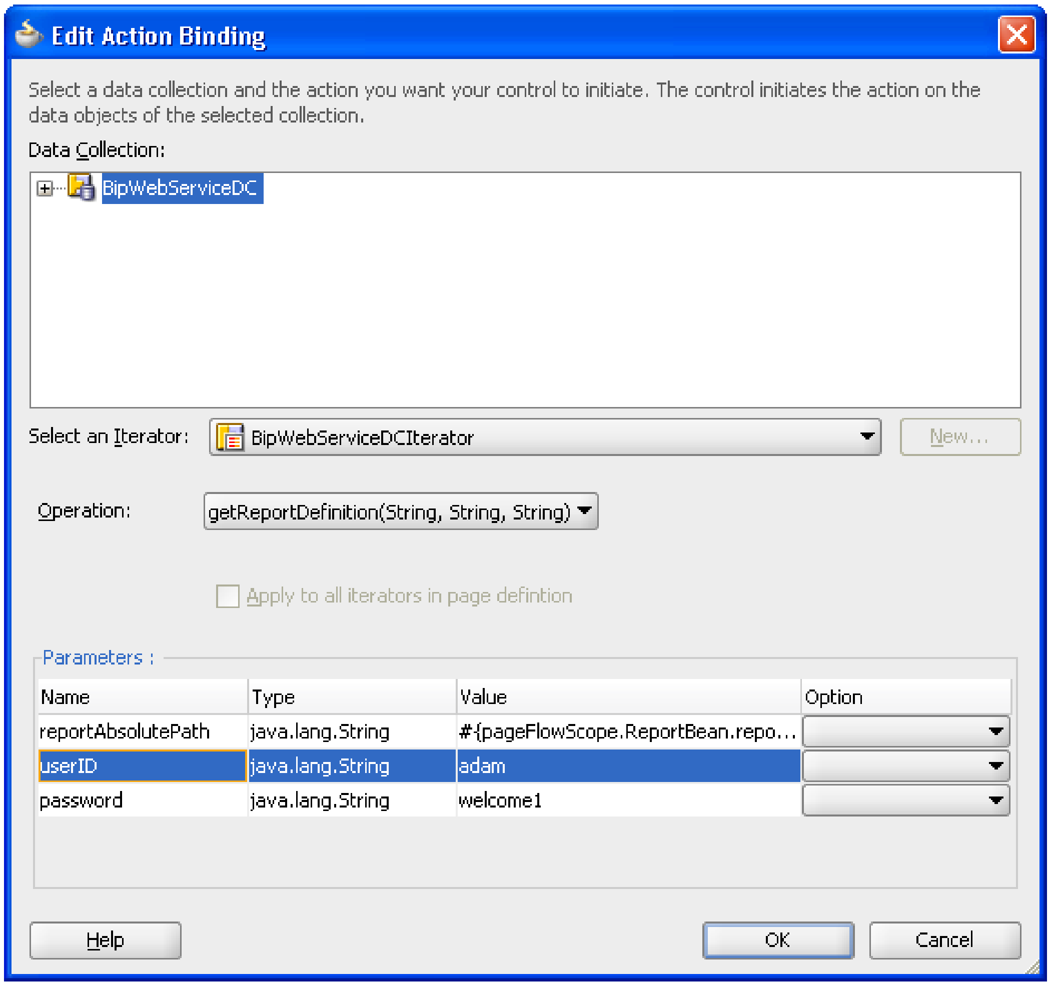
2.3.5.2 Page Fragment layout.jsff

In the second page fragment repeat the same steps as before. First create an Input Text Field with Label for the attribute *attributeFormat*.
For the attribute *attributeTemplate* create again a Select One Choice list (af:selectOneChoice) repeating the same steps as above.
This list of values should display the response from the second web service method *getReportDefinition()*.
Leave the Base Data Source as it is and add the following iterator to the List Data Source:
getReportDefinition => Return => getReportDefinitionReturn => templateIds => item

In the *Edit Action Binding* dialogue enter the following values:

reportAbsolutePath	#{pageFlowScope.ReportBean.reportAbsolutePath}
UserID	adam
Password	welcome1

The value for the *reportAbsolutePath* was already entered by the user in the first page fragment and it is accessible in our *ReportBean*.
The hard-coded username and password can be replaced later later when a piece of ADF security will be implemented.



Select a data collection and the action you want your control to initiate. The control initiates the action on the data objects of the selected collection.

Data Collection: BipWebServiceDC

Select an Iterator: BipWebServiceDCIterator

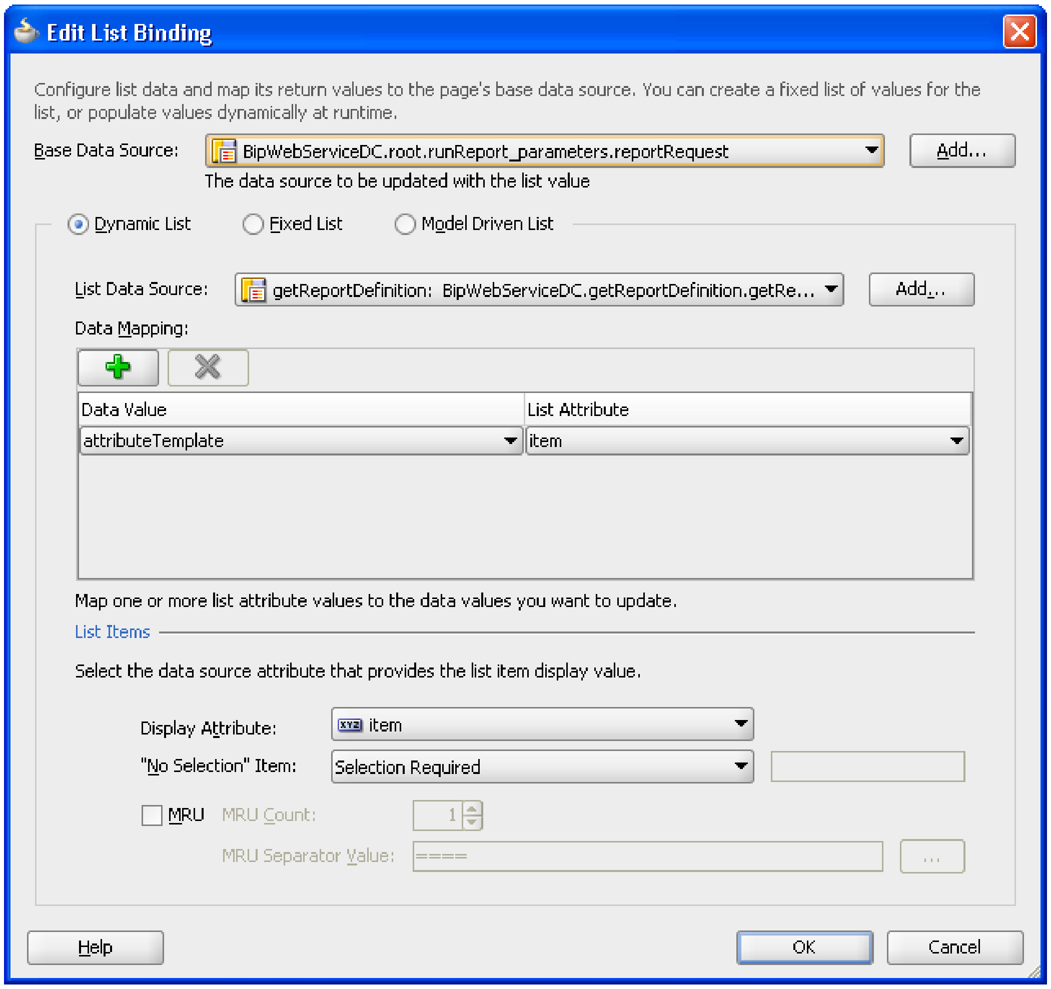
Operation: getReportDefinition(String, String, String)

Apply to all iterators in page defintion

Parameters :

Name	Type	Value	Option
reportAbsolutePath	java.lang.String	#{pageFlowScope.ReportBean.repo...	
userID	java.lang.String	adam	
password	java.lang.String	welcome1	

Back to the *Edit List Binding* map attributeTemplate as the Data Value to item as the List Attribute and select item as the Display Attribute.


Edit List Binding

Configure list data and map its return values to the page's base data source. You can create a fixed list of values for the list, or populate values dynamically at runtime.

Base Data Source: BipWebServiceDC.root.runReport_parameters.reportRequest

The data source to be updated with the list value

(●) Dynamic List ( ) Fixed List ( ) Model Driven List

List Data Source: getReportDefinition: BipWebServiceDC.getReportDefinition.getRe...

Data Mapping:

Data Value	List Attribute
attributeTemplate	item

Map one or more list attribute values to the data values you want to update.

List Items

Select the data source attribute that provides the list item display value.

Display Attribute: item

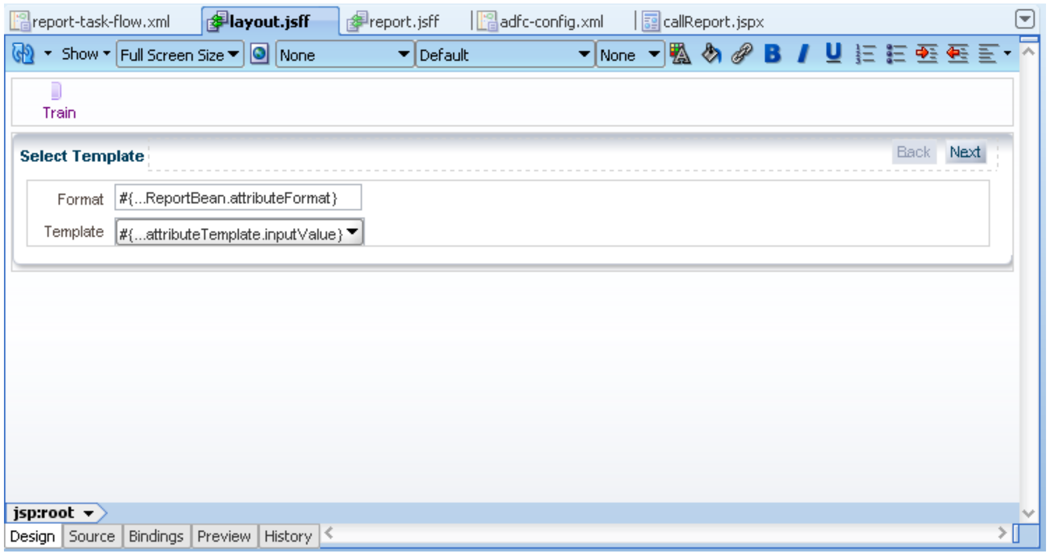
"No Selection" Item: Selection Required

☐ MRU MRU Count: 1

MRU Separator Value: ====

Replace the existing binding for the Input Text Field by
 #{pageFlowScope.ReportBean.attributeFormat} for attributeFormat

Again some code is needed in the *ReportBean* to get the selected value from the list. In this case we use the method *templateChanged()* which is called by the ValueChangeListener of the Select-One-Choice list.
The second page fragment is now ready.



Select Template

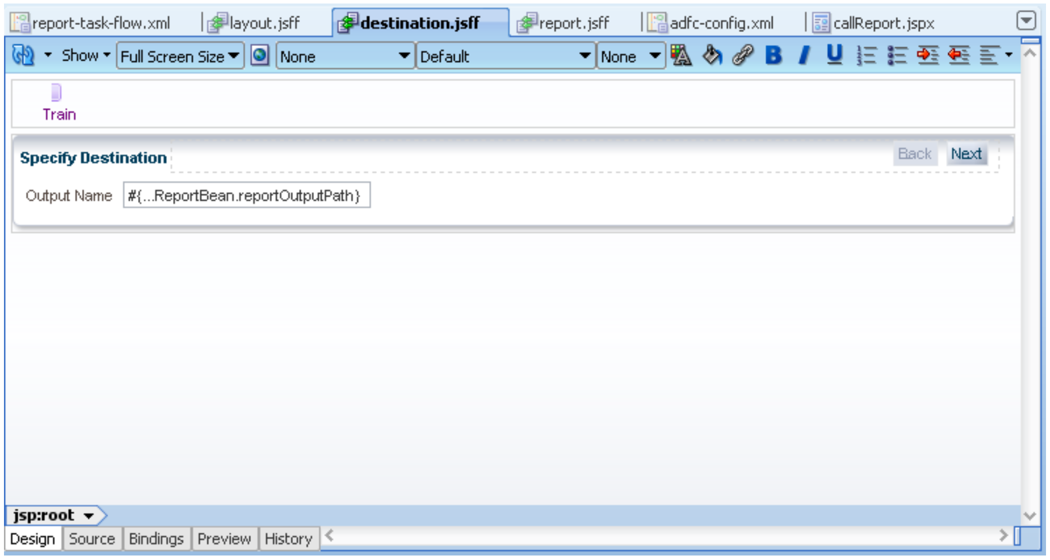
Format #{...ReportBean.attributeFormat}

Template #{...attributeTemplate.inputValue}

2.3.5.3 Page Fragment destination.jsff

In this page fragment create an Input Text Field with Label for the attribute *reportOutputPath* and replace the existing binding by #{pageFlowScope.ReportBean.reportOutputPath}

The reportOutputPath stores the name of the report file to be generated. The variable *reportPath* in the *ReportBean* defines the directory where the file is stored. This directory should be accessible by the web server, i.e. should be mapped as a virtual directory.
This is our third page fragment.



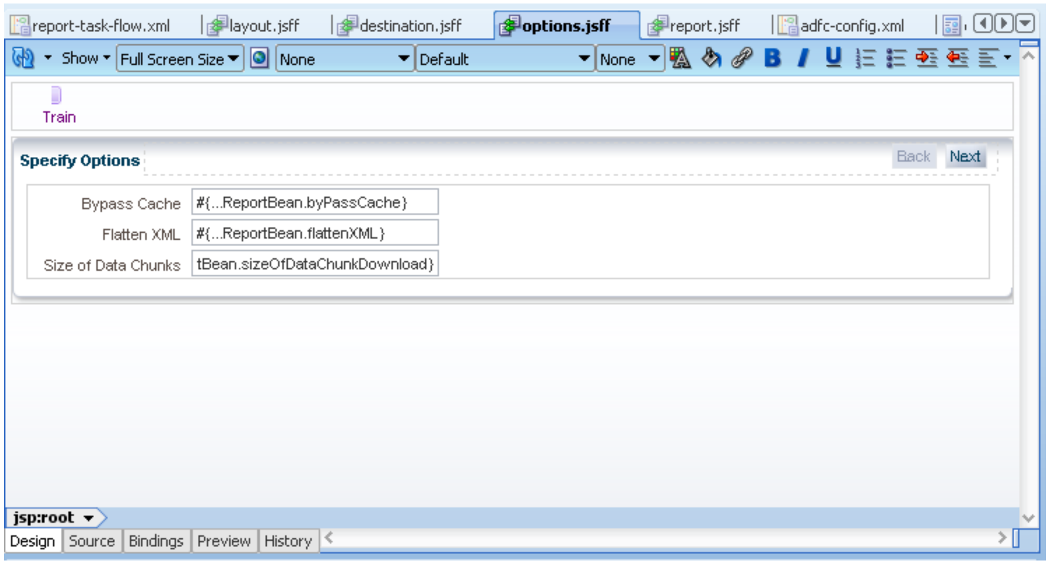
Specify Destination

Output Name #{...ReportBean.reportOutputPath}

2.3.5.4 Page Fragment options.jsff

In this page fragment create an Input Text Field with Label for the attributes *byPassCache*, *flattenXML and sizeOfDataChunkDownload*.
Replace the existing binding by
#{pageFlowScope.ReportBean.byPassCache} for byPassCache
#{pageFlowScope.ReportBean.flattenXML}for flattenXML
#{pageFlowScope.ReportBean.sizeOfDataChunkDownload} for sizeOfDataChunkDownload.

If these parameters should not be set by the user default values can be defined in the *ReportBean*.
Our fourth page fragment is finished.

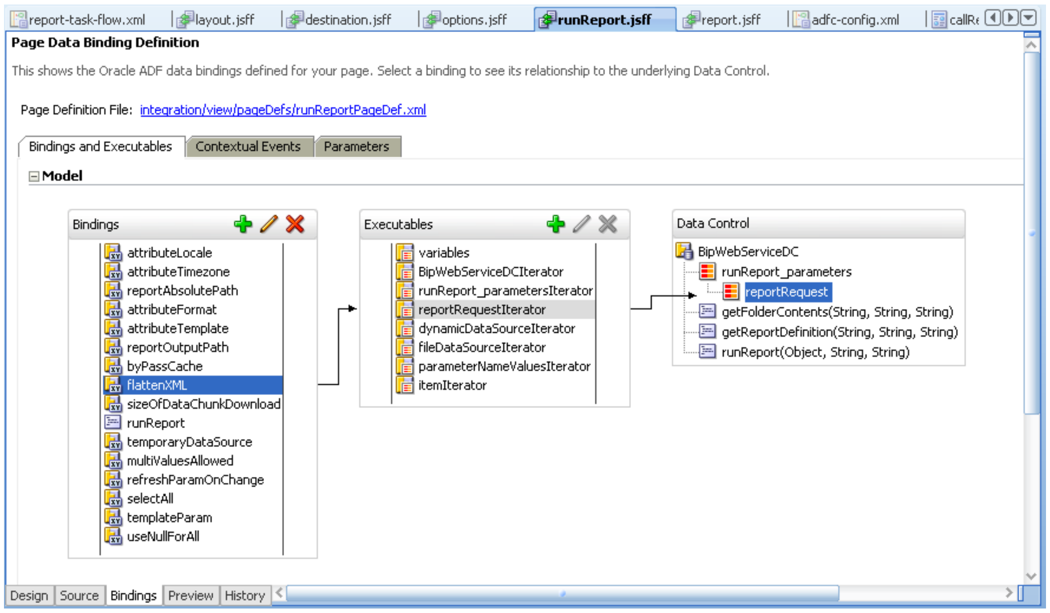


Bypass Cache #{...ReportBean.byPassCache}
Flatten XML #{...ReportBean.flattenXML}
Size of Data Chunks tBean.sizeOfDataChunkDownload}

2.3.5.5 Page Fragment runReport.jsff

To display all parameters to the user before he finally runs the report create again Input Text Fields with Labels for the parameters already used in the previous page fragments. But now the property *Disabled* shopuld be set to True for all fields so that the user cannot change the settings anymore.
Again change the binding for all fields now pointing to the *ReportBean*.

Before running the report all parameter values from the *ReportBean* will be transfered back into the binding context. Therefore it is important that all mandatory attributes of the web service calls are defined in the binding. If you don't want them displayed just remove the tags from the source code of the page.



report-task-flow.xml | layout.jsff | destination.jsff | options.jsff | **runReport.jsff** | report.jsff | adfc-config.xml | callRe

Page Data Binding Definition

This shows the Oracle ADF data bindings defined for your page. Select a binding to see its relationship to the underlying Data Control.

