

Oracle EBS Adapter Sample – Calling Oracle Native API

This edition applies to version 6, release 1, modification 0 of IBM WebSphere Adapter for Oracle E-Business Suite on WebSphere Application Server (product 5724-T73) and to all subsequent releases and modifications until otherwise indicated in new editions. To send us your comments about this document, email <mailto://doc-comments@us.ibm.com>. We look forward to hearing from you. When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you. © **Copyright International Business Machines Corporation 2007. All rights reserved.** US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Introduction

This sample shows how the Adapter for JDBC can call an Oracle E-Business Suite API directly. The API that will be called is APPS.FND_PROGRAM.EXECUTABLE(). It is used to create a concurrent program executable in Oracle EBS.

This sample uses the Adapter for JDBC to call an Oracle API directly, which creates a concurrent program executable in the Oracle database. The content for this sample includes examples of the API call.

The sample assumes you have experience with the Oracle EBS software. Only general guidelines are given for steps that must be performed in that software.

Note: The JDBC driver limits parameters to simple, non-record data types when the Adapter for JDBC calls an API directly. Most Oracle APIs include record parameters. API calls that use record type parameters can be called through the Adapter for JDBC only if they are wrapped so that the call to the wrapper stored procedure does not use the record type parameter. The API call for this sample uses simple data type parameters.

Database and application user account requirements

To use the samples, you must use a database account that gives you rights to the artifacts needed to run the sample content, and use an Oracle E-Business Suite account that allows you to perform responsibilities of the System Administrator and Receivables Manager.

For the purposes of these samples, the user account running all scripts is assumed to be the APPS user for the Oracle database. This user has the following rights:

- To change and create content in the APPS schema
- To add and remove data from tables
- To run the required executables in the APPS schema

Check with your Oracle database administrator to determine the account that will be used to run the sample content. If you want to choose a different user account, work with your database administrator to ensure that the user has rights to all of the database artifacts needed to run the sample content.

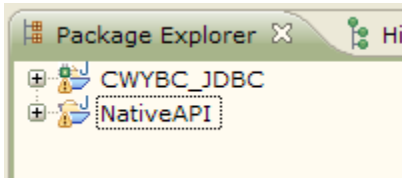
Oracle E-Business Suite requires you to have an account with rights to the following responsibilities:

- System Administrator
- Receivables Manager

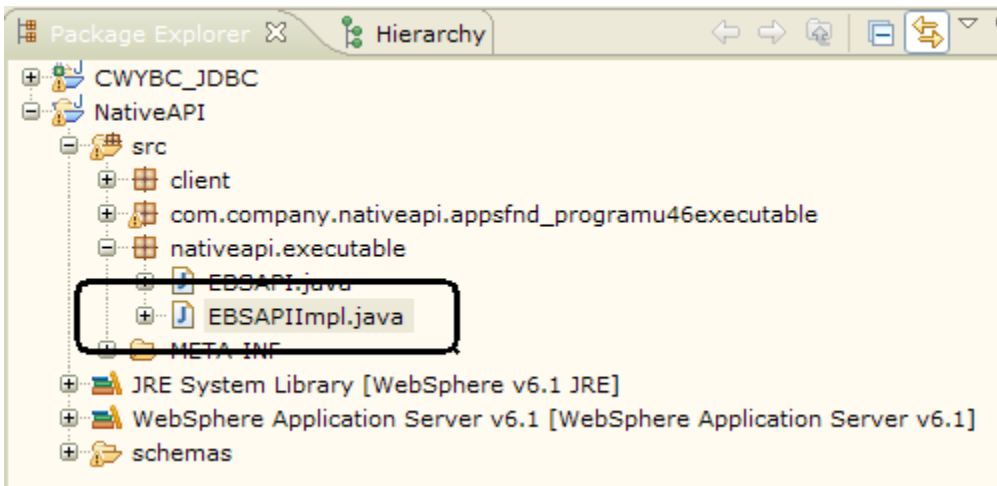
Note: If the Oracle E-Business Suite account that you are using does not have access to these responsibilities, they can be added. To change the responsibilities assigned to the account you will use, log onto an account that has System Administrator responsibility rights and go to the Security->User->Define menu option. For specific information about changing user responsibilities, refer to your documentation for Oracle Applications.

Running the prepared sample

Import the project interchange file containing the OracleEBS API sample, your workspace should look as follows:



Now you must add the jdbc driver library to your CWYES_JDBC connector project. Add the file to the project using build path configuration. From the popup menu select configure build path, then select Libraries tab and press Add External JARs... button. Navigate to the location of the JDBC driver and press Open, then Ok. Expand NativeAPI project and select EBSAPIImpl class in the nativeapi.executable package.



At the beginning of the file, edit the annotations pointing your Oracle EBS system. You must provide the following information:

- Database URL – the database URL string
- User Name – valid user name to access OracleEBS system
- Password – valid password for the above user. The password is stored in plain text and therefore it should only be used temporarily for the sample. For the production deployment, the security alias mechanism should be used.

```

/**
 * @j2c.managedConnectionFactory class="com.ibm.j2ca.jdbc.JDBCManagedConnectionFactory"
 * @j2c.managedConnectionFactory-property
 *     name="databaseURL" value="jdbc:oracle:thin:@my_host:1521:my_database"
 * @j2c.managedConnectionFactory-property name="databaseVendor" value="ORACLE"
 * @j2c.managedConnectionFactory-property name="jdbcDriverClass" value="oracle.jdbc.driver.OracleDriver"
 * @j2c.managedConnectionFactory-property name="password" value="password"
 * @j2c.managedConnectionFactory-property name="returnDummyBOForSP" value="false"
 * @j2c.managedConnectionFactory-property name="userName" value="user"
 * @generated
 */

```

Once you edit the annotations and save the file, the code is regenerated to reflect the new values and the program is ready to run.