Page Definition File: integration/view/pageDefs/runReportPageDef.xml

Bindings and Executables | Contextual Events | Parameters

Model

Bindings:
- attributeLocale
- attributeTimezone
- reportAbsolutePath
- attributeFormat
- attributeTemplate
- reportOutputPath
- byPassCache
- flattenXML
- sizeOfDataChunkDownload
- runReport
- temporaryDataSource
- multiValuesAllowed
- refreshParamOnChange
- selectAll
- templateParam
- useNullForAll

Executables:
- variables
- BipWebServiceDCIterator
- runReport_parametersIterator
- reportRequestIterator
- dynamicDataSourceIterator
- fileDataSourceIterator
- parameterNameValuesIterator
- itemIterator

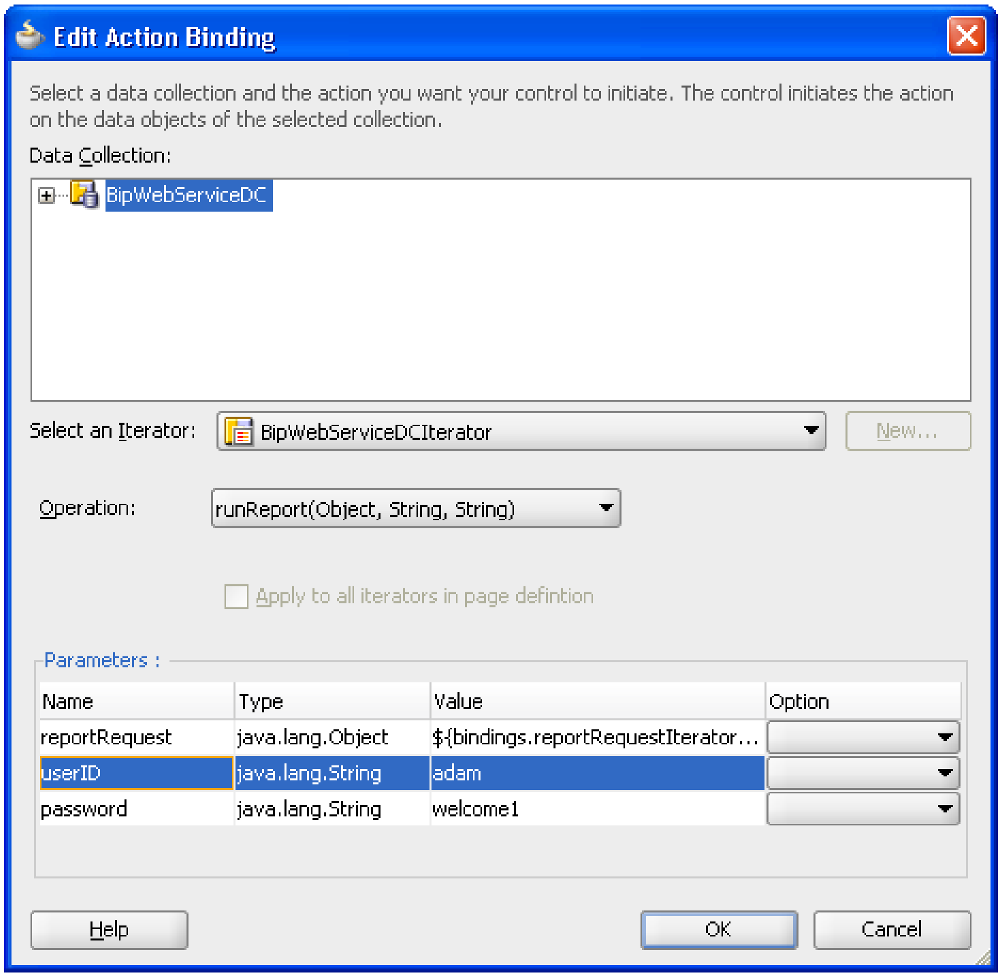
Data Control:
- BipWebServiceDC
  - runReport_parameters
    - reportRequest
  - getFolderContents(String, String, String)
  - getReportDefinition(String, String, String)
  - runReport(Object, String, String)

Design | Source | Bindings | Preview | History

To run the report draw the method *runReport* from the Data Controls Palette onto the page fragment and select ADF Button as the implementation.
This will open the dialogue *Edit Action Binding* where you can enter the follwing values:

reportRequest	${bindings.reportRequestIterator.currentRow.dataProvider}
UserID	adam
Password	welcome1

The hard-coded username and password can be replaced later when a piece of ADF security will be implemented.


Edit Action Binding

Select a data collection and the action you want your control to initiate. The control initiates the action on the data objects of the selected collection.

Data Collection:

BipWebServiceDC

Select an Iterator: BipWebServiceDCIterator

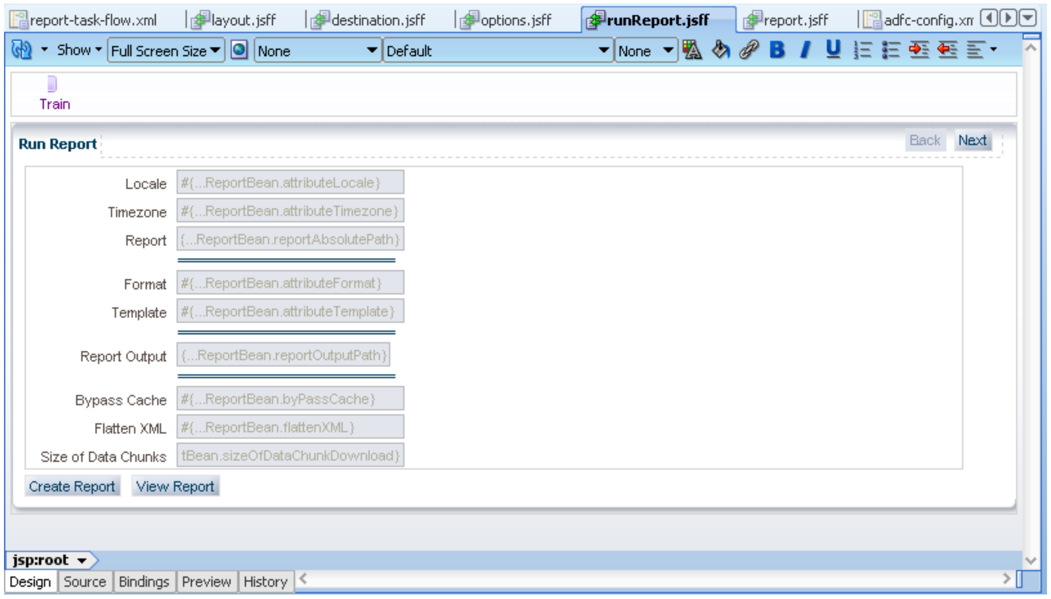
Operation: runReport(Object, String, String)

Apply to all iterators in page defintion

Parameters :

Name	Type	Value	Option
reportRequest	java.lang.Object	${bindings.reportRequestIterator...	
userID	java.lang.String	adam	
password	java.lang.String	welcome1	

To view the generated report create a second Button by using the component *Go Button* (af:goButton) from the Component Palette and drag it onto the page.
The property *Text* should be changed to a meaningful label of the button.
The Go Button will navigate directly to a destination. So the name of the generated report has to be provided in the property *Destination*.
By setting this property to
http://127.0.0.1:7101/BipWebServiceIntegration/#{pageFlowScope.ReportBean.reportName}
the name will be derived from the ReportBean.
It would be convenient when this button would be disabled before the report is generated. This will be implemented in the next section.
This page fragment is almost finished.



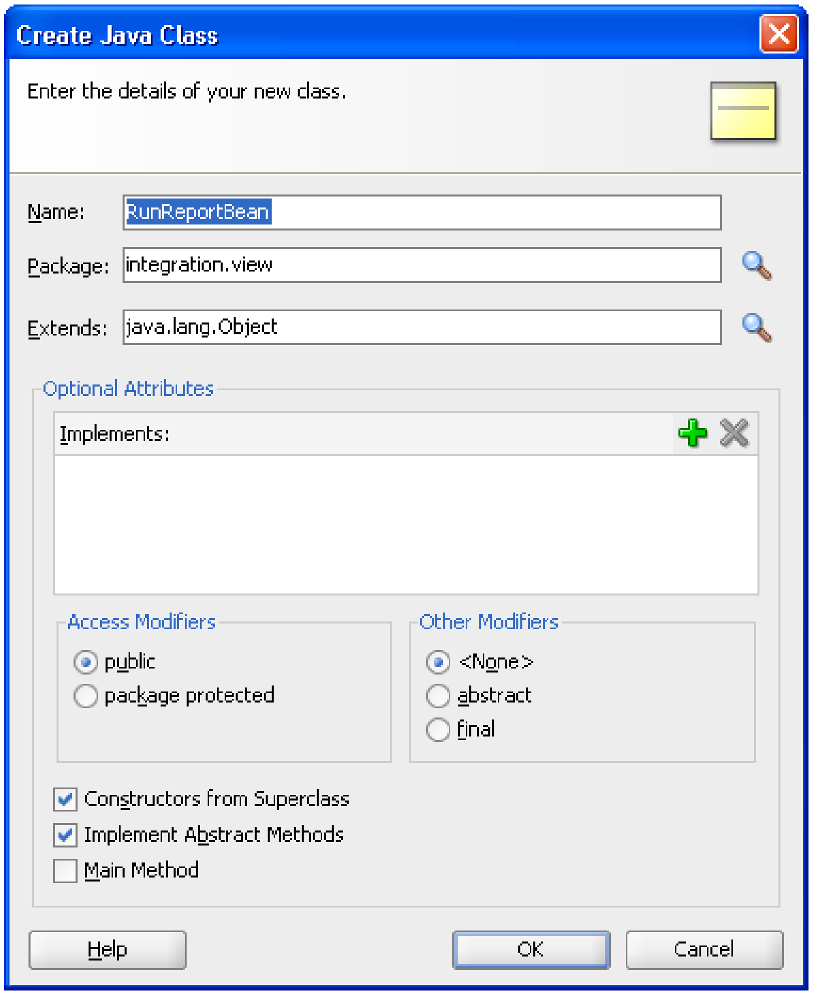
Run Report

Locale	#{...ReportBean.attributeLocale}
Timezone	#{...ReportBean.attributeTimezone}
Report	{...ReportBean.reportAbsolutePath}
Format	#{...ReportBean.attributeFormat}
Template	#{...ReportBean.attributeTemplate}
Report Output	{...ReportBean.reportOutputPath}
Bypass Cache	#{...ReportBean.byPassCache}
Flatten XML	#{...ReportBean.flattenXML}
Size of Data Chunks	tBean.sizeOfDataChunkDownload}

Create Report View Report

2.3.6 Creating a Managed Bean to run the Report

To run the report a second managed bean is necessary.
Create a Java bean in the project ViewController by selecting File => New => General => Java = Java Class.
Name it *RunReportBean*, create it in the package *integration.view* and accept the other defaults.



Name: RunReportBean
Package: integration.view
Extends: java.lang.Object

Access Modifiers: [✓ public] package protected
Other Modifiers: [✓ <None>] abstract final

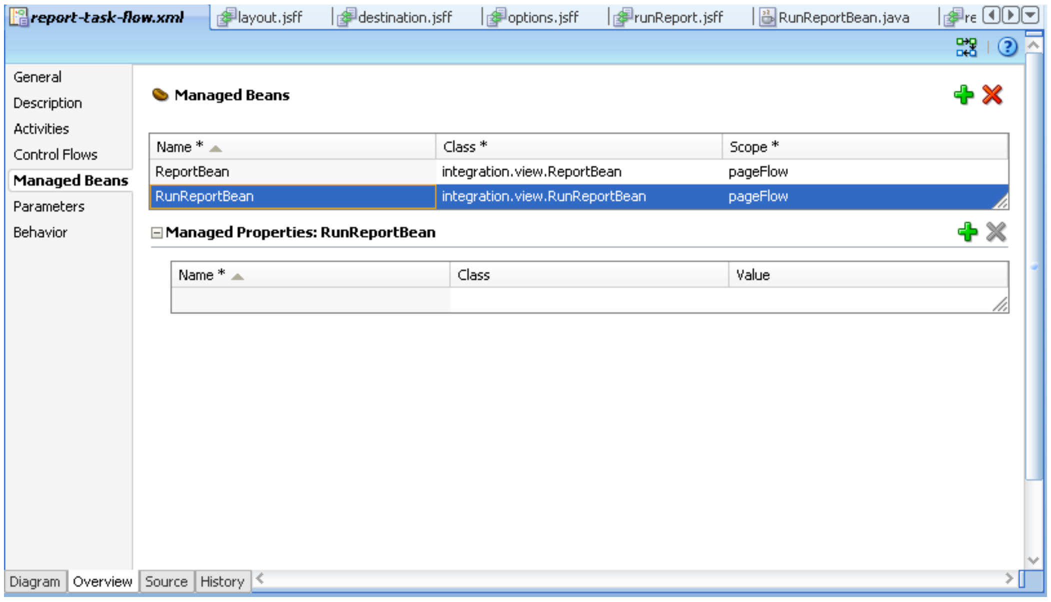
- [x] Constructors from Superclass
- [x] Implement Abstract Methods
- [ ] Main Method

In this class we will transfer the parameter values from the *ReportBean* into the binding context and execute the action for the button *Create Report*.
Additionally the second button will be activated to view the generated report by using a boolean variable *setVisible*.
To disable the View button depending from this variable we have to set the property *Disabled* = #{!pageFlowScope.RunReportBean.setVisible}.
The complete code of *RunReportBean.java* is included in the *Sample Code* package.

The *RunReportBean* should be added as a managed bean to the *report-task-flow.xml*.
In the Overview tab of the bounded taskflow select *Managed Beans* and create a new entry with the following properties:

Name	RunReportBean

Class	integration.view.RunReportBean
Scope	pageFlow



Managed Beans

Name *	Class *	Scope *
ReportBean	integration.view.ReportBean	pageFlow
RunReportBean	integration.view.RunReportBean	pageFlow

Managed Properties: RunReportBean

Name *	Class	Value

2.4 Business Service for UCM

2.4.1 Different Ways to check-in a Document into Oracle UCM

There are at least four different ways to check-in a document into Oracle Universal Content Management (UCM).

1. WebDAV
   This is the most simple way to check-in a document because a WebDAV folder could be specified as a destination in BI Publisher Enterprise. It is possible to use the web service method *scheduleReport()* to send the generated report directly into the UCM document store. But there are limitations concerning the ability to pass accompanying metadata. In the case of WebDAV metadata in Oracle UCM are related to certain folder.

2. Remote Intradoc Client (RIDC) Java API for UCM
   This is the recommend way when the number of documents is high or the documents are large in size.

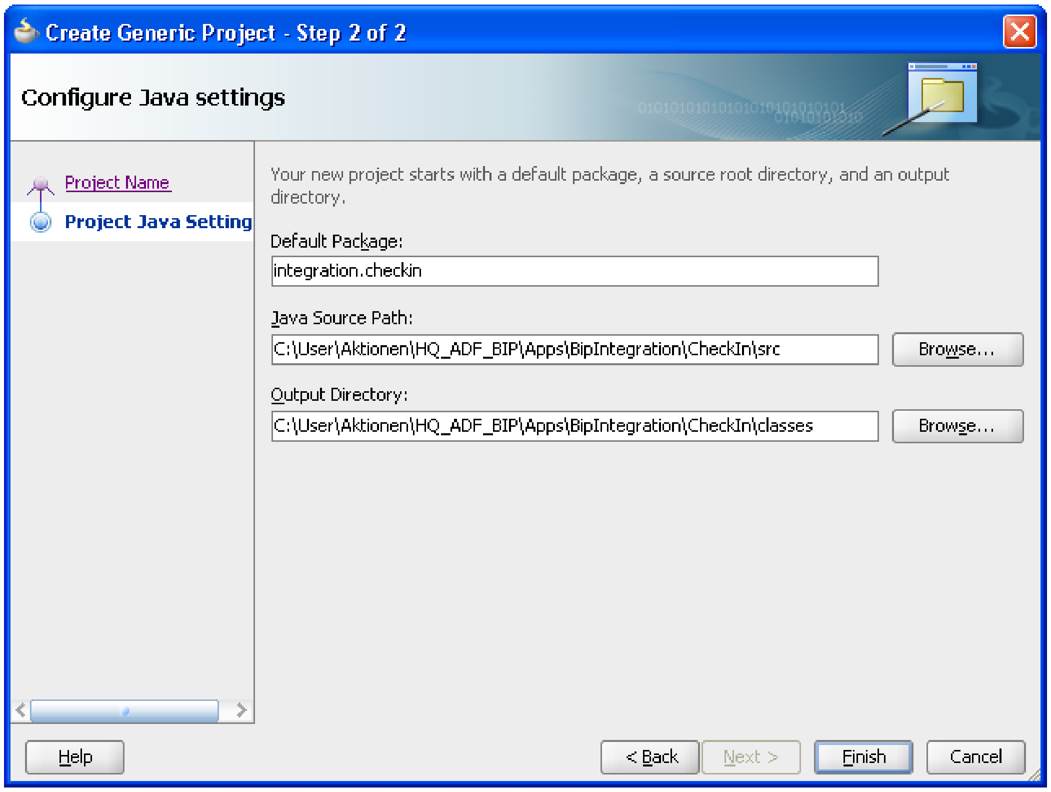
3. Standard Java Content Repository (JCR) Adapter in Oracle WebCenter
   This would allow to use pre-defined portlets to connect with and use functionality of Oracle UCM.

4. Web Service API
   Oracle UCM also offers web services for common functions. A WSDL generator can be used to adapt the web service interface to specific requirements.
   Web Services in Oracle UCM are appropriate for a small number of documents which are not too large because the content is embedded into the SOAP message itself. Web services in Oracle UCM are secured by basic authentication.

In this example we use persistently the web service API to check-in the generated reports into Oracle UCM

2.4.2 Generating the Data Controls for the Web Service

For the web service data controls a separate project *CheckIn* will be created in the existing application with the package *integration.checkin* and technology *Web Services* selected.



Your new project starts with a default package, a source root directory, and an output directory.

Default Package: integration.checkin

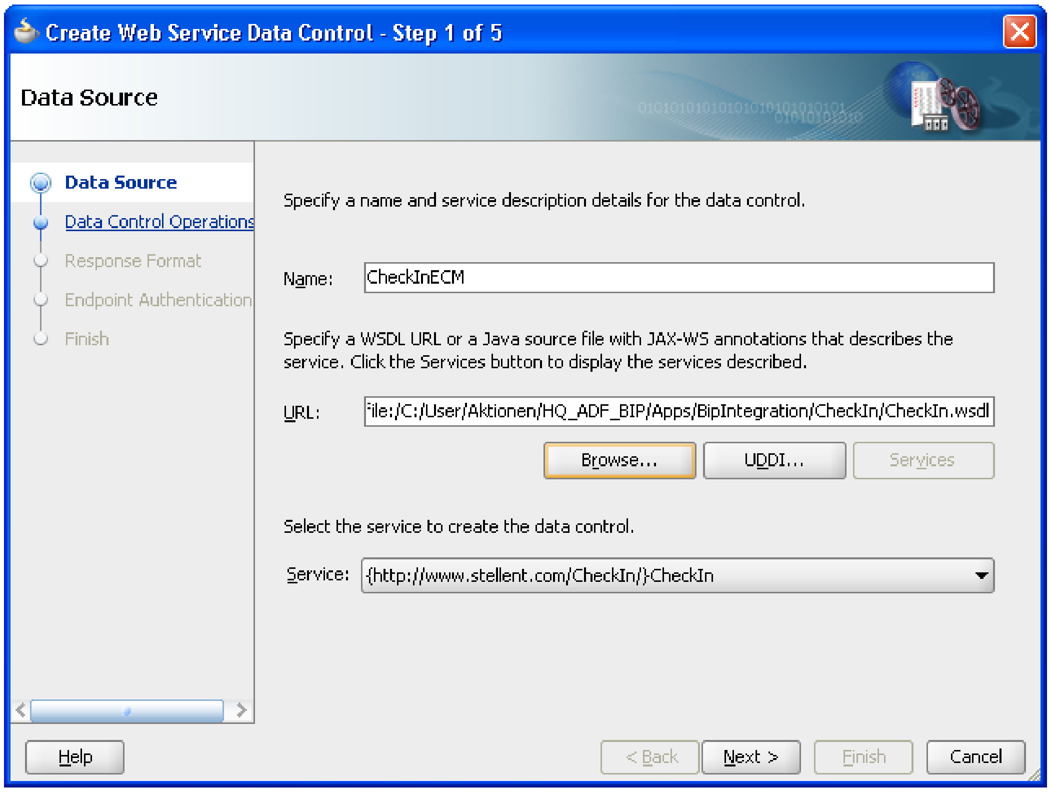
Java Source Path: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\CheckIn\src

Output Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\CheckIn\classes

In the project *CheckIn* select File => New => Business Tier => Web Services => Web Service Data Control. In the wizard enter the following details:

Name of data Control.	CheckInECM
WSDL	http://host:port/idc/groups/secure/wsdl/custom/CheckIn.wsdl

It is not possible to get the service details directly by entering the service endpoint URL because the web service is secured by basic authentication. To get around create a copy of the WSDL in a browser, add the file to the project and select it in the wizard by using the button *Browse*.


Create Web Service Data Control - Step 1 of 5

Data Source

Specify a name and service description details for the data control.

Name: CheckInECM

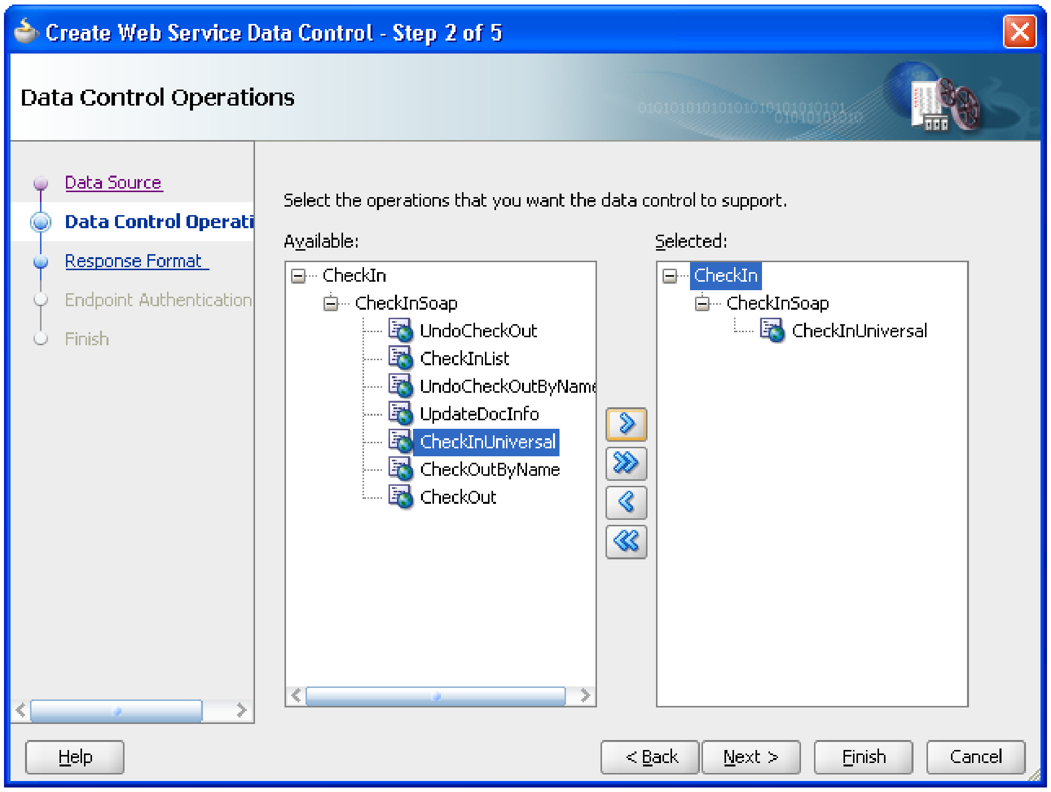
Specify a WSDL URL or a Java source file with JAX-WS annotations that describes the service. Click the Services button to display the services described.

URL: file:/C:/User/Aktionen/HQ_ADF_BIP/Apps/BipIntegration/CheckIn/CheckIn.wsdl

Select the service to create the data control.

Service: {http://www.stellent.com/CheckIn/}CheckIn

Select only the method *CheckInUniversal* from the list of available methods of the web service endpoint.


Create Web Service Data Control - Step 2 of 5

Data Control Operations

Select the operations that you want the data control to support.

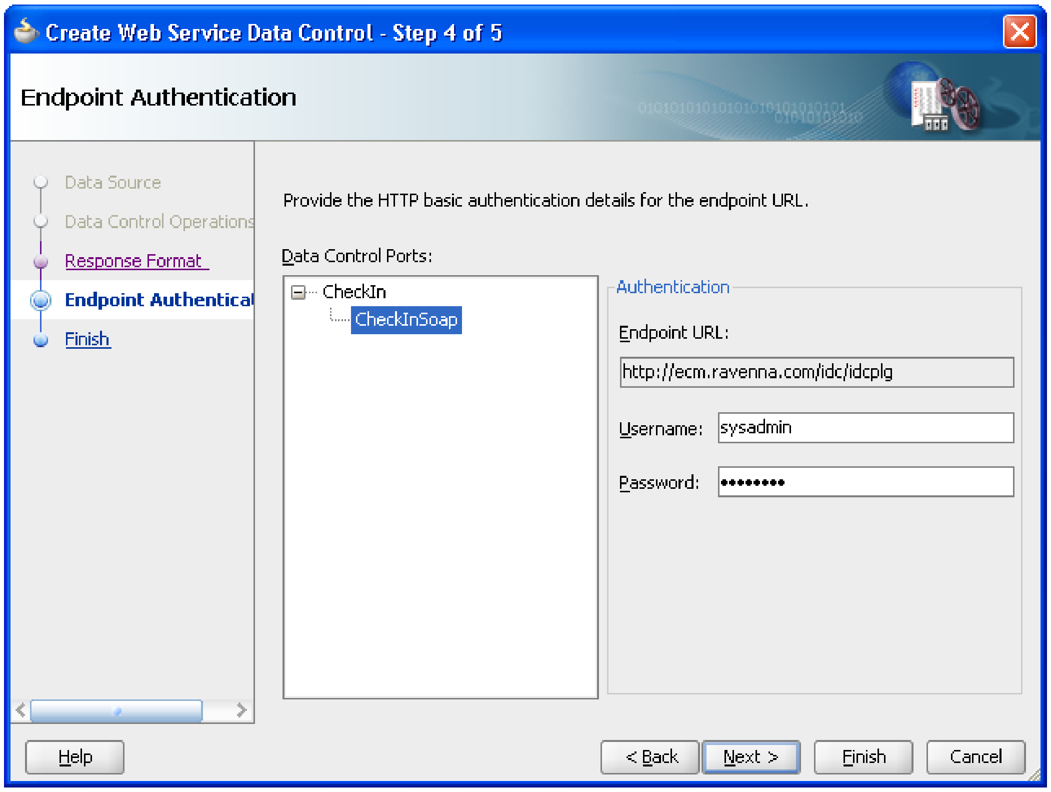
Available:

```
CheckIn
  CheckInSoap
    UndoCheckOut
    CheckInList
    UndoCheckOutByName
    UpdateDocInfo
    CheckInUniversal
    CheckOutByName
    CheckOut
```

Selected:

```
CheckIn
  CheckInSoap
    CheckInUniversal
```

In step 4 of the wizard you can enter a username and password for the basic authentication. The credentials are stored encrypted in the file *cwallet.sso*. Later we will replace them by a web service policy and a way to change them during runtime.



Provide the HTTP basic authentication details for the endpoint URL.

Data Control Ports:
- CheckIn
  - CheckInSoap

Authentication

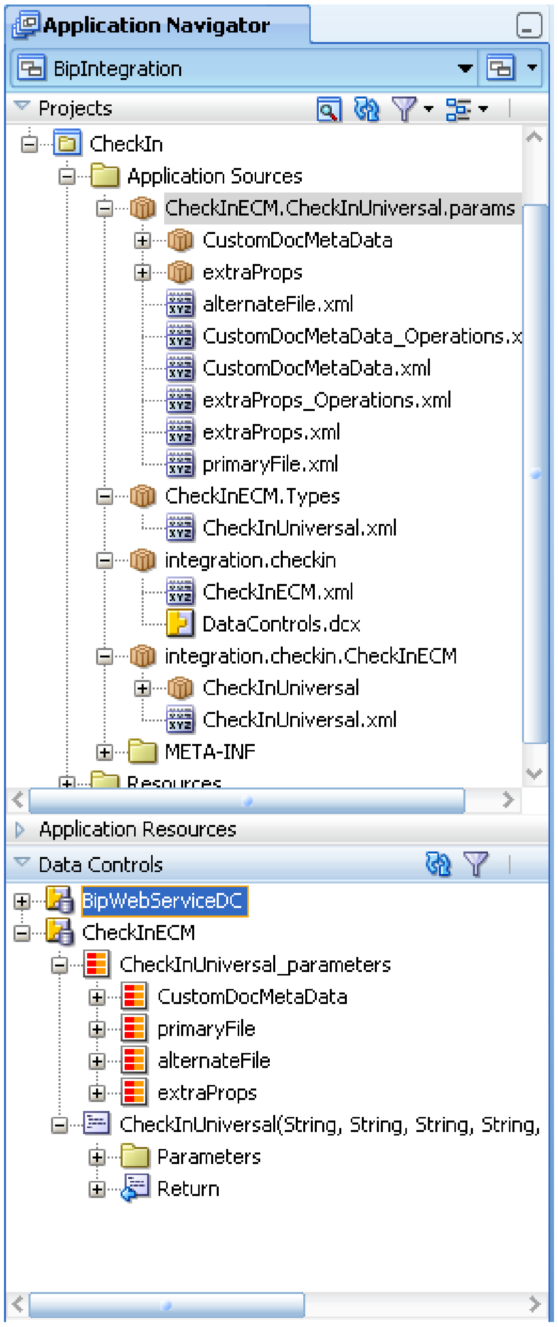
Endpoint URL: http://ecm.ravenna.com/idc/idcplg

Username: sysadmin

Password: ••••••••

It is also possible to use the tool *soapUI* to test web services with basic authentication and embedded or attached documents like we do have in this example.

As in the first part of this example we find a new data control CheckInECM in the *Data Controls Palette* and several .xml files in the *Application Navigator* because of the complex data types in the request and response of the web service.



```
Application Navigator
BipIntegration
Projects
CheckIn
  Application Sources
    CheckInECM.CheckInUniversal.params
      CustomDocMetaData
      extraProps
      alternateFile.xml
      CustomDocMetaData_Operations.x
      CustomDocMetaData.xml
      extraProps_Operations.xml
      extraProps.xml
      primaryFile.xml
    CheckInECM.Types
      CheckInUniversal.xml
    integration.checkin
      CheckInECM.xml
      DataControls.dcx
    integration.checkin.CheckInECM
      CheckInUniversal
      CheckInUniversal.xml
    META-INF
  Resources
Application Resources
Data Controls
BipWebServiceDC
CheckInECM
  CheckInUniversal_parameters
    CustomDocMetaData
    primaryFile
    alternateFile
    extraProps
  CheckInUniversal(String, String, String, String,
    Parameters
    Return
```

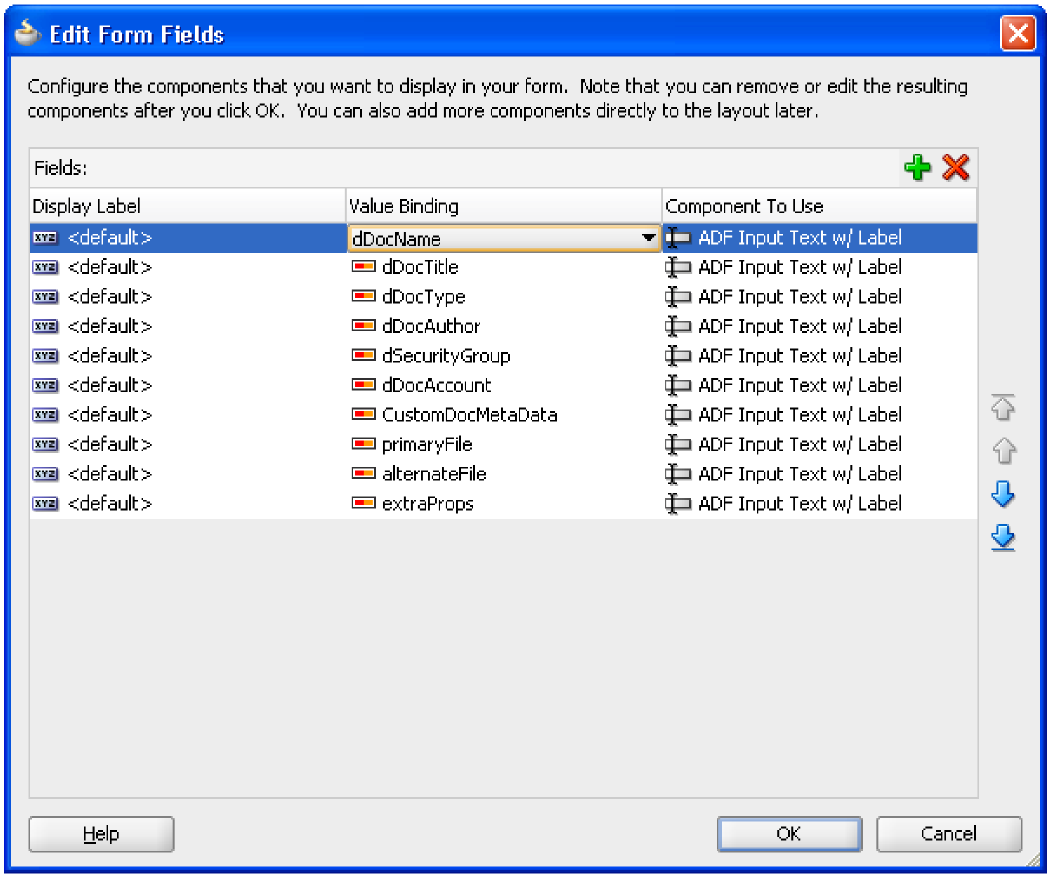
2.5 User Interface for UCM

2.5.1 Defining the Page Fragment checkIn.jsff

To structure the layout create a Panel Group (af:panelGroupLayout) with vertical orientation inside the Panel Box.
To get a better alignment of fields drag a Panel Form Layout (af:panelFormLayout) as the first group into the Panel Group.
From the Data Controls Palette drag the method *CheckInUniversal* into the Form

Layout and select ADF Parameter Form as the implementation type. From the list of available parameters select the following parameters as Input Text Fields:

- dDocName
- dDocTitle
- dDocType
- dDocAuthor
- dSecurityGroup



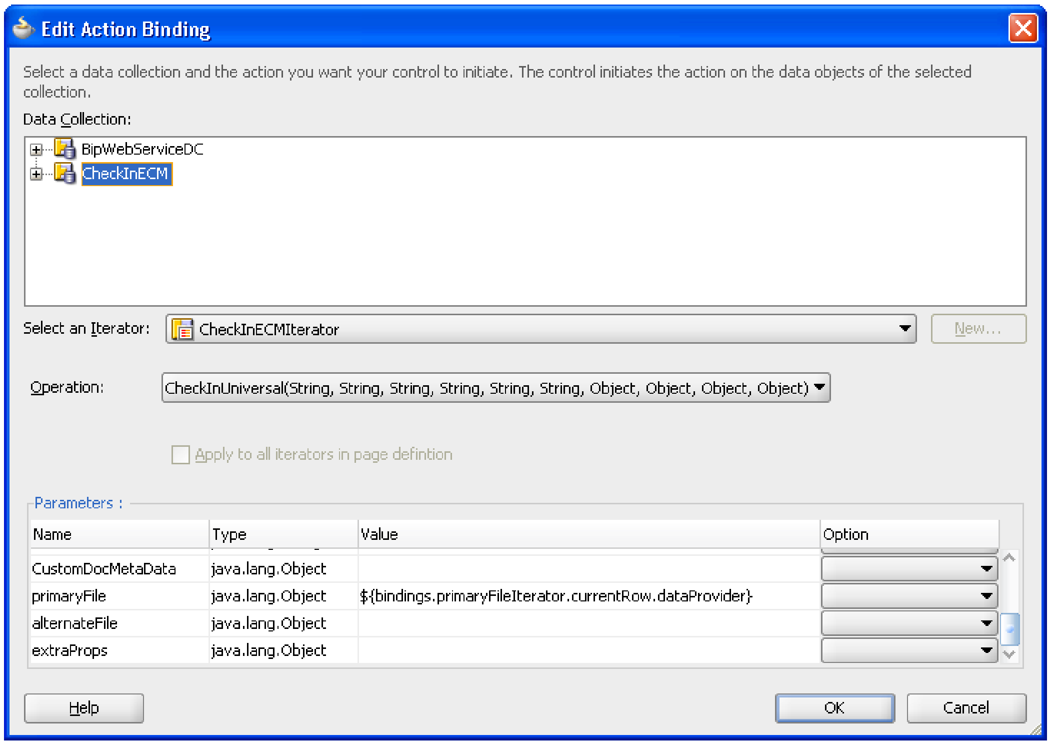
Configure the components that you want to display in your form. Note that you can remove or edit the resulting components after you click OK. You can also add more components directly to the layout later.

Display Label	Value Binding	Component To Use
<default>	dDocName	ADF Input Text w/ Label
<default>	dDocTitle	ADF Input Text w/ Label
<default>	dDocType	ADF Input Text w/ Label
<default>	dDocAuthor	ADF Input Text w/ Label
<default>	dSecurityGroup	ADF Input Text w/ Label
<default>	dDocAccount	ADF Input Text w/ Label
<default>	CustomDocMetaData	ADF Input Text w/ Label
<default>	primaryFile	ADF Input Text w/ Label
<default>	alternateFile	ADF Input Text w/ Label
<default>	extraProps	ADF Input Text w/ Label

As a result together with the input text fields a button will be created.

To get the report content into the message we have to add the complex type *Primary File* which consists of two attributes *fileName* and *fileContent*.
Drag the iterator *primaryFile* (node below the CheckInUniversal_parameters) just below the existing input text fields and select ADF Form as the implementation type. Then you can remove the Panel Form Layout around the two fields and the field *fileContent* completely from the interface and the binding.

In the Binding View check the action bindings fot the method *CheckInUniversal*.
For the *primaryFile* the binding should be
${bindings.primaryFileIterator.currentRow.dataProvider}


Edit Action Binding

Select a data collection and the action you want your control to initiate. The control initiates the action on the data objects of the selected collection.