Select the client.ApplicationClient file and from the popup menu select Run As, then Java Application.

Verify the results using the Oracle EBS web client

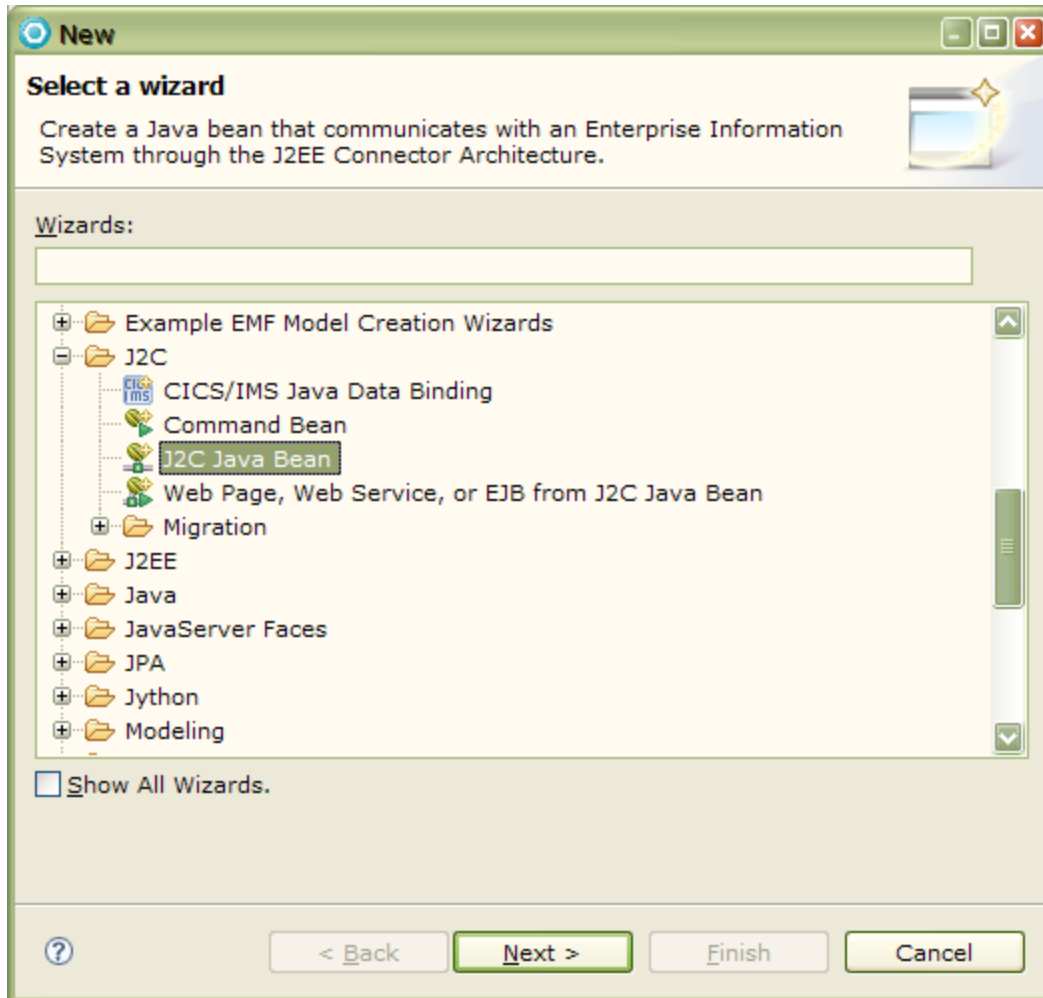
- Log into Oracle EBS.
- Select System Administrator responsibility.
- Select Concurrent -> Program option. This will bring up a Concurrent Program screen.
- Query the window for the executable.
- In the Short Name field, type 'IBMSAMPLENAME'. Click Go.
- You should see the executable details listed.

Building the complete sample.