Data Collection:

- BipWebServiceDC
- CheckInECM

Select an Iterator: CheckInECMIterator

Operation: CheckInUniversal(String, String, String, String, String, String, Object, Object, Object, Object)

Apply to all iterators in page defintion

Parameters :

Name	Type	Value	Option
CustomDocMetaData	java.lang.Object		
primaryFile	java.lang.Object	${bindings.primaryFileIterator.currentRow.dataProvider}	
alternateFile	java.lang.Object		
extraProps	java.lang.Object		

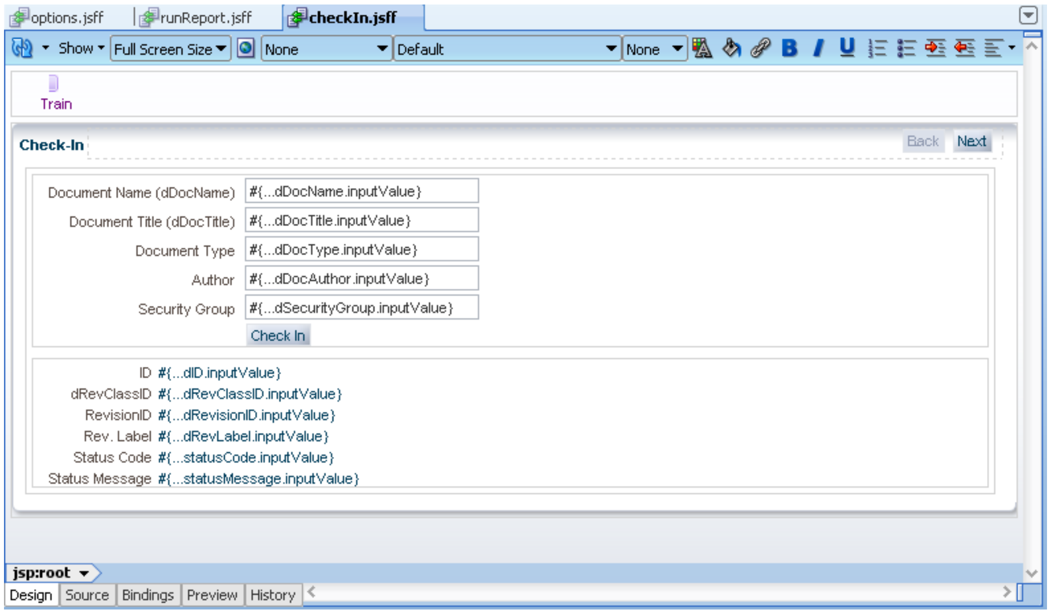
Next we will add the response to the page. It will display some status information about the success or failure of the check-in process.
Drag *CheckInUniversalResult* under the node *Return* from the *Data Controls Palette* below the existing Form Layout and select ADF Read-only Form as the implementation type. All fields will be created as Output text with Label (af:outputText).
When this page fragment will be displayed as part of the train we have to prevent the execution of the method action until the input fields are filled by the user. We can do that by defining a refresh condition for the two iterators belonging to the response:

- CheckInUniversalResultIterator
- StatusInfoIterator

În the Bindings View select each iterator and enter the following condition into the property *RefreshCondition*:

#{not empty bindings.dDocName.inputValue}

This is the completed page fragment



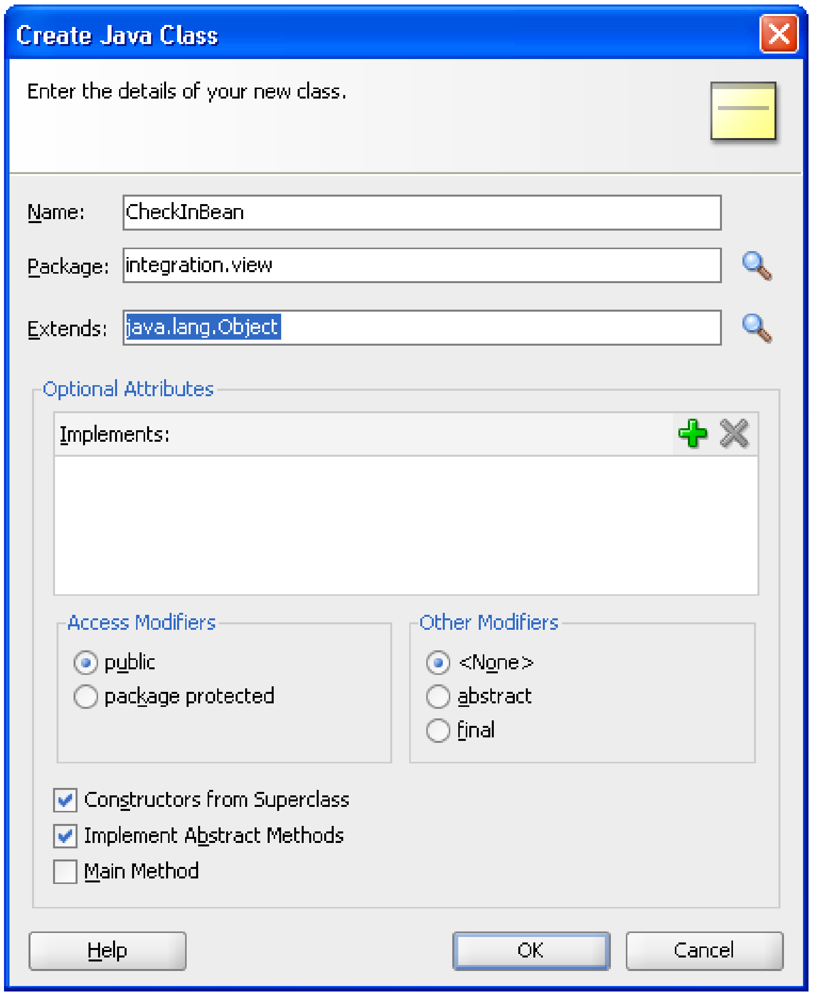
Check-In

Document Name (dDocName)	#{...dDocName.inputValue}
Document Title (dDocTitle)	#{...dDocTitle.inputValue}
Document Type	#{...dDocType.inputValue}
Author	#{...dDocAuthor.inputValue}
Security Group	#{...dSecurityGroup.inputValue}

ID	#{...dID.inputValue}
dRevClassID	#{...dRevClassID.inputValue}
RevisionID	#{...dRevisionID.inputValue}
Rev. Label	#{...dRevLabel.inputValue}
Status Code	#{...statusCode.inputValue}
Status Message	#{...statusMessage.inputValue}

2.5.2 Creating a Managed Bean to check-in the Document

To get the content of the generated report file into the SOAP message another managed bean is needed.
Create a Java bean in the project ViewController by selecting File => New => General => Java = Java Class.
Name it *CheckInBean*, create it in the package *integration.view* and accept the other defaults.



Create Java Class

Enter the details of your new class.

Name: CheckInBean
Package: integration.view
Extends: java.lang.Object

Optional Attributes

Implements:

Access Modifiers: [✓ public] package protected

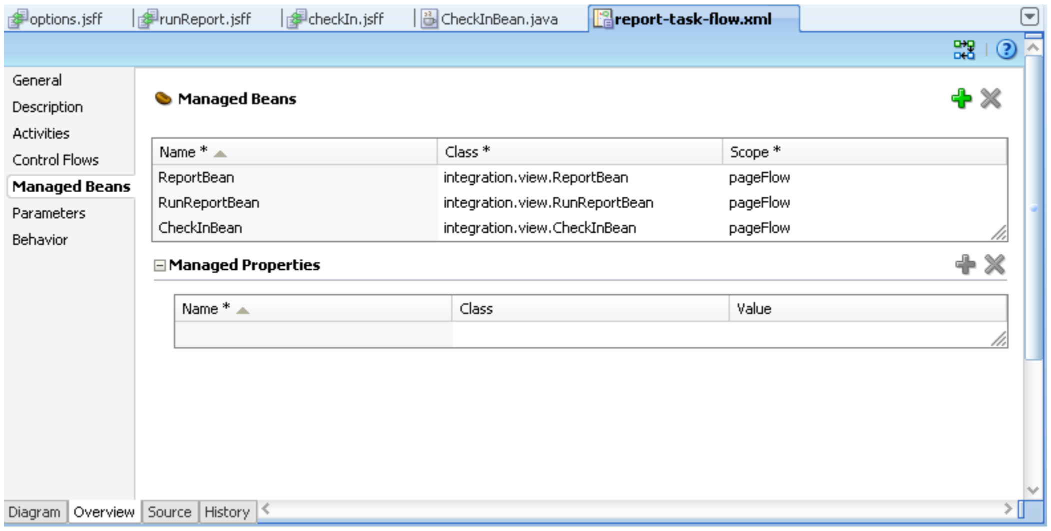
Other Modifiers: [✓ <None>] abstract final

[✓] Constructors from Superclass
[✓] Implement Abstract Methods
[ ] Main Method

In this class define variables for *fileName*, *fileContent* and *primaryFile.*
With the function *Generate Accessors* from the JDeveloper context menu generate get/set methods for these variables.
The complete code of *CheckInBean.java* is included in the *Sample Code* package.

The *CheckInBean* should be added as a managed bean to the *report-task-flow.xml*. In the Overview tab of the bounded taskflow select *Managed Beans* and create a new entry with the following properties:

Name	CheckInBean
Class	integration.view.CheckInBean
Scope	pageFlow



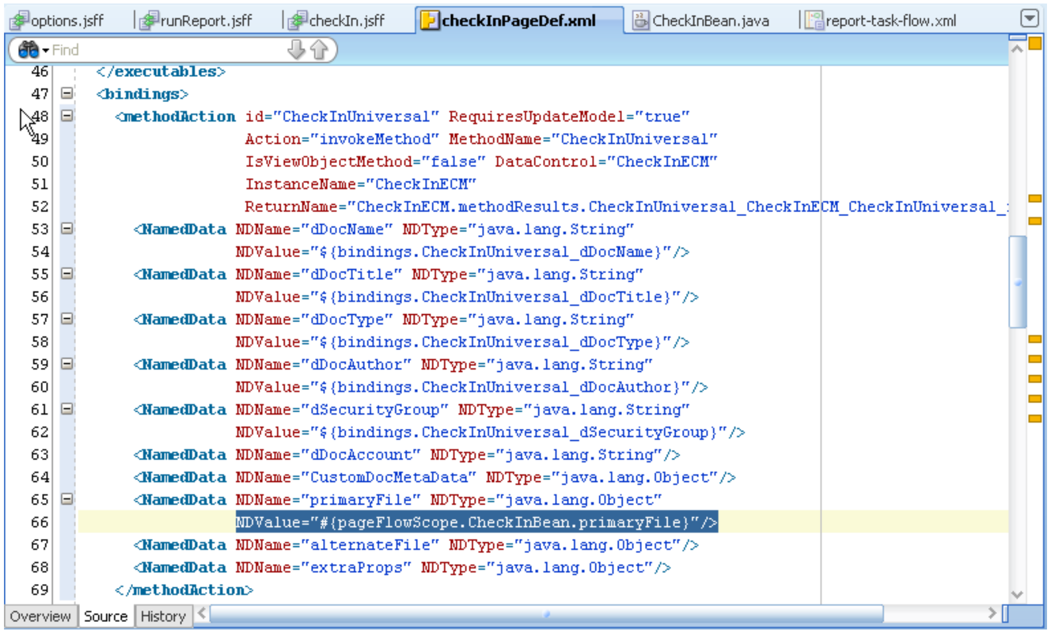
Managed Beans

Name *	Class *	Scope *
ReportBean	integration.view.ReportBean	pageFlow
RunReportBean	integration.view.RunReportBean	pageFlow
CheckInBean	integration.view.CheckInBean	pageFlow

Managed Properties

Name *	Class	Value

Finally there is a modification to be done in the pagedef file of the *checkIn* page fragment (*checkInPageDef.xml*). In the Source View the NDValue for the *primaryFile* has to be set to:
NDValue="#{pageFlowScope.CheckInBean.primaryFile}"



```
  </executables>
  <bindings>
    <methodAction id="CheckInUniversal" RequiresUpdateModel="true"
                  Action="invokeMethod" MethodName="CheckInUniversal"
                  IsViewObjectMethod="false" DataControl="CheckInECM"
                  InstanceName="CheckInECM"
                  ReturnName="CheckInECM.methodResults.CheckInUniversal_CheckInECM_CheckInUniversal_
      <NamedData NDName="dDocName" NDType="java.lang.String"
                 NDValue="${bindings.CheckInUniversal_dDocName}"/>
      <NamedData NDName="dDocTitle" NDType="java.lang.String"
                 NDValue="${bindings.CheckInUniversal_dDocTitle}"/>
      <NamedData NDName="dDocType" NDType="java.lang.String"
                 NDValue="${bindings.CheckInUniversal_dDocType}"/>
      <NamedData NDName="dDocAuthor" NDType="java.lang.String"
                 NDValue="${bindings.CheckInUniversal_dDocAuthor}"/>
      <NamedData NDName="dSecurityGroup" NDType="java.lang.String"
                 NDValue="${bindings.CheckInUniversal_dSecurityGroup}"/>
      <NamedData NDName="dDocAccount" NDType="java.lang.String"/>
      <NamedData NDName="CustomDocMetaData" NDType="java.lang.Object"/>
      <NamedData NDName="primaryFile" NDType="java.lang.Object"
                 NDValue="#{pageFlowScope.CheckInBean.primaryFile}"/>
      <NamedData NDName="alternateFile" NDType="java.lang.Object"/>
      <NamedData NDName="extraProps" NDType="java.lang.Object"/>
    </methodAction>
```

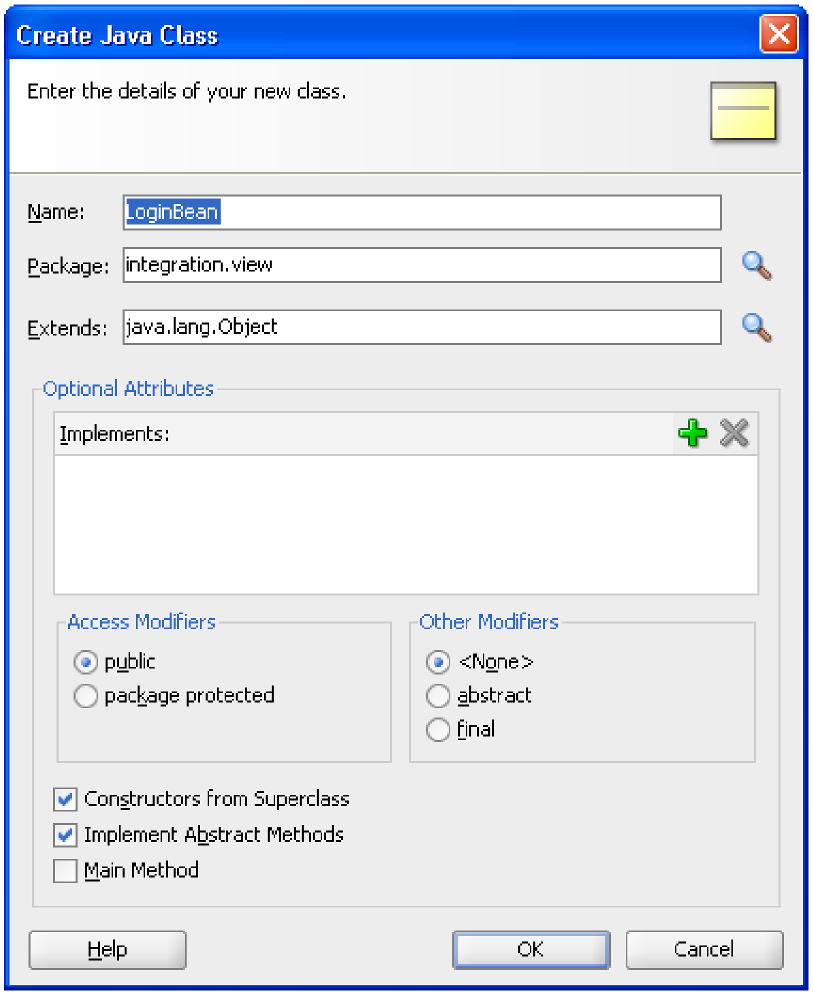
2.6 Implementing ADF Security

2.6.1 Creating a Managed Bean for the Login

This step is optional and not required to run the application if all hard-coded usernames and passwords are correct.
To implement ADF security using a .jspx page an additional bean is required.

Create a Java bean in the project *ViewController* by selecting File => New => General

=> Java = Java Class.
Name it *LoginBean*, create it in the package *integration.view* and accept the other defaults.



Enter the details of your new class.

Name: LoginBean
Package: integration.view
Extends: java.lang.Object

Optional Attributes
Implements:

Access Modifiers
[✓ public] package protected

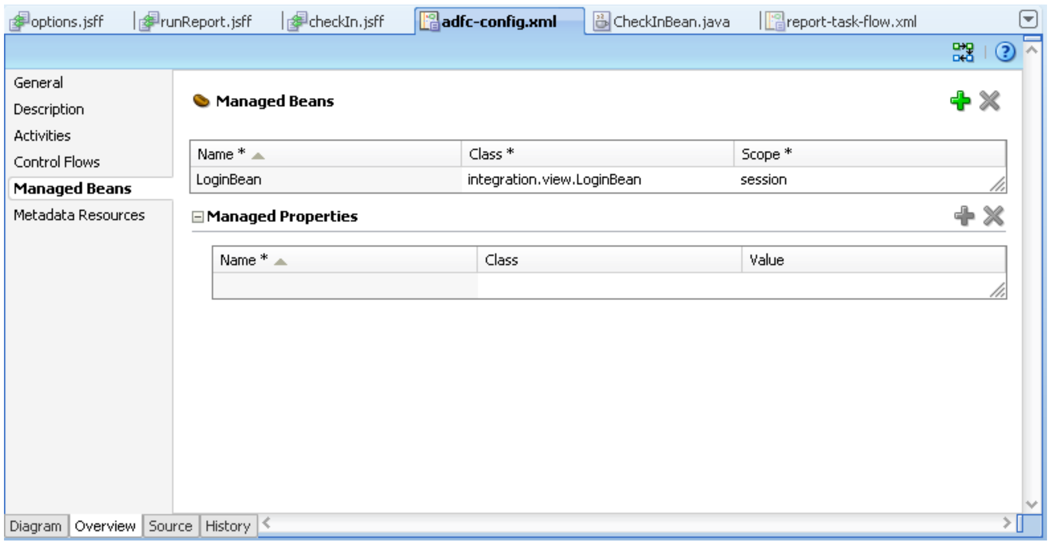
Other Modifiers
[✓ <None>] abstract final

[✓] Constructors from Superclass
[✓] Implement Abstract Methods
[ ] Main Method

The required code for the bean can be found in the Fusion Developer's Guide for ADF (http://download.oracle.com/docs/cd/E15523_01/web.1111/b31974/adding_security.htm#BABDEICH).
The complete code of *LoginBean.java* is included in the *Sample Code* package.

The *LoginBean* should be added as a managed bean to the unbounded top level flow *adfc-config.xml*. In the Overview tab of the taskflow select *Managed Beans* and create a new entry with the following properties:

Name	LoginBean
Class	integration.view.LoginBean
Scope	session



Managed Beans

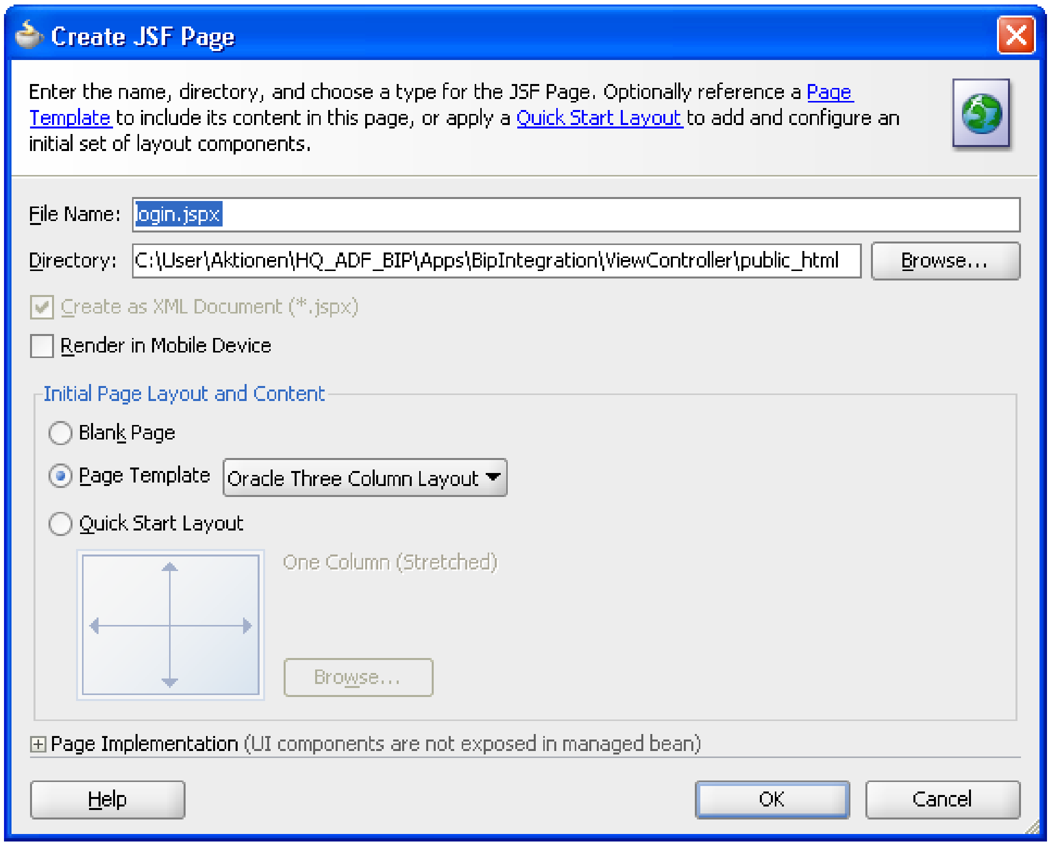
Name *	Class *	Scope *
LoginBean	integration.view.LoginBean	session

Managed Properties

Name *	Class	Value

2.6.2 Creating a Login Page

Drag an activity of type "View" into the diagram of the *adfc-config.xml*. Open the new created page, name it *login.jspx* and accept the default settings.



Create JSF Page

Enter the name, directory, and choose a type for the JSF Page. Optionally reference a Page Template to include its content in this page, or apply a Quick Start Layout to add and configure an initial set of layout components.

File Name: login.jspx

Directory: C:\User\Aktionen\HQ_ADF_BIP\Apps\BipIntegration\ViewController\public_html

[✓] Create as XML Document (*.jspx)

[ ] Render in Mobile Device

Initial Page Layout and Content

( ) Blank Page

(●) Page Template: Oracle Three Column Layout

( ) Quick Start Layout

One Column (Stretched)

Page Implementation (UI components are not exposed in managed bean)

Do the following steps in the page *login.jspx*

- disable the facets "start" and "end" by deleting them in the diagram view

- insert a heading just by drag a component *outputText* (af:outputText) into the facet "header" and change the value to "Login Page"
- set the display name for the page in the *adfc-config.xml* by selecting the page and enter "Login Page" as the *Display Name* in the Property Inspector.
- place a Panel Box (af:panelBox) in the facet "center", set the property *Text* to "Login" and set the properties *Width* and *Height* of the Panel Box to 100%.
- place a Panel Form Layout (af:panelFormLayout) inside the Panel Box

Now two Input Text Fields for the username and password have to be created.
For the username drag an Input Text Field (af:inputText) into the Form Layout with

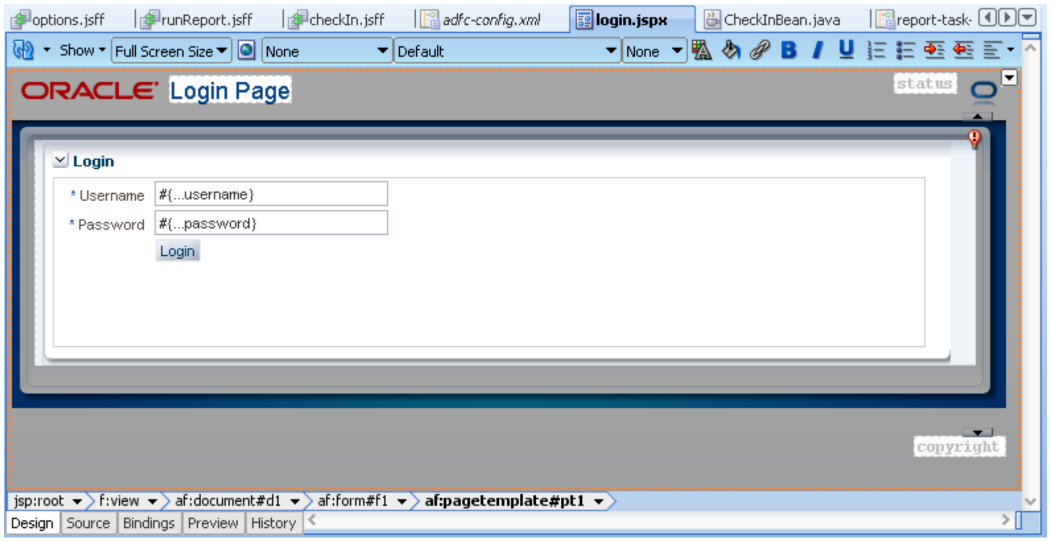
Label	Username
Value	#{LoginBean.username}
Required	True

For the password drag an Input Text Field (af:inputText) below the username field with

Label	Password
Value	#{LoginBean.password}
Required	True
Secret	True

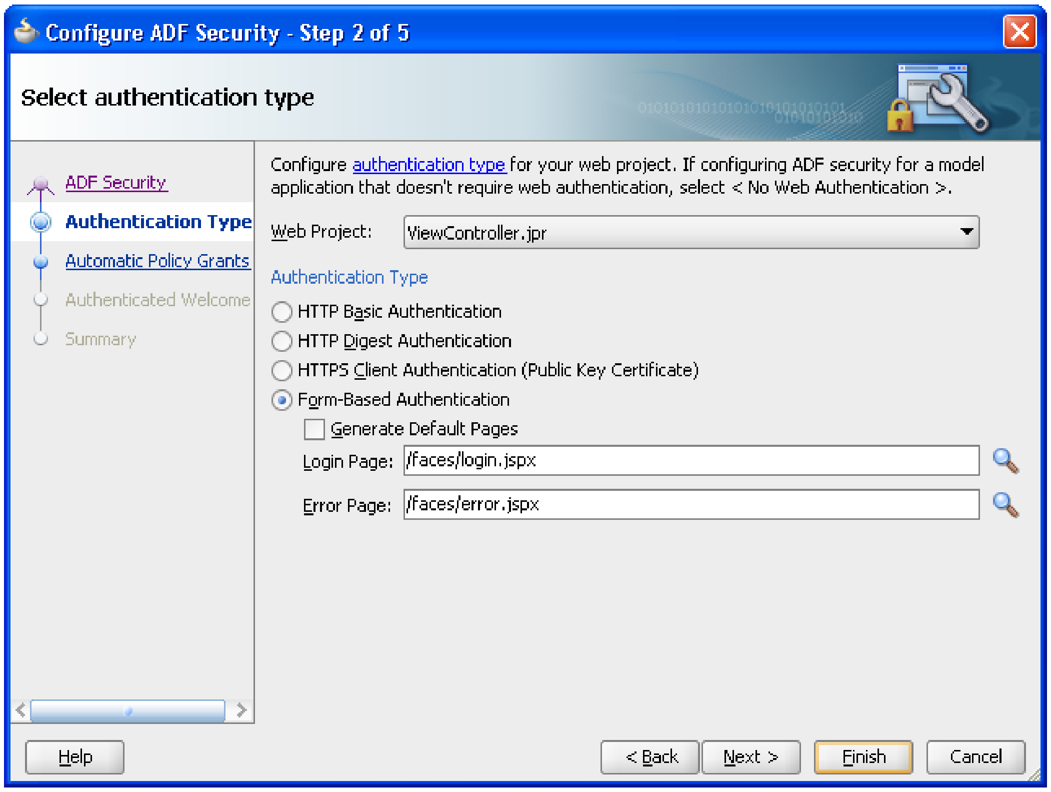
Finaly create a Button (af:commandButton) below the text fields with

Text	Login
Action	#{LoginBean.doLogin}



2.6.3 Configuration of ADF Security

Select the *ViewController* project and open Application => Secure => Configure ADF Security in the JDeveloper menu. Select the option "ADF Authentication and Authorization" and "Form-based Authentication" in the next step. Enter */faces/login.jspx* for the Login Page and */faces/error.jspx* for the Error Page.



Configure ADF Security - Step 2 of 5

Select authentication type

- ADF Security
- Authentication Type
- Automatic Policy Grants
- Authenticated Welcome
- Summary

Configure authentication type for your web project. If configuring ADF security for a model application that doesn't require web authentication, select < No Web Authentication >.

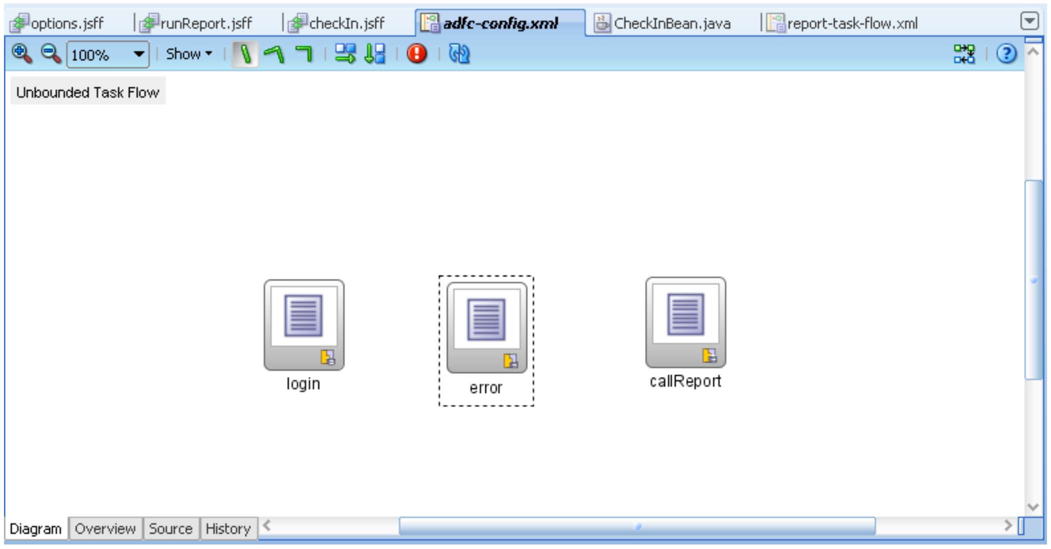
Web Project: ViewController.jpr

Authentication Type

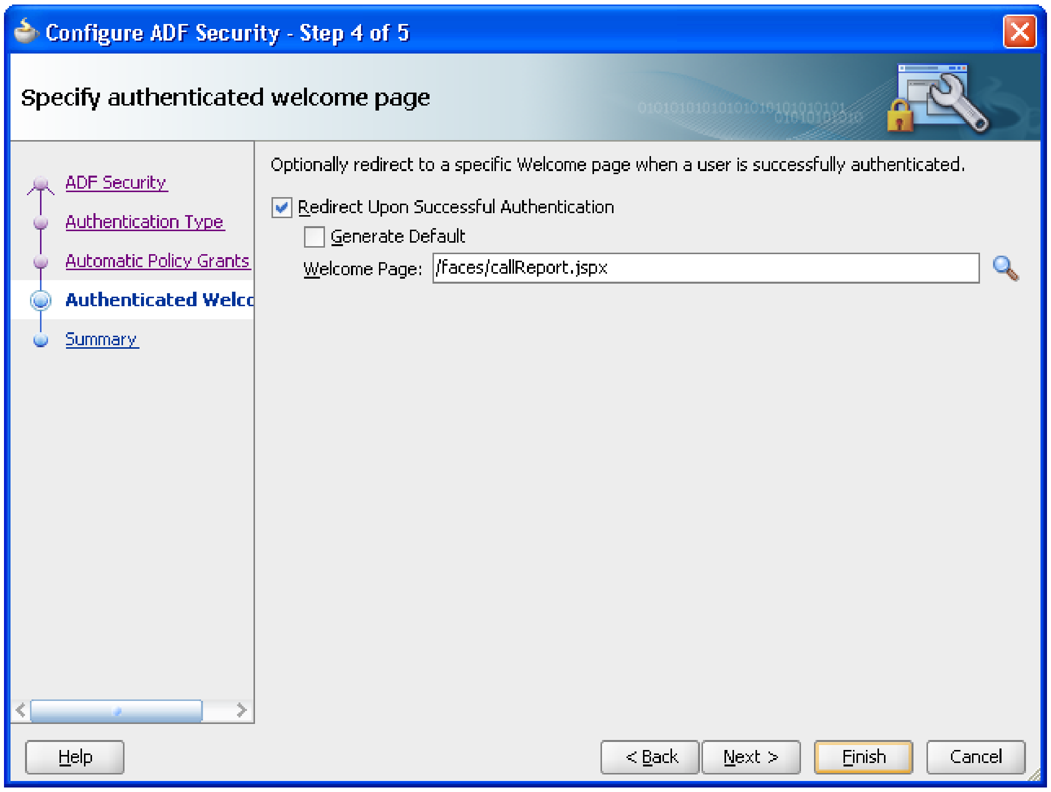
- ( ) HTTP Basic Authentication
- ( ) HTTP Digest Authentication
- ( ) HTTPS Client Authentication (Public Key Certificate)
- [✓ Form-Based Authentication]
  - [ ] Generate Default Pages
  - Login Page: /faces/login.jspx
  - Error Page: /faces/error.jspx

Help | < Back | Next > | Finish | Cancel

The error page can be created in the same way as the login page just with a simple error message.



In the next step select "Grant to All Objects".
In step 4 check "Redirect Upon Succesful Authentication" and enter */faces/callReport.jspx* as the Welcome Page of the application.


Configure ADF Security - Step 4 of 5

Specify authenticated welcome page

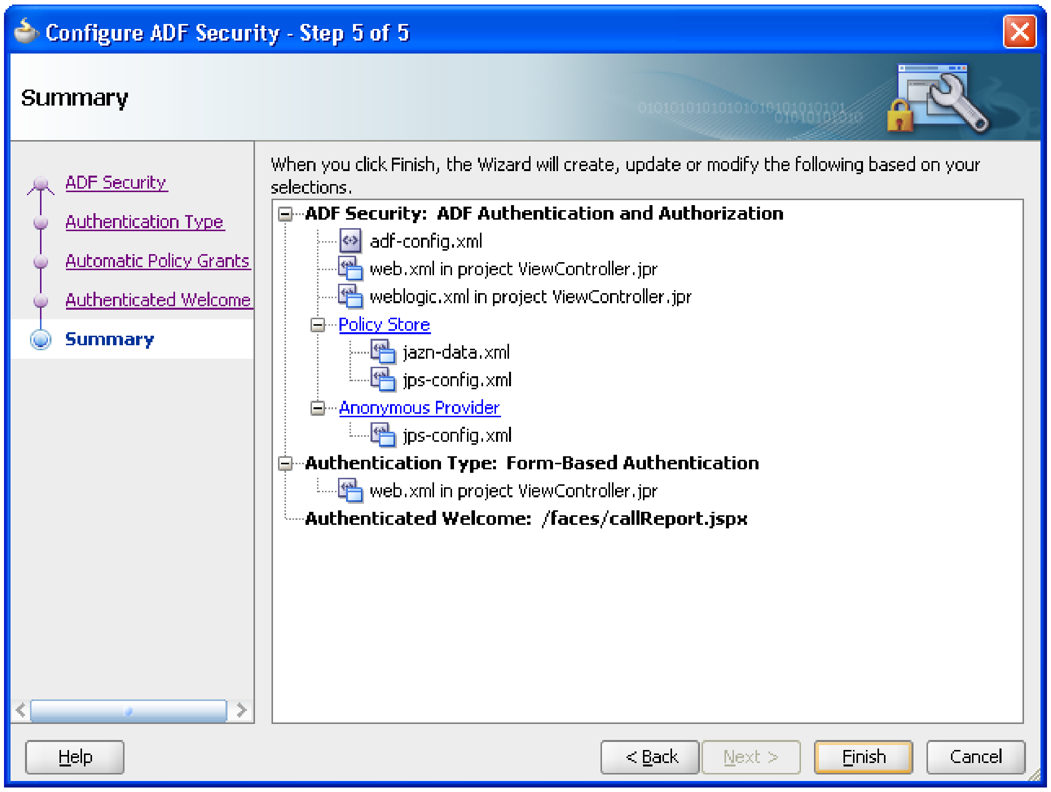
Optionally redirect to a specific Welcome page when a user is successfully authenticated.

[✓] Redirect Upon Successful Authentication

[ ] Generate Default

Welcome Page: /faces/callReport.jspx

The last page of the wizard show a summary of the settings before finishing the configuration.

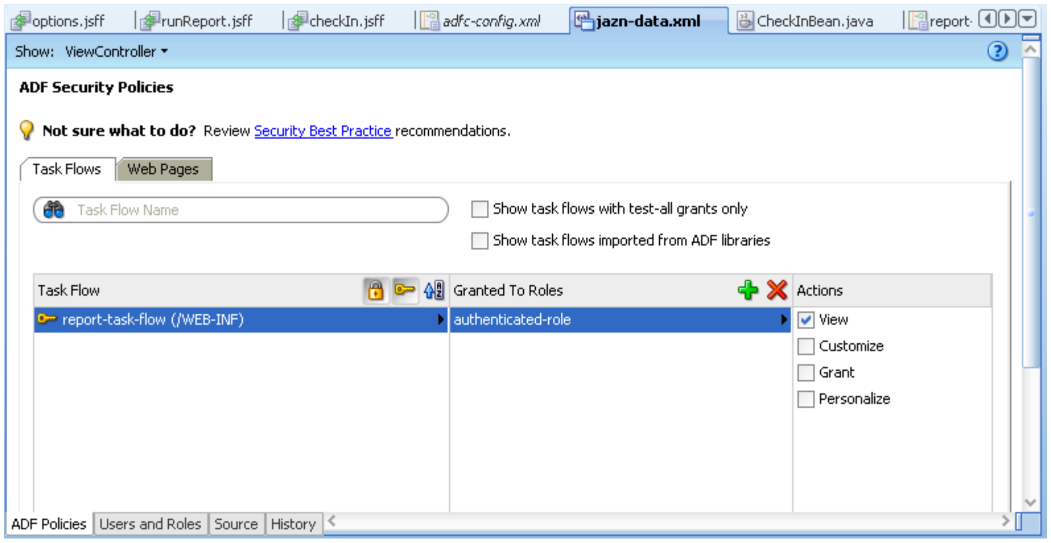

Configure ADF Security - Step 5 of 5

Summary

When you click Finish, the Wizard will create, update or modify the following based on your selections.

```
ADF Security:  ADF Authentication and Authorization
    adf-config.xml
    web.xml in project ViewController.jpr
    weblogic.xml in project ViewController.jpr
    Policy Store
        jazn-data.xml
        jps-config.xml
    Anonymous Provider
        jps-config.xml
Authentication Type:  Form-Based Authentication
    web.xml in project ViewController.jpr
Authenticated Welcome:  /faces/callReport.jspx
```

In the next step a policy have to be defined.
Select the *ViewController* project and open Application => Secure => ADF Policies in the JDeveloper menu.
To protect the task flow *report-task-flow.xml* select it, remove the role "test-all" and add the role "authenticated-role". The role "authenticated-role" is predefined in Oracle WebLogic Server and is granted to all authenticated users.
On the second tab *Web Pages* do the same for the web page *callReport.jspx*.



Show: ViewController

ADF Security Policies

Not sure what to do? Review Security Best Practice recommendations.

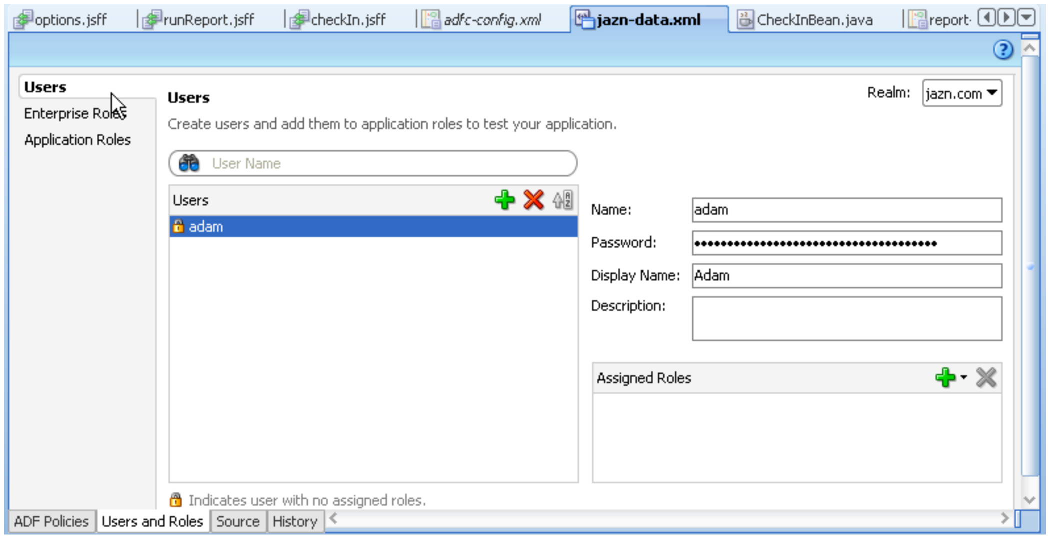
Task Flows | Web Pages

Task Flow Name

☐ Show task flows with test-all grants only
☐ Show task flows imported from ADF libraries

Task Flow	Granted To Roles	Actions
report-task-flow (/WEB-INF)	authenticated-role	☑ View
		☐ Customize
		☐ Grant
		☐ Personalize

In the last step a user has to be created in the *jazn-data.xml* to test the configuration.
Select the *ViewController* project and open Application => Secure => Users in the JDeveloper menu.
Add a user and a password, in this example *adam* and *welcome1*.



Users

Create users and add them to application roles to test your application.

Realm: jazn.com

User Name

Users
adam

Name: adam
Password: ••••••••••••••••••••••••••••••••••••
Display Name: Adam
Description:

Assigned Roles

Indicates user with no assigned roles.