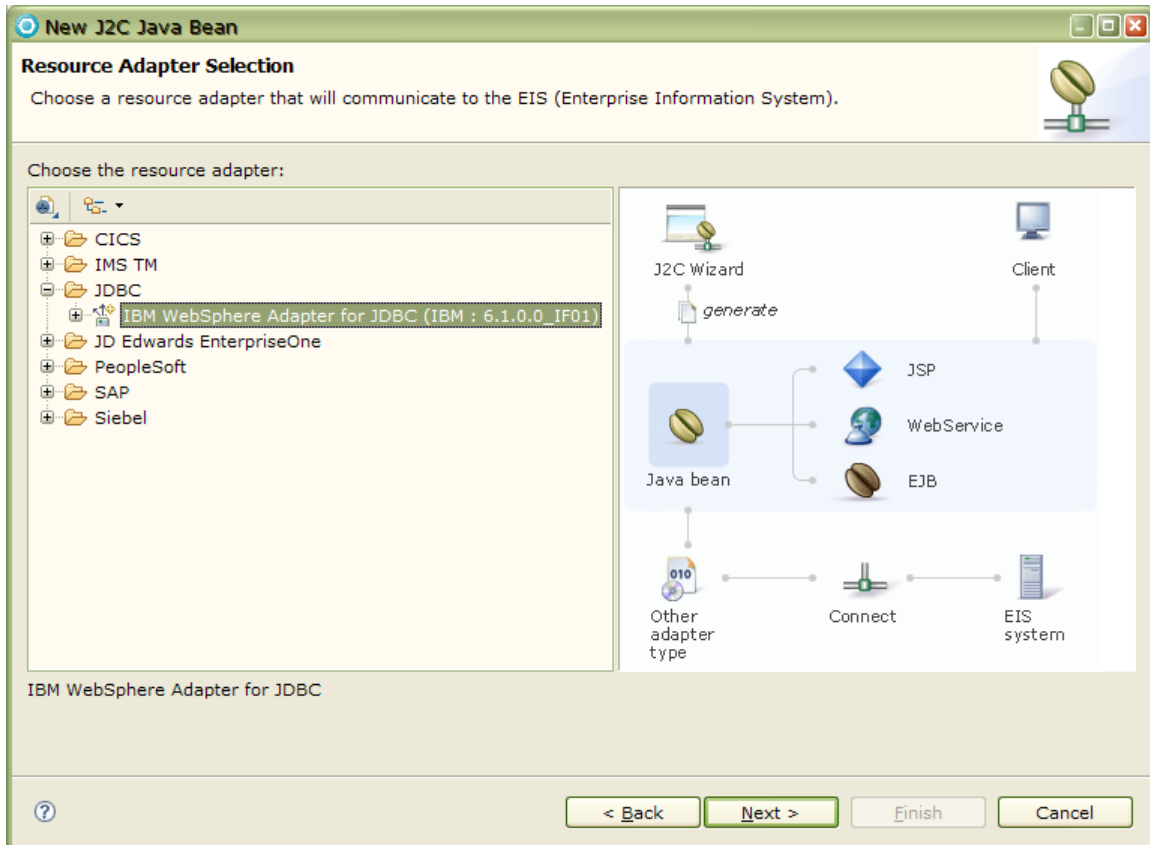
In this part of the sample, we' will walk through the complete steps of building and running the OracleEBS Native API sample.

Create J2C Java Bean accessing OracleEBS Native API system

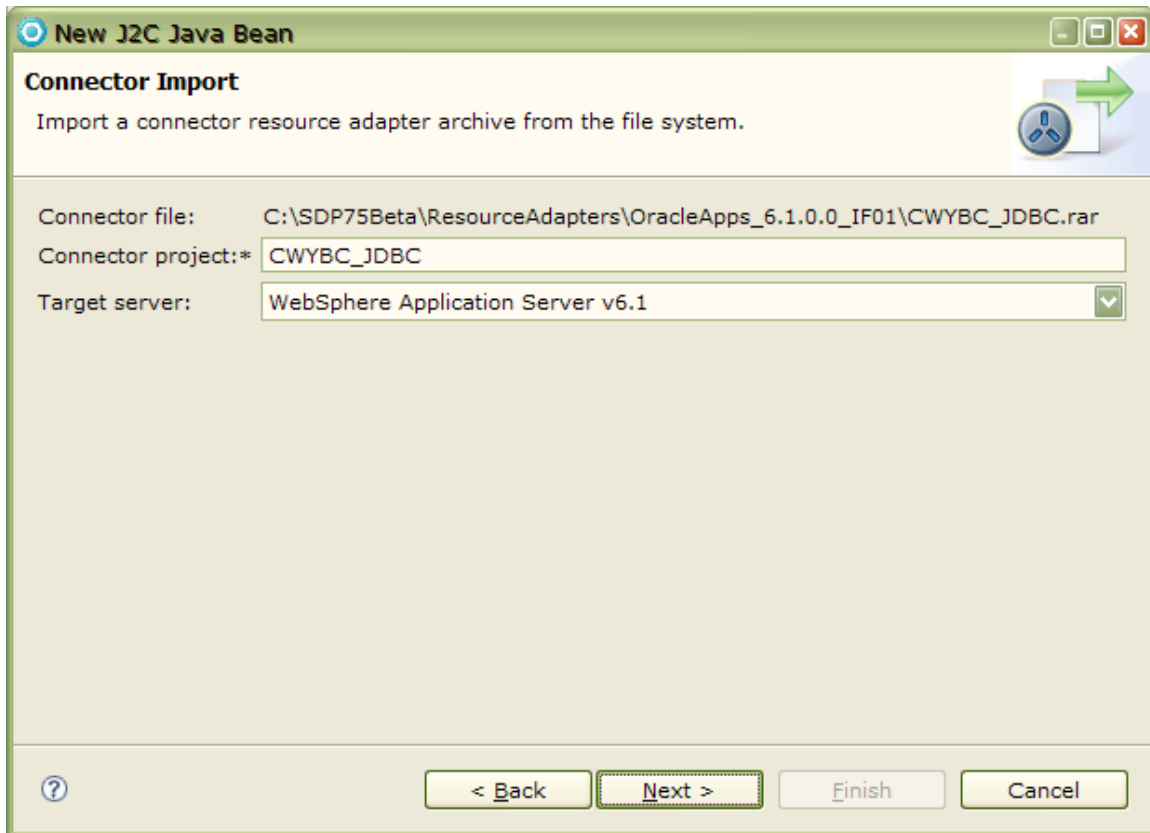
From the New menu select "Other", then in the New window scroll down to J2C entry and expand it. You should see the following:



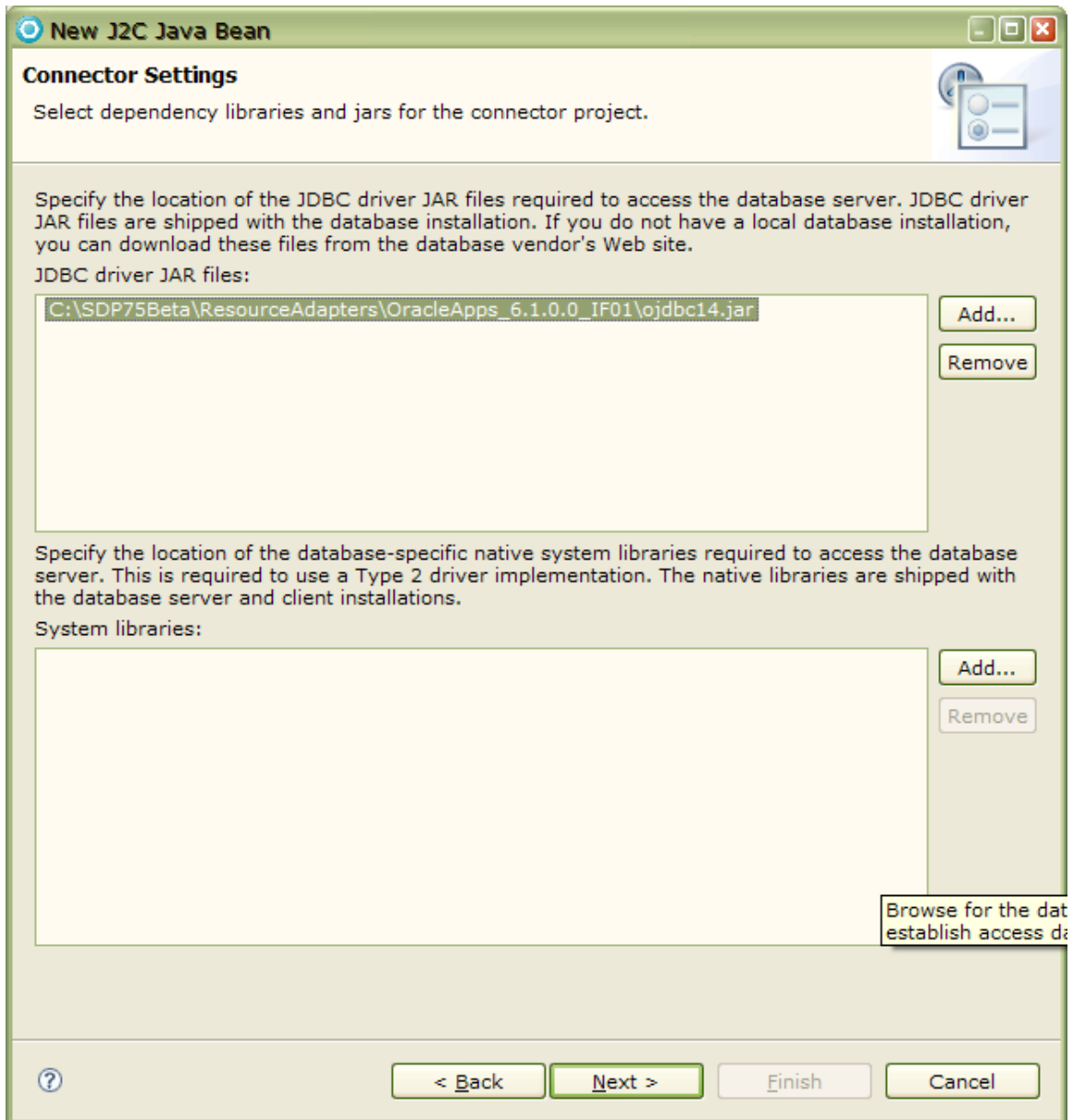
- Click button 'Next', we will see the following screenshot.



- Expand the entry for JDBC and select IBM WebSphere Adapter for JDBC. Click Next.
- In the New J2C Java Bean, Connector Import window, leave the Connector Project with the default value, and choose your server for the Target Server. Click Next.



- In the New J2C Java Bean, Connector Settings window, you need to select your JDBC driver files. To do this, click the Add button next to the window for JDBC driver JAR files and select your JDBC driver. Click Next.



- Please click button 'Next'

New J2C Java Bean

Discovery Configuration

The wizard can now guide you through discovery of objects to communicate with. Specify settings to begin discovery.

Connection Configuration

Database system connection information

DB2 UDB
 DB2 UDB iSeries
 DB2 UDB zSeries
 Oracle
 8
 9
 10
 SQL Server
 Generic JDBC

Properties:

JDBC driver type: Oracle Thin Driver

Database: * my_database

Host name: * my_host

Port number: * 1521

JDBC driver classname: * oracle.jdbc.driver.OracleDr

Database URL: jdbc:oracle:thin:@my_host

Additional JDBC driver connection properties [name=value;name=value]:

User name: * user

Password: * ****

Prefix for business object names:

Advanced >>

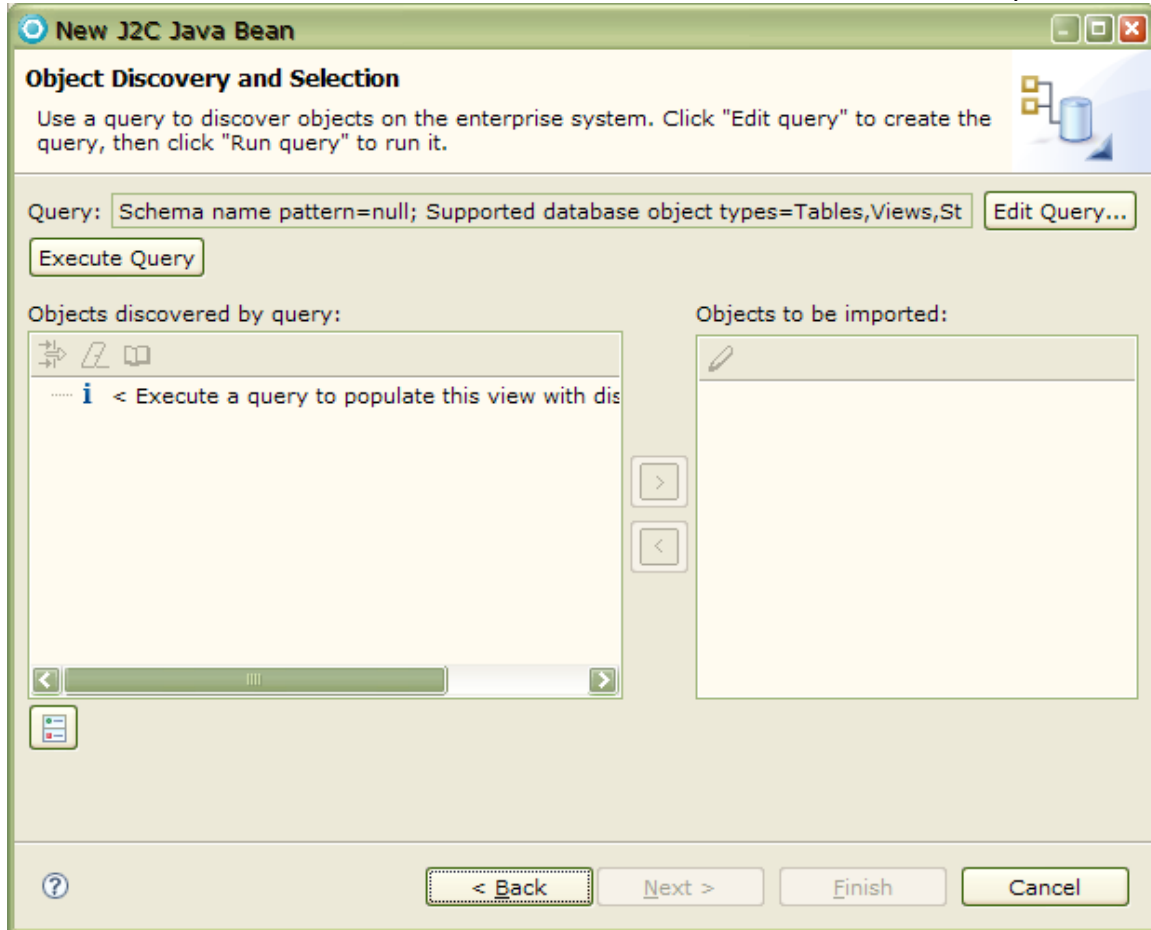
☐ Specify the level of the logging desired

< Back Next > Finish Cancel

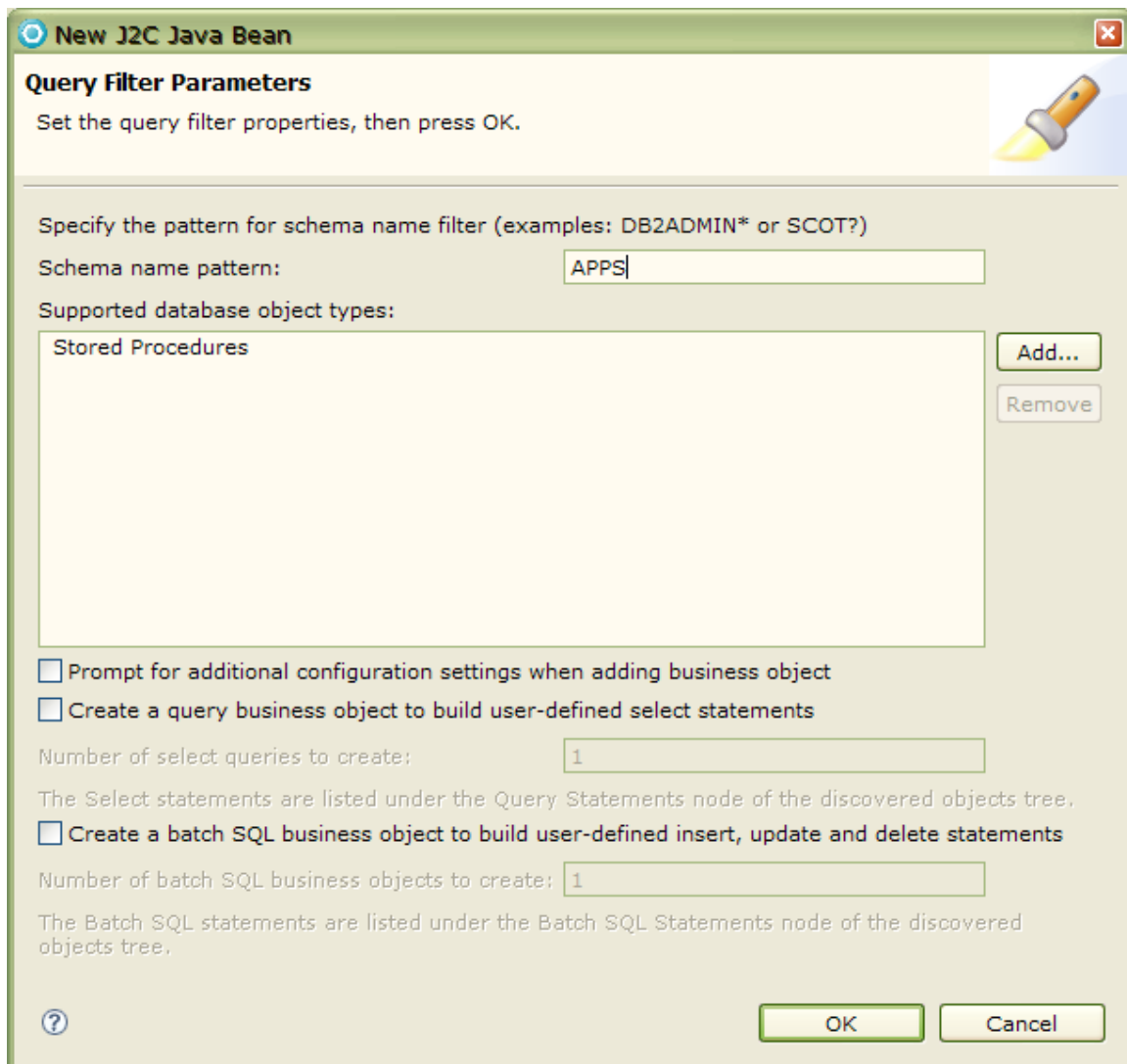
- Use the left panel to select the Database vendor, driver, and version that the adapter will be connecting to.
- On the right panel fill out the information below (some of the information will be provided by default):
 1. Database Name
 2. Database Host
 3. Database Port
 4. JdbcDriverClass
 5. Database URL
 6. UserName
 7. Password
- Click Next.

Selecting the objects for the Oracle API

- Before you select the object, you need to edit the query that will run.
 - In the Find and Discover Services screen click the Edit Query button.



- Enter 'APPS' in the Schema Name Filter field.
- Remove Tables.
- Remove Views.
- Remove Synonyms.



The image shows a 'New J2C Java Bean' dialog box with a title bar containing a question mark icon and a close button. The main area is titled 'Query Filter Parameters' and includes a sub-header 'Set the query filter properties, then press OK.' with a pencil icon. Below this, there is a text field for 'Schema name pattern' containing 'APPS'. A list box for 'Supported database object types' contains 'Stored Procedures', with 'Add...' and 'Remove' buttons to its right. There are two unchecked checkboxes: 'Prompt for additional configuration settings when adding business object' and 'Create a query business object to build user-defined select statements'. Below the second checkbox is a text field for 'Number of select queries to create' with the value '1'. A note states: 'The Select statements are listed under the Query Statements node of the discovered objects tree.' Another unchecked checkbox is 'Create a batch SQL business object to build user-defined insert, update and delete statements'. Below it is a text field for 'Number of batch SQL business objects to create' with the value '1'. A note states: 'The Batch SQL statements are listed under the Batch SQL Statements node of the discovered objects tree.' At the bottom are a help icon, an 'OK' button, and a 'Cancel' button.

New J2C Java Bean

Query Filter Parameters
Set the query filter properties, then press OK.

Specify the pattern for schema name filter (examples: DB2ADMIN* or SCOT?)

Schema name pattern:

Supported database object types:

☐ Prompt for additional configuration settings when adding business object

☐ Create a query business object to build user-defined select statements

Number of select queries to create:

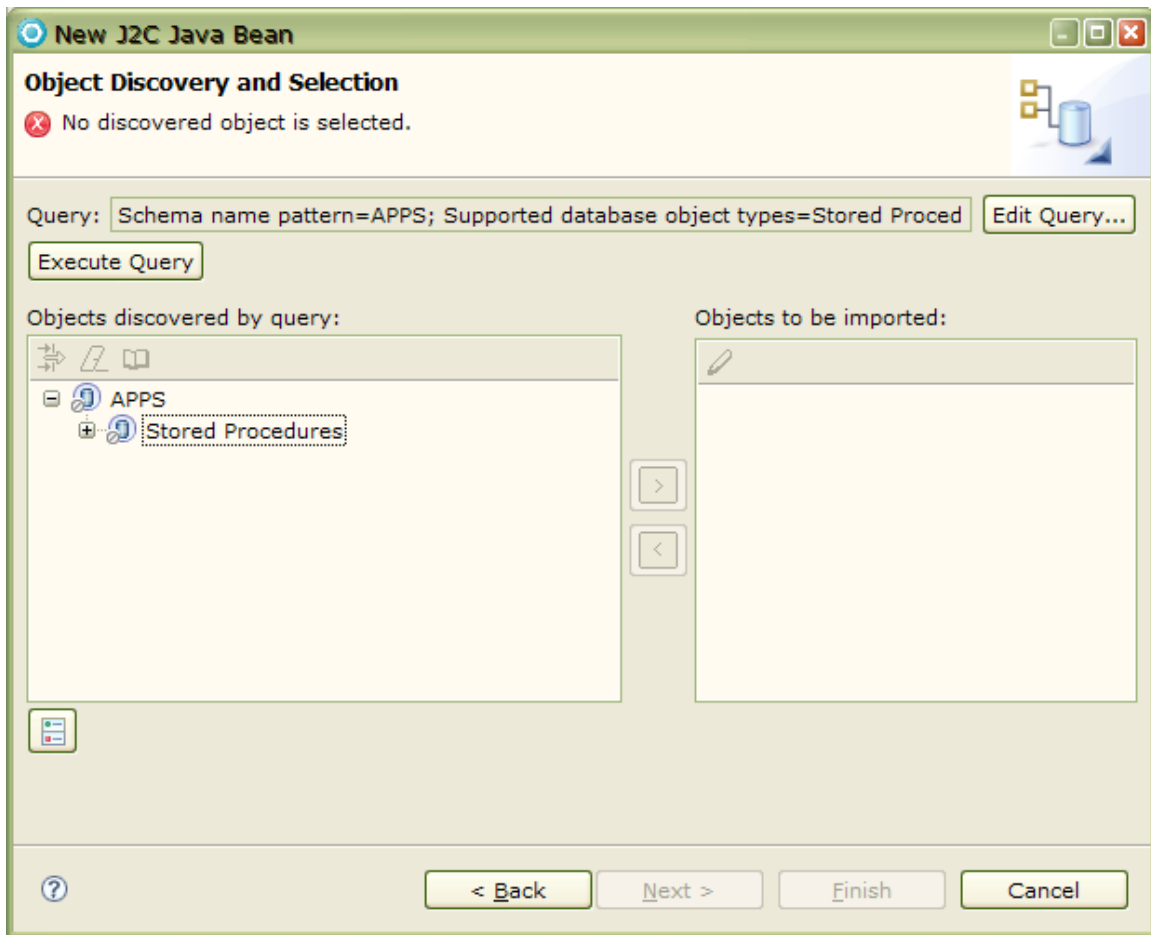
The Select statements are listed under the Query Statements node of the discovered objects tree.