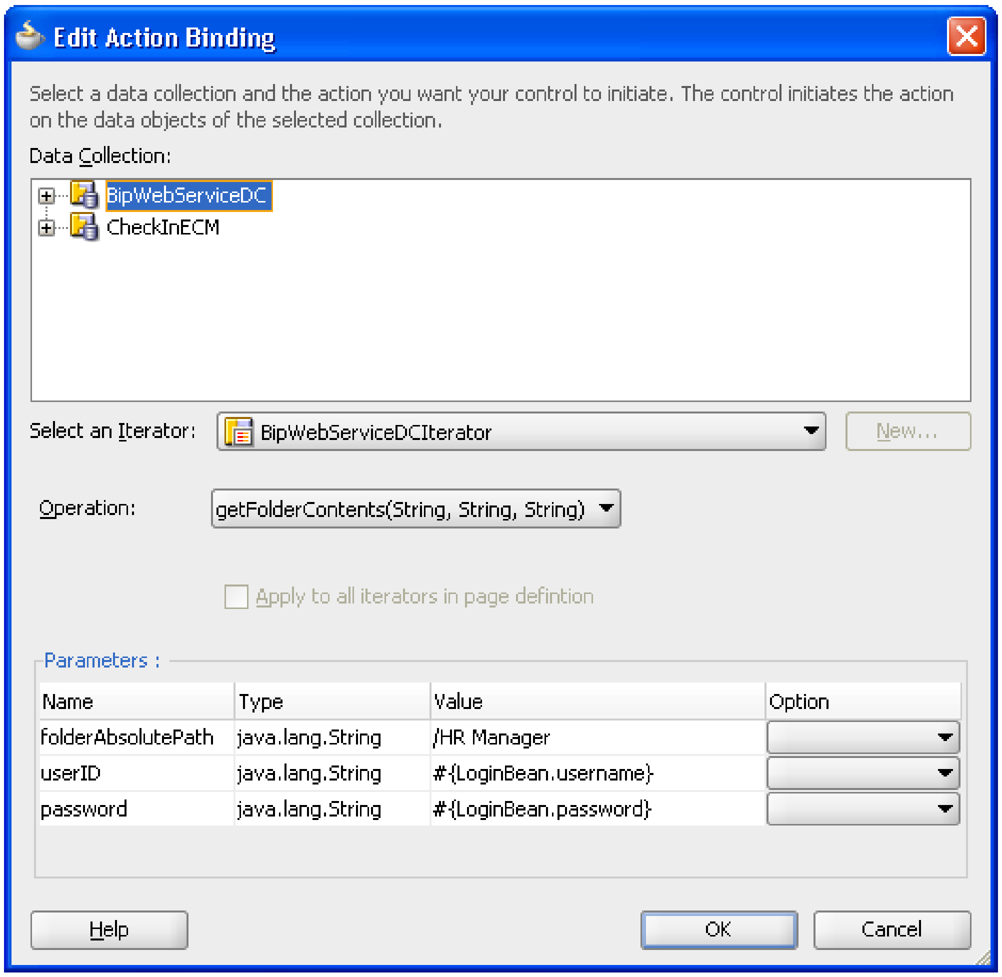
Because we will use the embedded WebLogic server to test the configuration it is not necessary to configure a security deployment.

2.6.4 Modifying existing Page Fragments to use ADF Security

At the moment there are three page fragments where hard-coded credentials will be used when calling the web service methods of Oracle BI Publisher. Go to the Bindings View of *report.jsff*, *layout.jsff* and *runReport.jsff* and edit the action binding of the method.

report.jsff	getFolderContents
layout.jsff	getReportDefinition
runreport.jsff	runReport

Replace the username by #{LoginBean.username}
Replace the password by #{LoginBean.password}


Edit Action Binding

Select a data collection and the action you want your control to initiate. The control initiates the action on the data objects of the selected collection.

Data Collection:
- BipWebServiceDC
- CheckInECM

Select an Iterator: BipWebServiceDCIterator

Operation: getFolderContents(String, String, String)

☐ Apply to all iterators in page defintion

Parameters :

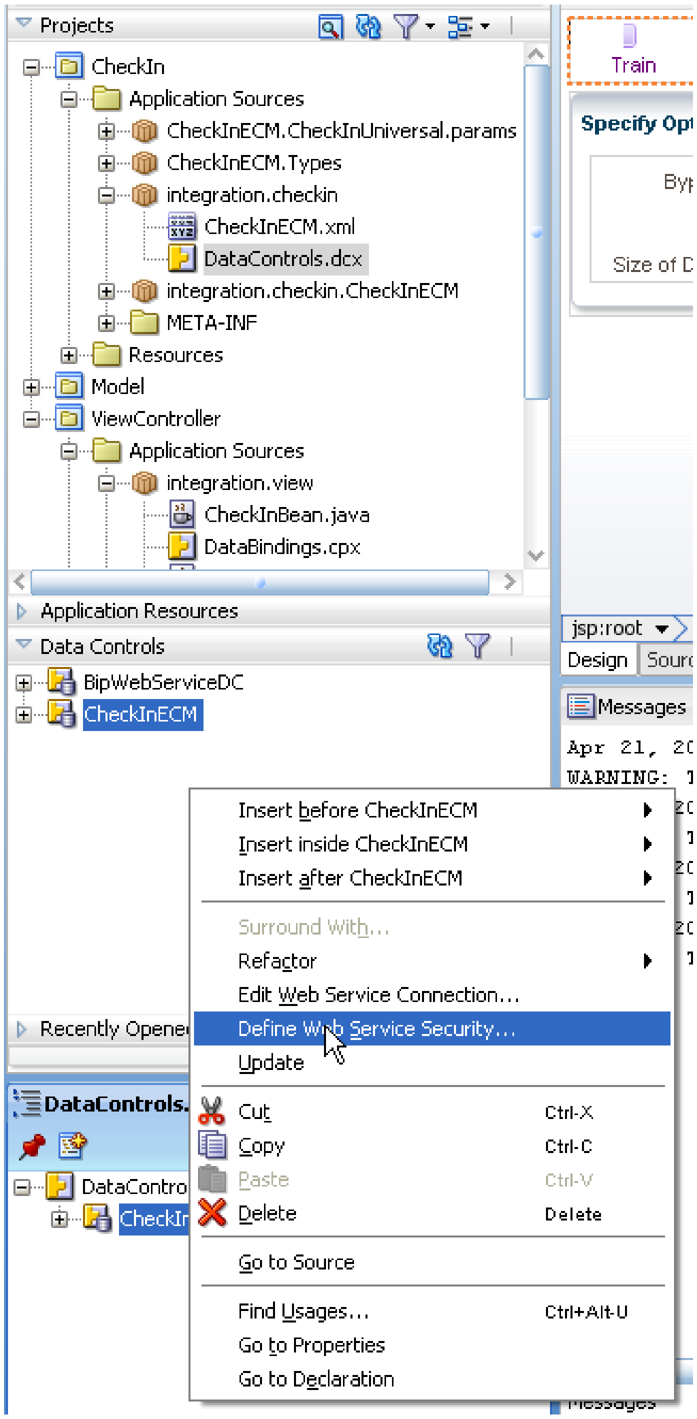
Name	Type	Value	Option
folderAbsolutePath	java.lang.String	/HR Manager	
userID	java.lang.String	#{LoginBean.username}	
password	java.lang.String	#{LoginBean.password}	

2.6.5 Creating a Managed Bean to Pass the Login Credentials for Oracle UCM

Oracle UCM web service endpoint is secured by basic authentication and the credentials entered at design time are stored in a wallet file. In this step these credentials should be replaced by the username and password of the login user.

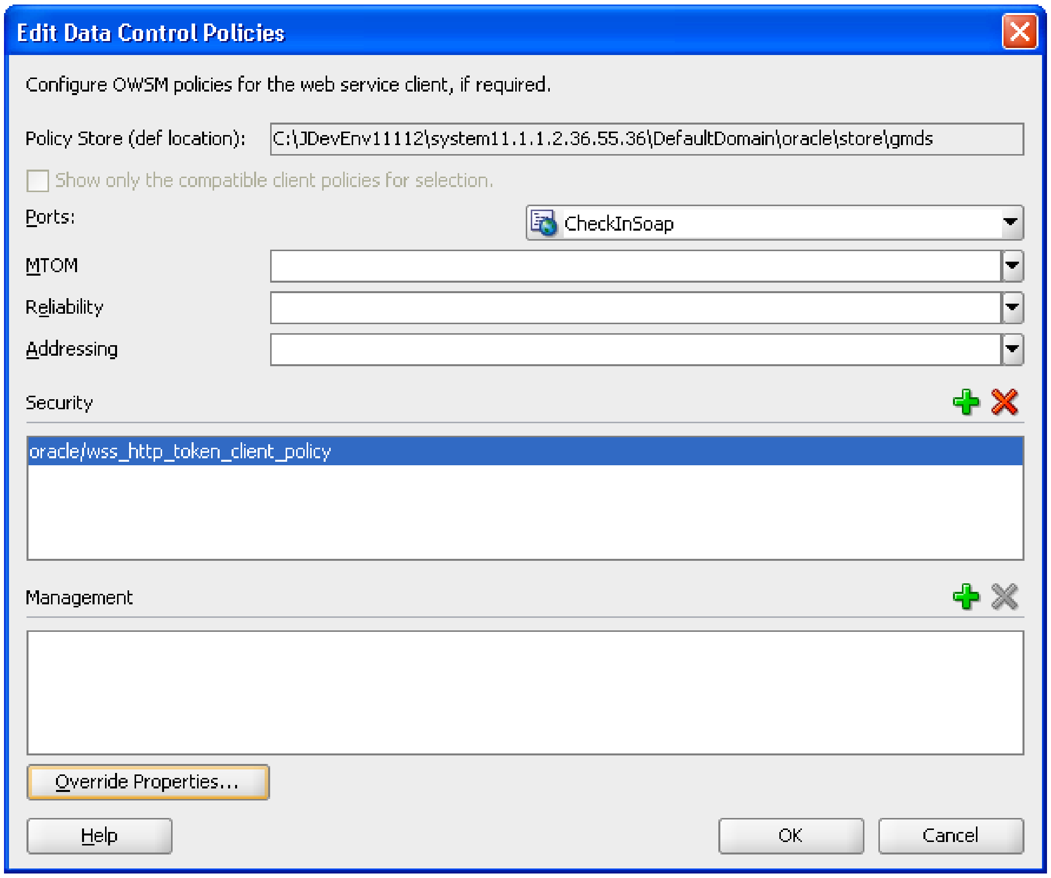
In the first step we will define web service security for the data control *CheckInECM*. Select the file *DataControls.dcx* in the *CheckIn* project. Navigate to the node

CheckInECM in the Structure Pane and open *Define Web Service Security* in the context menu (right mouse button).



```
Apr 21, 20
WARNING: I
```

In the multiline field add an entry and select *oracle/wss_http_token_client_policy* from the list of available policies. This is the appropriate policy for basic authentication which we will need for the UCM web service. Don't close the window.


Edit Data Control Policies

Configure OWSM policies for the web service client, if required.

Policy Store (def location): C:\JDevEnv11112\system11.1.1.2.36.55.36\DefaultDomain\oracle\store\gmds

[ ] Show only the compatible client policies for selection.

Ports: CheckInSoap

MTOM

Reliability

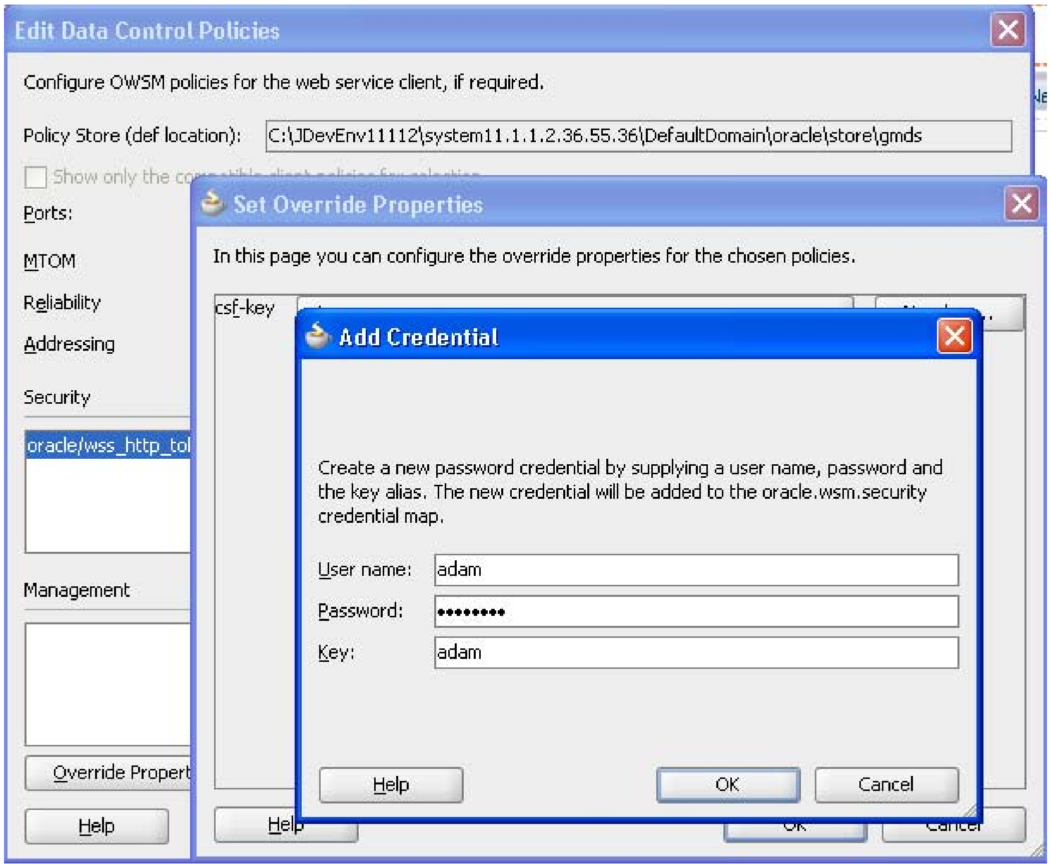
Addressing

Security

oracle/wss_http_token_client_policy

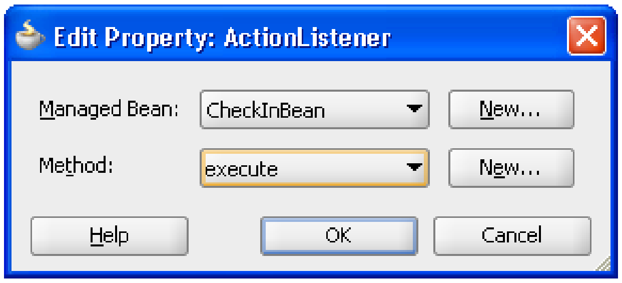
Management

Press the button *Override Properties* and add a credential store key (csf-key). This a set of values consisting of a user name, a password and a key name. The csf-key replaces the credentials we defined when the data control for the web service was created and is stored in the file ../META-INF/cwallet.sso.


Edit Data Control Policies
Configure OWSM policies for the web service client, if required.
Policy Store (def location): C:\JDevEnv11112\system11.1.1.2.36.55.36\DefaultDomain\oracle\store\gmds
Show only the co
Ports:
MTOM
Reliability
Addressing
Security
oracle/wss_http_tol
Management
Override Propert
Help
Set Override Properties
In this page you can configure the override properties for the chosen policies.
csf-key
Help
Add Credential
Create a new password credential by supplying a user name, password and the key alias. The new credential will be added to the oracle.wsm.security credential map.
User name: adam
Password: ••••••••
Key: adam
Help
OK
Cancel

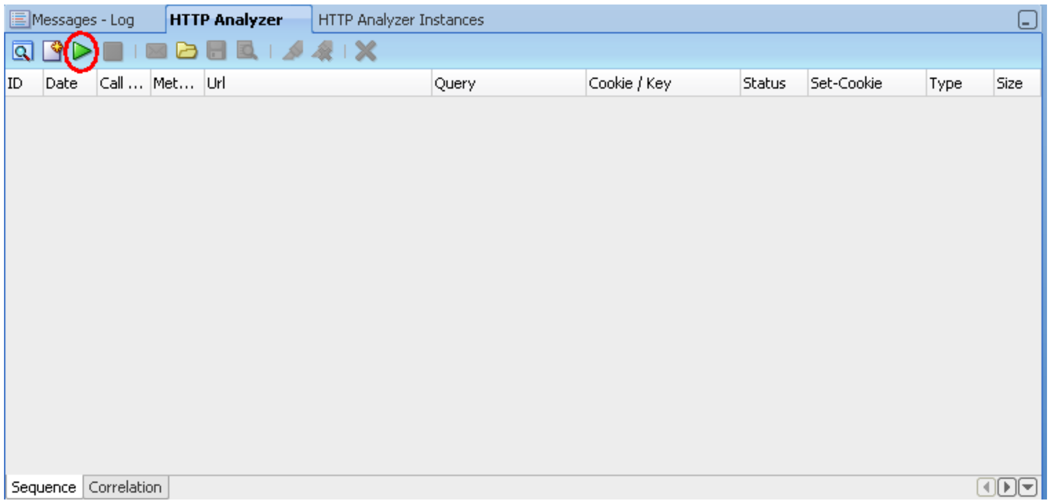
Now it is possible to reference and modify the csf-key programmatically in the *CheckInBean*.
The complete code of the modified *CheckInBean.java* is found in the *Sample Code* package.

The last step is to change the action listener for the *Check In* button. It still points to the method *CheckInUniversal* in the binding. Change the property *ActionListener* to
#{pageFlowScope.CheckInBean.execute}
by using the Expression Builder or the function *Edit* for the property. It is accidentally that the name of the action is *execute()* before and after the modification. Of course you can choose a arbitrary for the method in the bean.



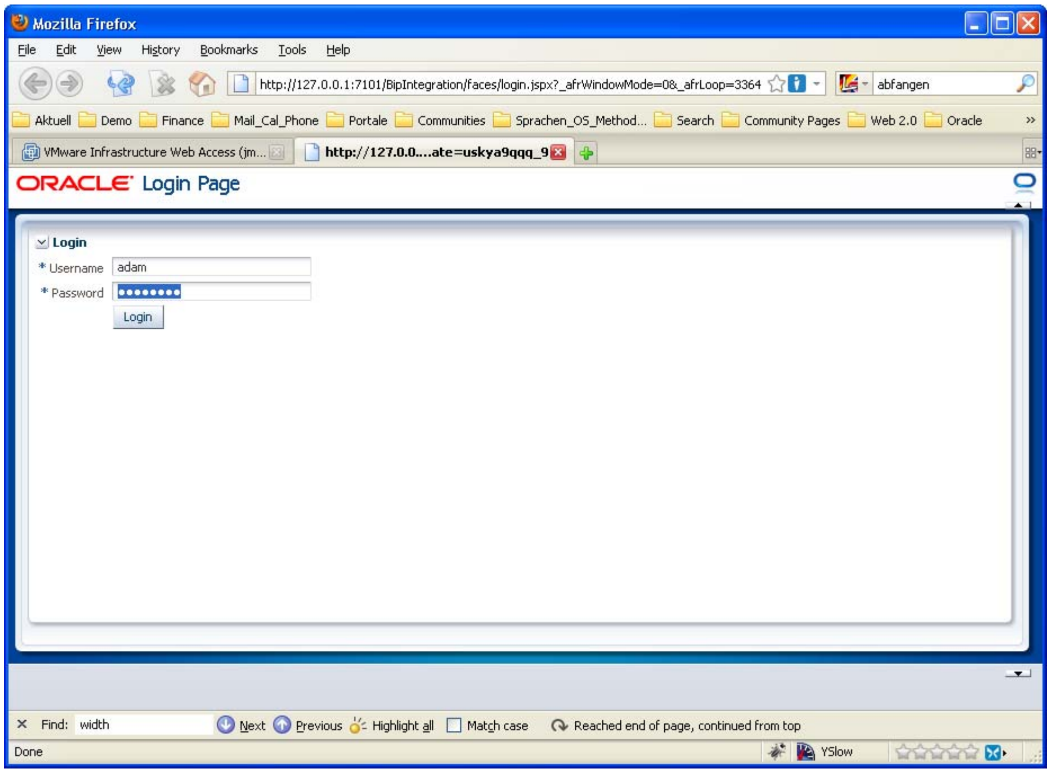
2.7 Running the application

When you run the application for the first time it is recommended to start the *HTTP Analyzer* from the JDeveloper tools menu. It intercepts all HTTP requests to the embedded WebLogic server so that you can see the content of all outgoing and incoming messages. You have to start the recording by pressing the green triangle in the Analyzer window before the embedded WebLogic server is started.