☐ Create a batch SQL business object to build user-defined insert, update and delete statements

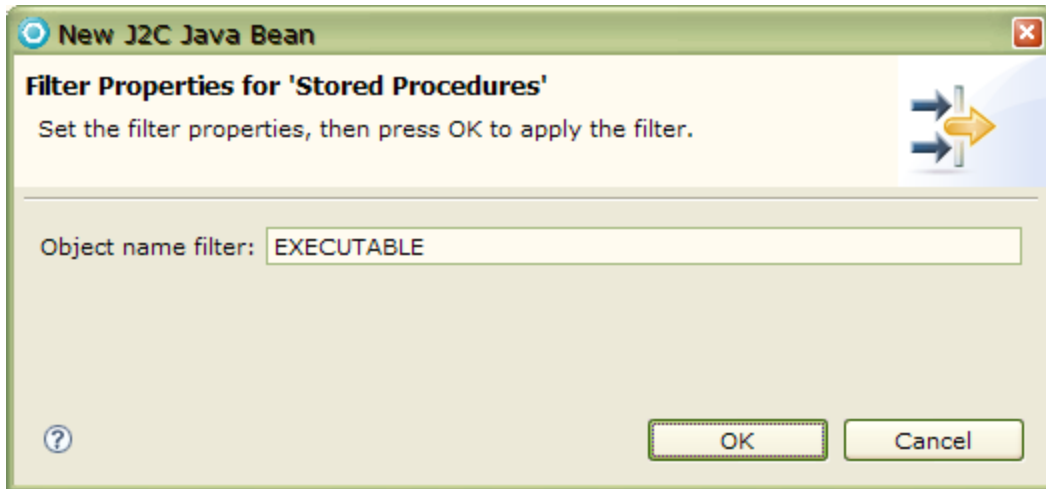
Number of batch SQL business objects to create:

The Batch SQL statements are listed under the Batch SQL Statements node of the discovered objects tree.

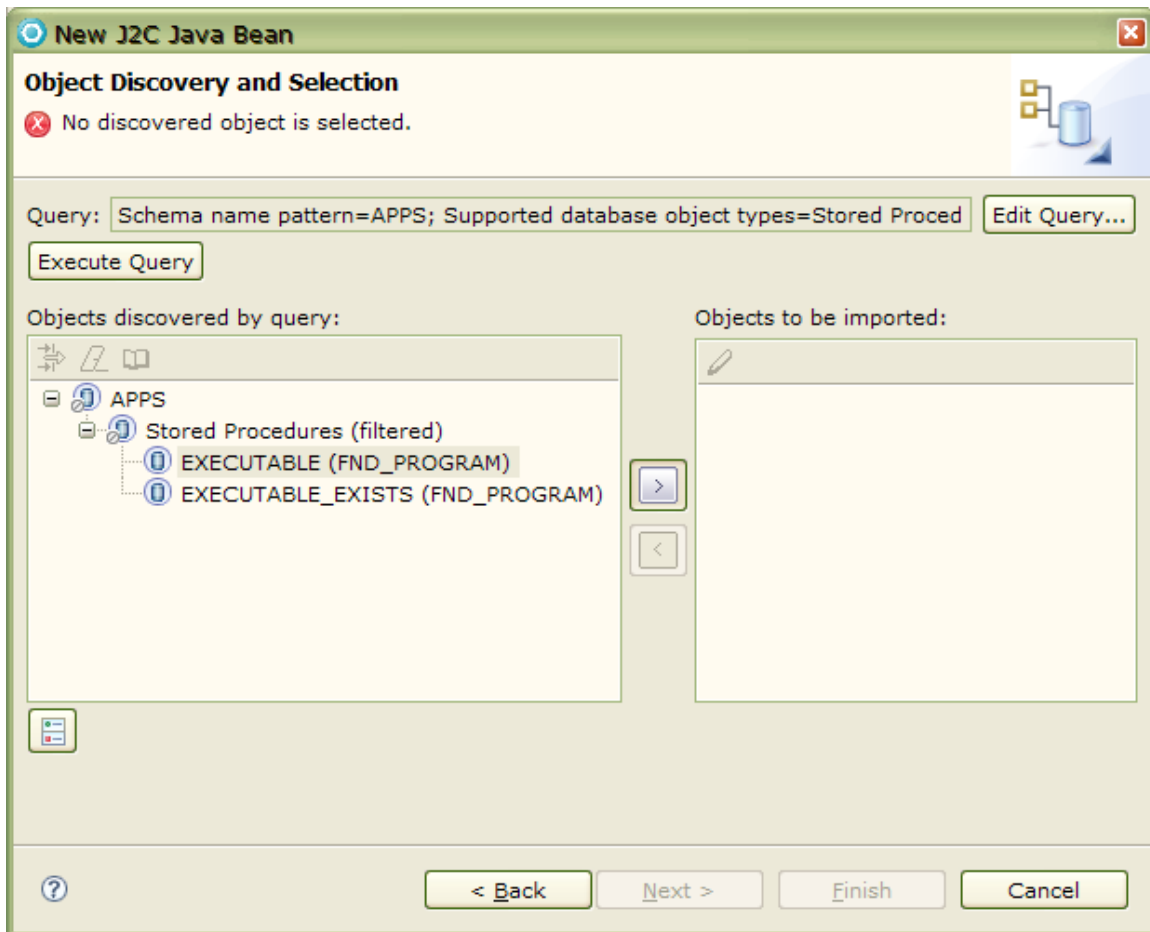
- Click OK.
- Click the Execute Query button.
- Expand the APPS schema.