ID	Date	Call …	Met…	Url	Query	Cookie / Key	Status	Set-Cookie	Type	Size

From within JDeveloper open the *adfc-config.xml*, select the page *callReport* and run it through the context menu of JDeveloper. In the login page enter *adam* as user and *welcome1* as the password. Remember that this user will replace the static settings defined during design time for the UCM web service.

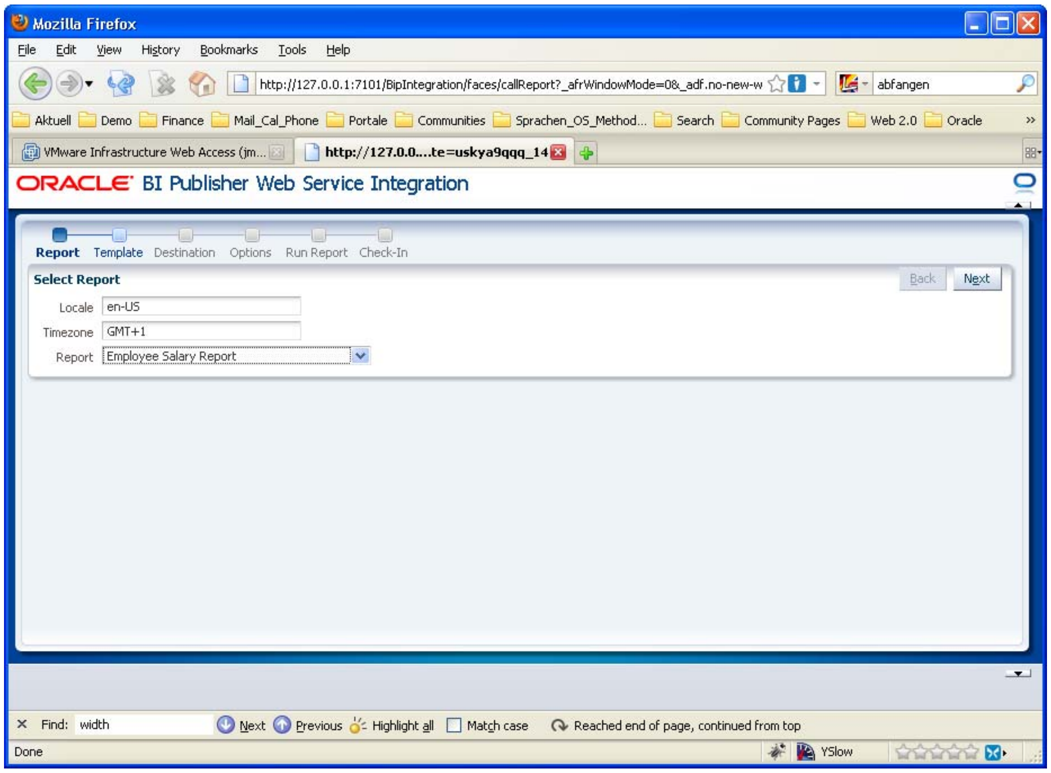

Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/login.jspx?_afrWindowMode=0&_afrLoop=3364
ORACLE Login Page
Login
Login
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Login

* Username: adam

* Password: ••••••••

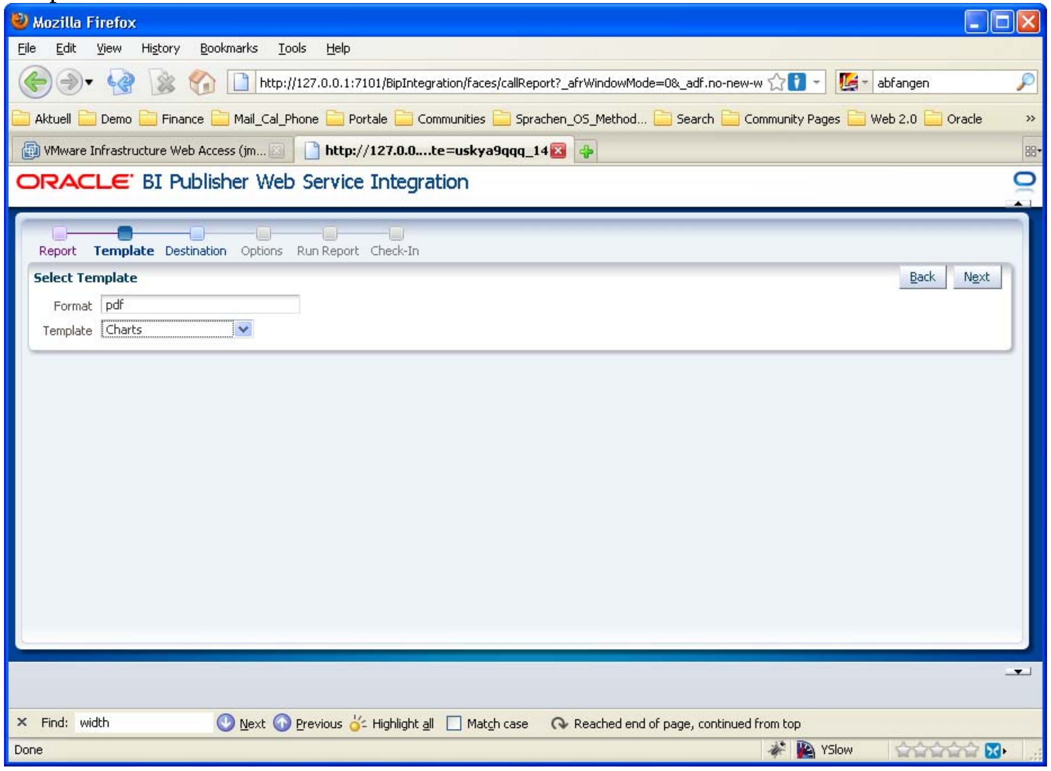
Upon succesful login the user will be redirected to the page *callReport.jspx* where the train will be displayed in a region. At the first stop (Report) select a report from the list-of-values.


Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_adf.no-new-w
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Select Report

Locale	en-US
Timezone	GMT+1
Report	Employee Salary Report

On the second stop (Template) enter a valid output format (pdf, html, ...) and select a template from the list-of-values.

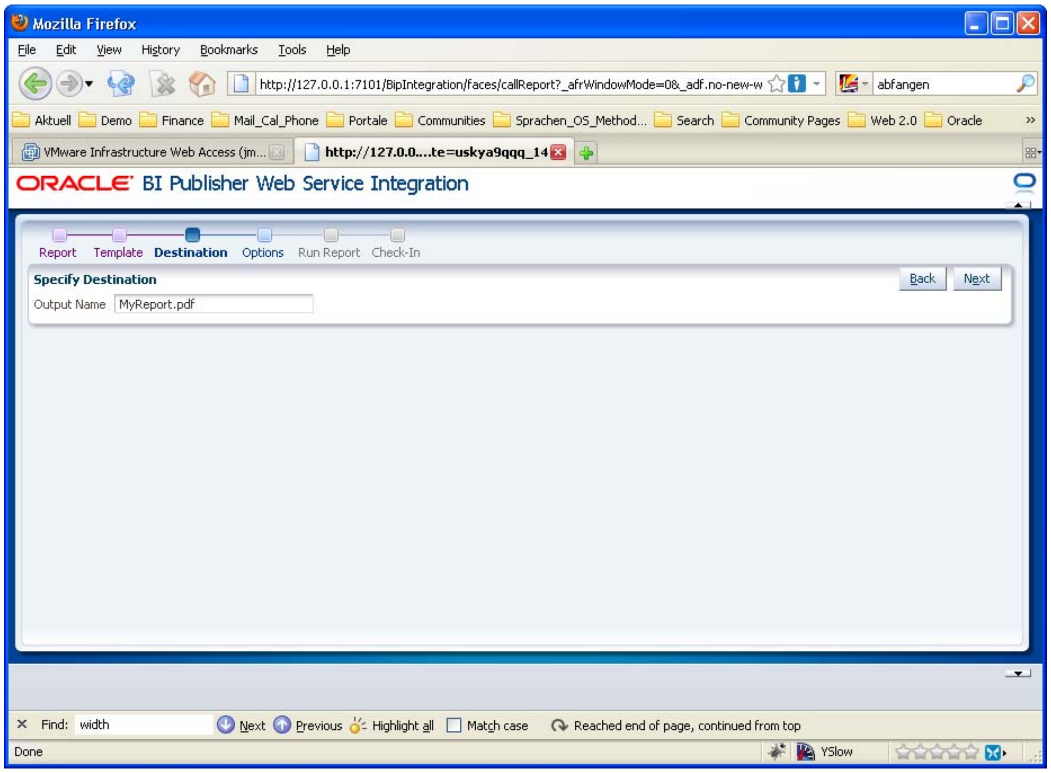

Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_adf.no-new-w
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Select Template

Format pdf

Template Charts

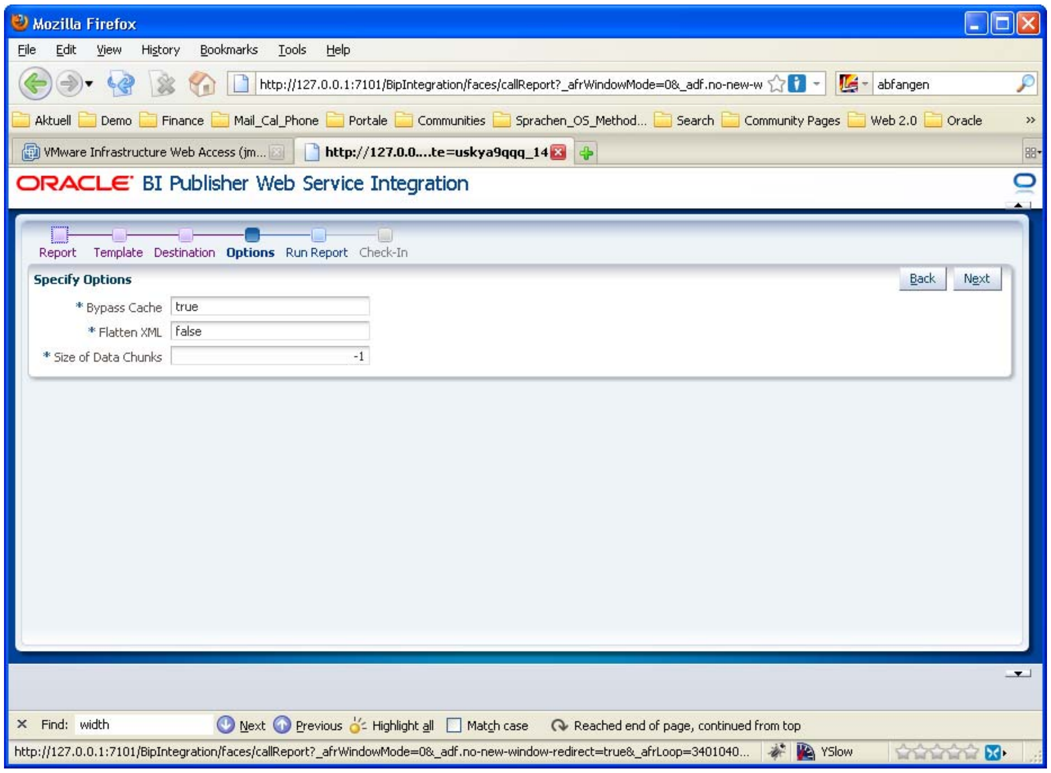
On the next stop (Destination) enter a file name including the extension.


Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_adf.no-new-w
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Specify Destination

Output Name MyReport.pdf

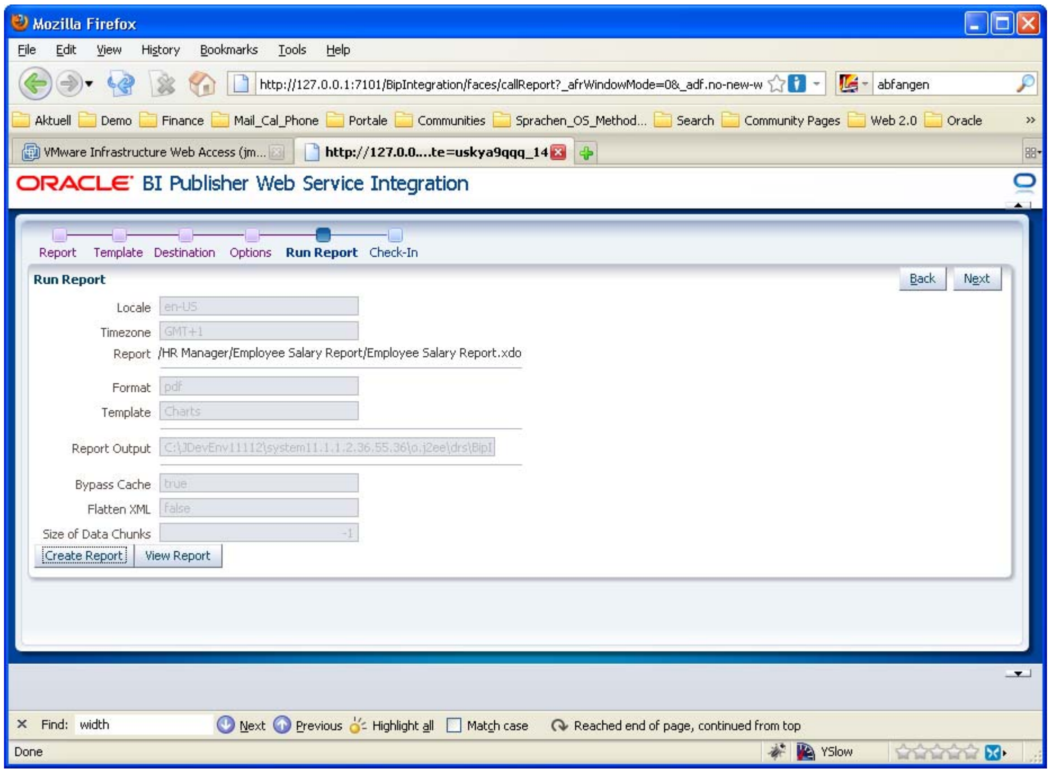
On the next stop (Options) it is possible to modify some parameters for the execution of the report.


Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_adf.no-new-w
abfangen
Aktuell Demo Finance Mail_Cal_Phone Portale Communities Sprachen_OS_Method... Search Community Pages Web 2.0 Oracle
VMware Infrastructure Web Access (jm...
http://127.0.0....te=uskya9qqq_14
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_adf.no-new-window-redirect=true&_afrLoop=3401040...
YSlow

Specify Options

* Bypass Cache	true
* Flatten XML	false
* Size of Data Chunks	-1

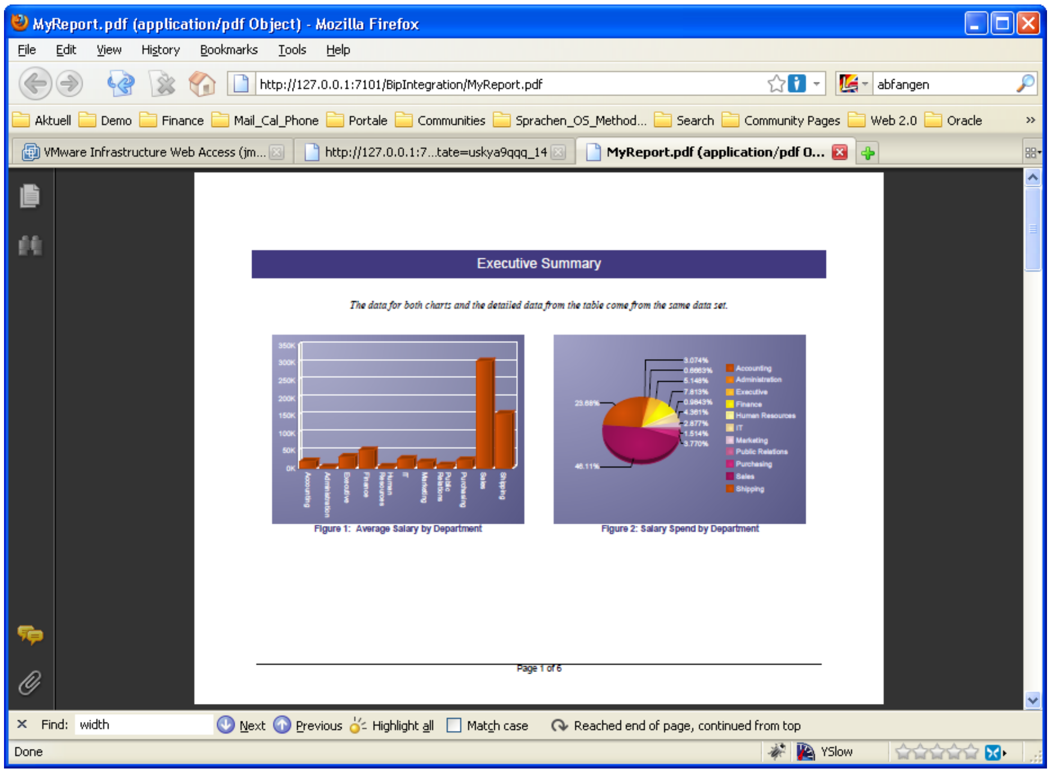
On the next stop (Run Report) all input parameters are displayed in read-only mode. The report is created by pressing the left button. After successful completion the right button to view the result will be activated.



Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_adf.no-new-w
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Create Report View Report
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Run Report

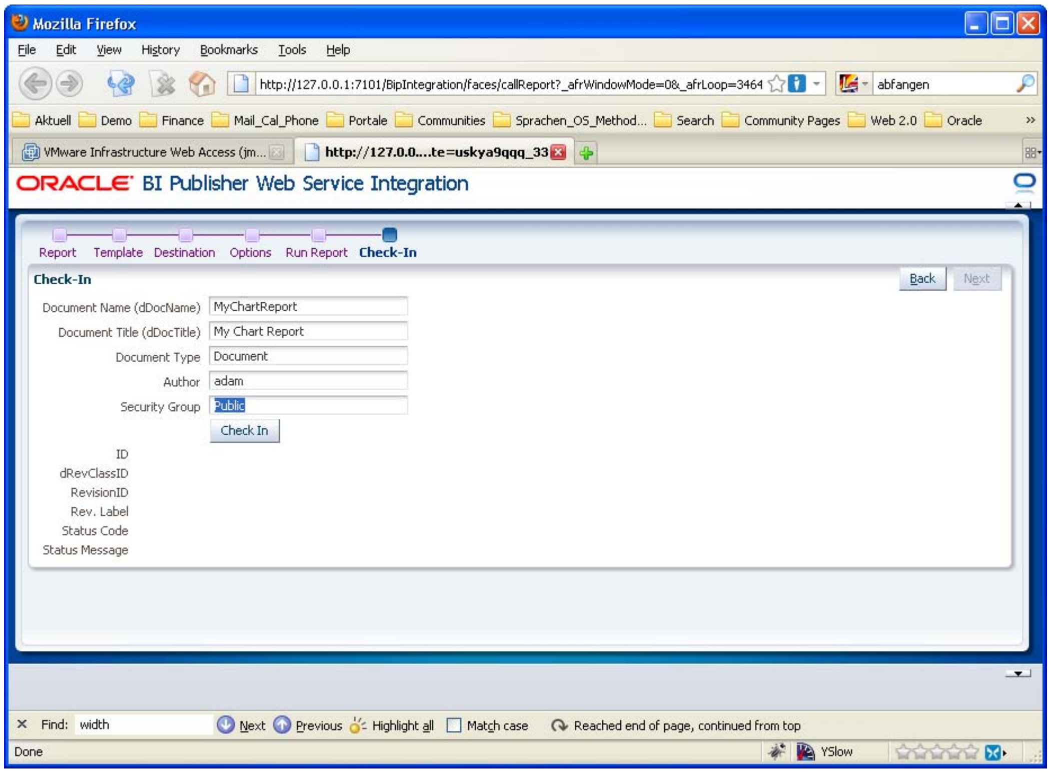
Locale	en-US
Timezone	GMT+1
Report	/HR Manager/Employee Salary Report/Employee Salary Report.xdo
Format	pdf
Template	Charts
Report Output	C:\JDevEnv11112\system11.1.1.2.36.55.36\o.j2ee\drs\BipI
Bypass Cache	true
Flatten XML	false
Size of Data Chunks	-1



MyReport.pdf (application/pdf Object) - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/MyReport.pdf
Executive Summary
Figure 1: Average Salary by Department
Figure 2: Salary Spend by Department
Page 1 of 6
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

The data for both charts and the detailed data from the table come from the same data set.

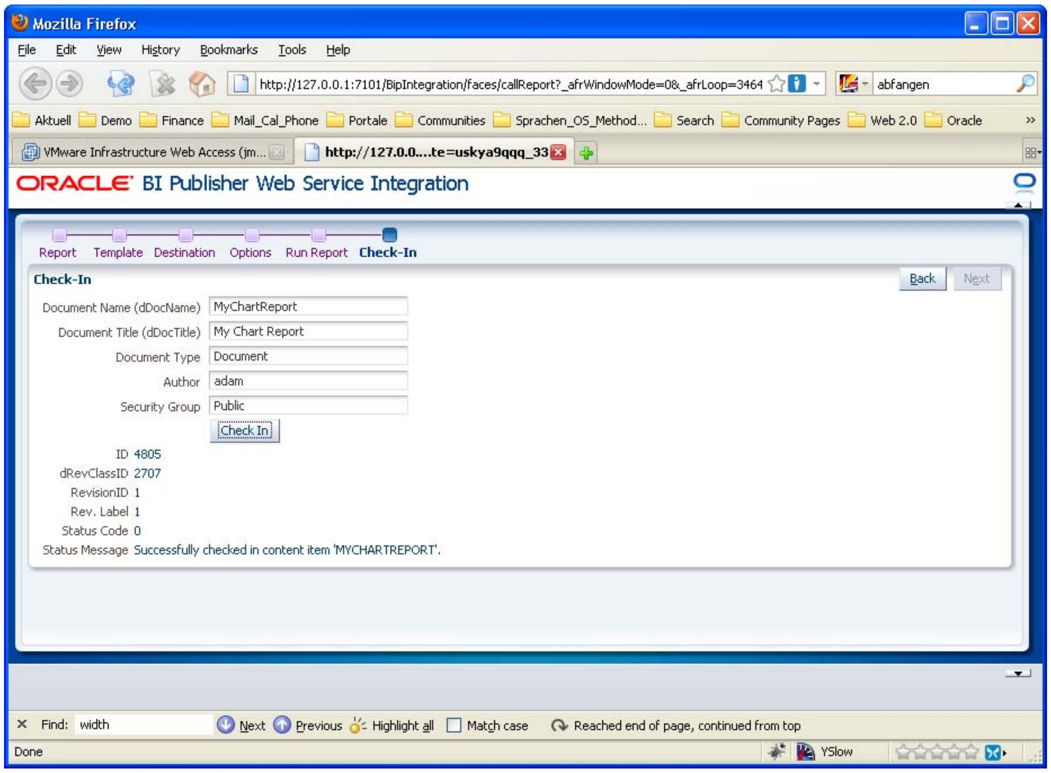
On the last stop (Check-In) mandatory metadata should be entered before the report can be checked in.


Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_afrLoop=3464
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Check In
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Check-In

Document Name (dDocName)	MyChartReport
Document Title (dDocTitle)	My Chart Report
Document Type	Document
Author	adam
Security Group	Public
ID	
dRevClassID	
RevisionID	
Rev. Label	
Status Code	
Status Message	

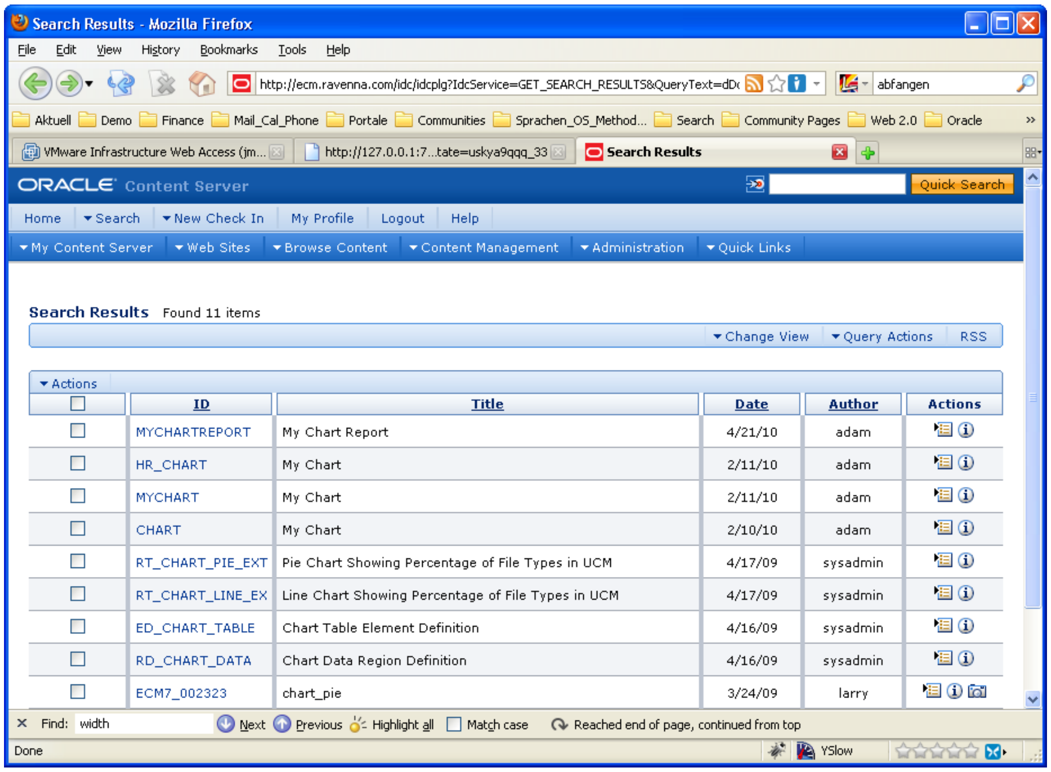
After the successful completion of the check-in process the response will be displayed at the bottom of the page. If a document with the chosen dDocName already exists there will be a message that the document has to be checked-out before.


Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:7101/BipIntegration/faces/callReport?_afrWindowMode=0&_afrLoop=3464
ORACLE BI Publisher Web Service Integration
Report Template Destination Options Run Report Check-In
Back Next
Check In
Find: width Next Previous Highlight all Match case Reached end of page, continued from top
Done

Check-In

Document Name (dDocName)	MyChartReport
Document Title (dDocTitle)	My Chart Report
Document Type	Document
Author	adam
Security Group	Public
ID	4805
dRevClassID	2707
RevisionID	1
Rev. Label	1
Status Code	0
Status Message	Successfully checked in content item 'MYCHARTREPORT'.

Going to the Oracle UCM portal the document can be searched using different search criteria. A list with the search results will be displayed. If you check the details for the document you will find that it was checked-in by user adam.

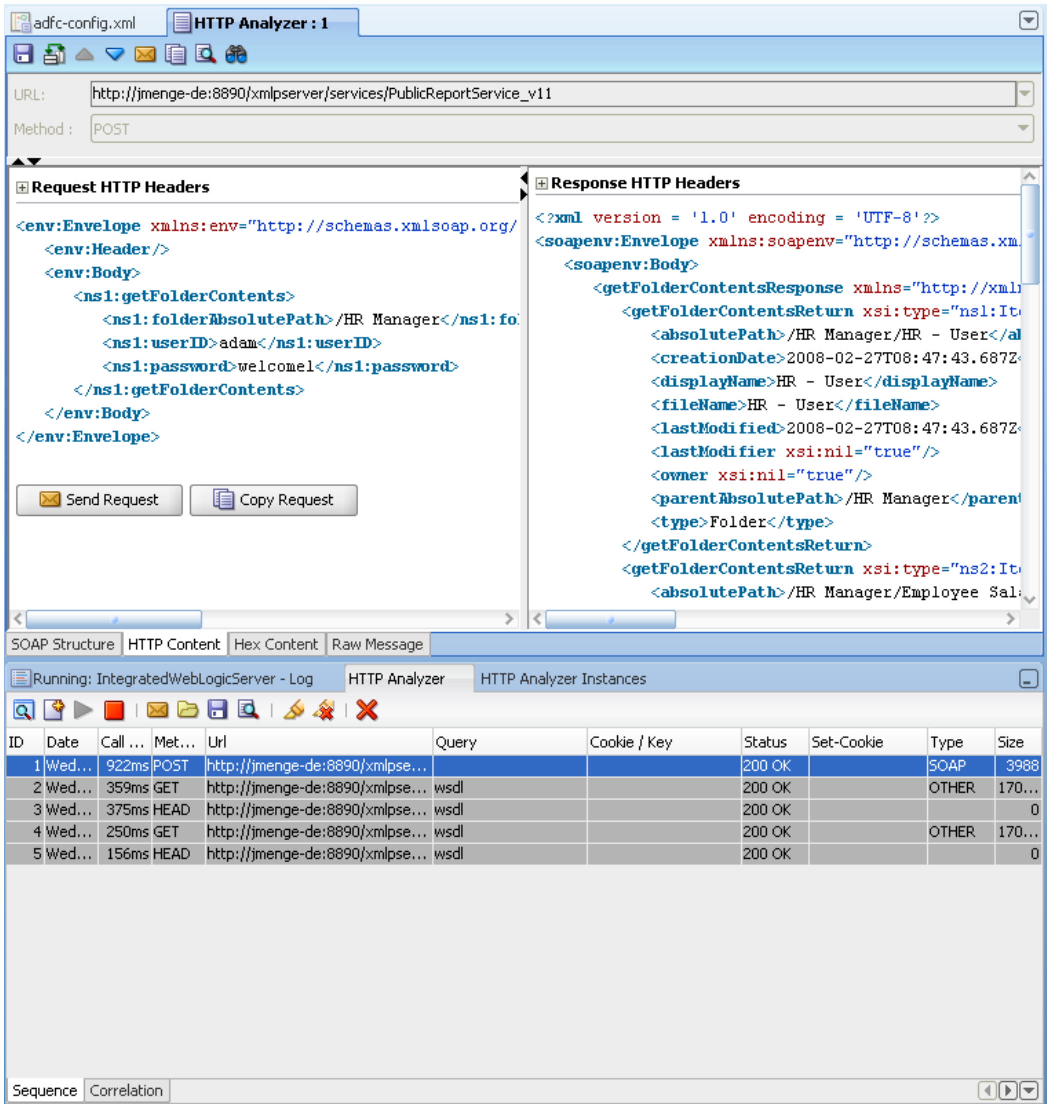

Search Results - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://ecm.ravenna.com/idc/idcplg?IdcService=GET_SEARCH_RESULTS&QueryText=dDc
abfangen
Aktuell Demo Finance Mail_Cal_Phone Portale Communities Sprachen_OS_Method... Search Community Pages Web 2.0 Oracle
VMware Infrastructure Web Access (jm...
http://127.0.0.1:7...tate=uskya9qqq_33
Search Results
ORACLE Content Server
Quick Search
Home Search New Check In My Profile Logout Help
My Content Server Web Sites Browse Content Content Management Administration Quick Links
Change View Query Actions RSS
Actions

Search Results Found 11 items

	ID	Title	Date	Author	Actions
☐	MYCHARTREPORT	My Chart Report	4/21/10	adam	
☐	HR_CHART	My Chart	2/11/10	adam	
☐	MYCHART	My Chart	2/11/10	adam	
☐	CHART	My Chart	2/10/10	adam	
☐	RT_CHART_PIE_EXT	Pie Chart Showing Percentage of File Types in UCM	4/17/09	sysadmin	
☐	RT_CHART_LINE_EX	Line Chart Showing Percentage of File Types in UCM	4/17/09	sysadmin	
☐	ED_CHART_TABLE	Chart Table Element Definition	4/16/09	sysadmin	
☐	RD_CHART_DATA	Chart Data Region Definition	4/16/09	sysadmin	
☐	ECM7_002323	chart_pie	3/24/09	larry	

Find: width
Next Previous Highlight all Match case Reached end of page, continued from top
Done
YSlow

Additionally you can check all outgoing and incoming messages by going to the HTTP Analyzer window in JDeveloper. For every message there is one line. You can view the content of the message by double-click on it.


URL: http://jmenge-de:8890/xmlpserver/services/PublicReportService_v11

Method : POST

Request HTTP Headers

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/
   <env:Header/>
   <env:Body>
      <ns1:getFolderContents>
         <ns1:folderAbsolutePath>/HR Manager</ns1:fo
         <ns1:userID>adam</ns1:userID>
         <ns1:password>welcome1</ns1:password>
      </ns1:getFolderContents>
   </env:Body>
</env:Envelope>
```

Response HTTP Headers

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xm
   <soapenv:Body>
      <getFolderContentsResponse xmlns="http://xmlı
         <getFolderContentsReturn xsi:type="ns1:It
            <absolutePath>/HR Manager/HR - User</al
            <creationDate>2008-02-27T08:47:43.687Z
            <displayName>HR - User</displayName>
            <fileName>HR - User</fileName>
            <lastModified>2008-02-27T08:47:43.687Z
            <lastModifier xsi:nil="true"/>
            <owner xsi:nil="true"/>
            <parentAbsolutePath>/HR Manager</parent
            <type>Folder</type>
         </getFolderContentsReturn>
         <getFolderContentsReturn xsi:type="ns2:It
            <absolutePath>/HR Manager/Employee Sal
```

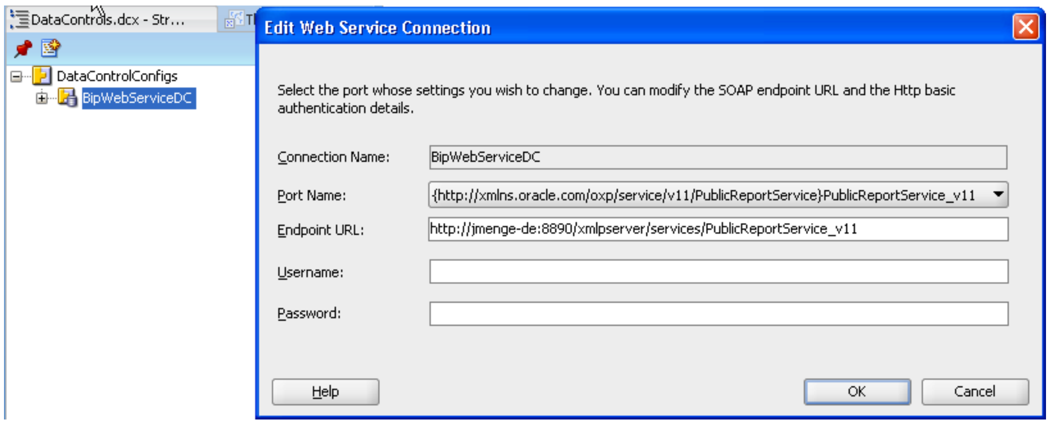
ID	Date	Call …	Met…	Url	Query	Cookie / Key	Status	Set-Cookie	Type	Size
1	Wed…	922ms	POST	http://jmenge-de:8890/xmlpse…			200 OK		SOAP	3988
2	Wed…	359ms	GET	http://jmenge-de:8890/xmlpse…	wsdl		200 OK		OTHER	170…
3	Wed…	375ms	HEAD	http://jmenge-de:8890/xmlpse…	wsdl		200 OK			0
4	Wed…	250ms	GET	http://jmenge-de:8890/xmlpse…	wsdl		200 OK		OTHER	170…
5	Wed…	156ms	HEAD	http://jmenge-de:8890/xmlpse…	wsdl		200 OK			0

3 Final Remarks

3.1 *Modifications to run the Application*

To run the application in another environment the following settings have to be modified.

- Change the connection by selecting the file *DataControls.dcx* in the project *Model* in the *Application Navigator*. Then in the *Structure Pane* use the context menu for the data control and select the option *Edit Web Service Connection*. To change the location and name of the WSDL file it is necessary to open the file DataControls.dcx because not all properties are visible in the dialogue.

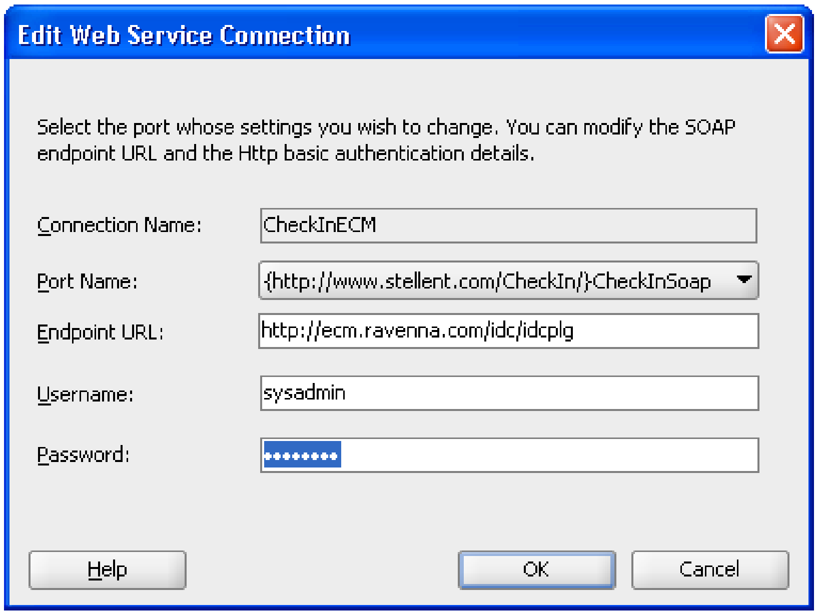


Edit Web Service Connection

Select the port whose settings you wish to change. You can modify the SOAP endpoint URL and the Http basic authentication details.

Connection Name:	BipWebServiceDC
Port Name:	{http://xmlns.oracle.com/oxp/service/v11/PublicReportService}PublicReportService_v11
Endpoint URL:	http://jmenge-de:8890/xmlpserver/services/PublicReportService_v11
Username:	
Password:	

- The same should be done for the file *DataControls.dcx* in the projekt *CheckIn*. Username and password are not necessary here when a csf-key is defined as described in 2.6.5.



Edit Web Service Connection

Select the port whose settings you wish to change. You can modify the SOAP endpoint URL and the Http basic authentication details.

Connection Name:	CheckInECM
Port Name:	{http://www.stellent.com/CheckIn/}CheckInSoap
Endpoint URL:	http://ecm.ravenna.com/idc/idcplg
Username:	sysadmin
Password:	••••••••

- Check all connection-specific entries in the file
  ../BipIntegration.adf/META-INF/connections.xml.
  and modify them if they still not point to the correct hosts or ports.

- The variable *reportPath* in the *ReportBean.java* contains the output directory for the generated reports. It should be a directory which is accessible by the web server providing the generated pages. The example uses the capability of the embedded WebLogic server to deliver the generated reports.

3.2 Possible Extensions of the Example

The example could be extended in many ways. One direction would be to offer more flexibility by integrating additional choices for report-specific parameters, scheduling options etc. processed by BI Publisher server.There are many more web service methods available to implement this. Instead of passing username and password the inSession methods could be used after obtaining a valid session token by the *login* method.

Additional components could be used to gain substantial benefits like

- using Oracle BPEL Process Manager for conditional reporting
- using Oracle WebCenter with pre-build content integration and the ability to use portlets in the user interface

Enhancement could be done for security in such a way that Oracle BI Publisher and Oracle UCM use the same LDAP directory.

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