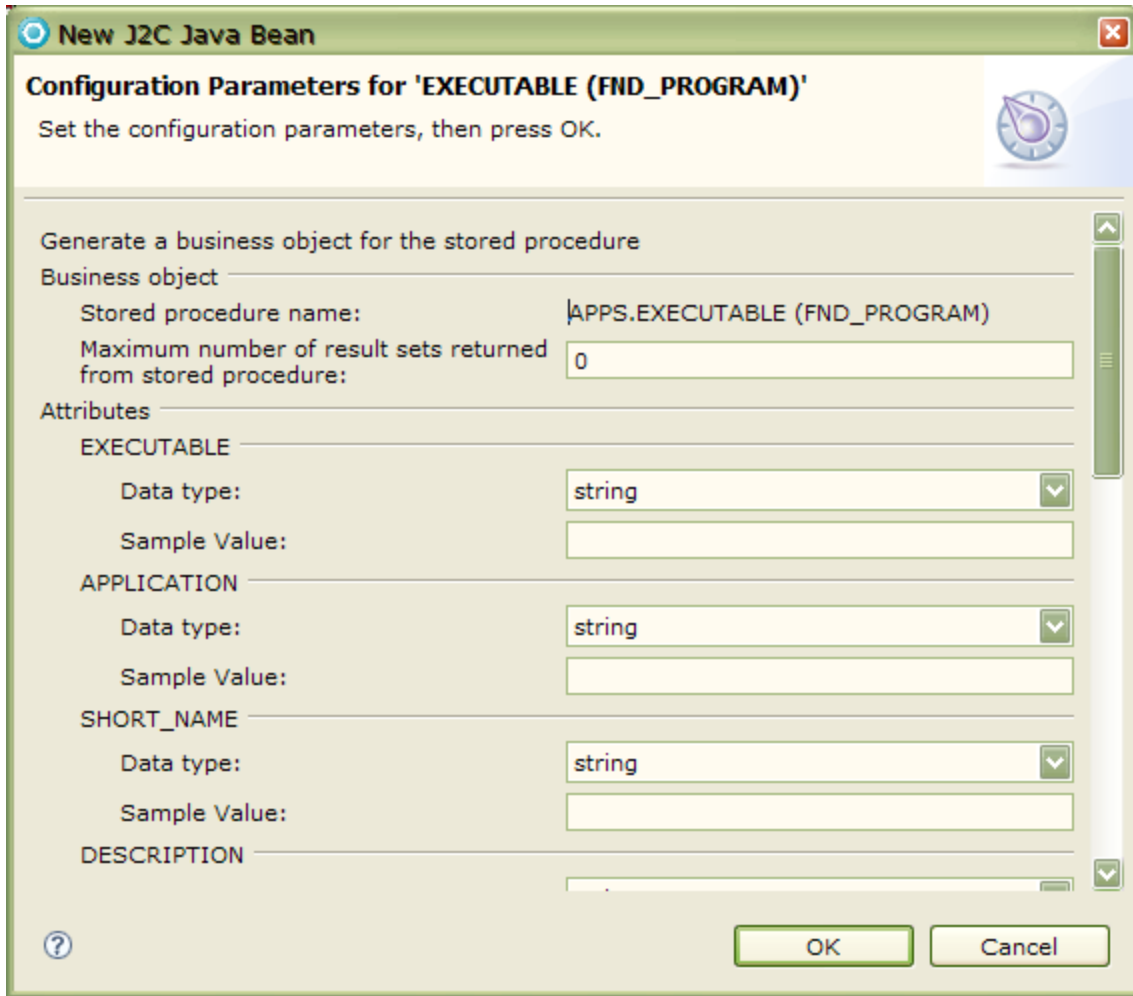
- Click on the word 'Stored Procedures' (**Don't expand them yet.**)
- Click the Filter button .
- In the Object Name Filter in the Filter Properties window, type: EXECUTABLE



- In the Object Name Filter in the Filter Properties window, type: EXECUTABLE
- Click OK.
- Expand the 'Stored Procedures' subcategory. (NOTE: Due to the large number of procedures contained in the APPS schema, it may take a long time for the adapter to return the list of Stored Procedures.)



- Select EXECUTABLE(FND_PROGRAM) from the list of stored procedures
- Click Add (>). A window titled 'Configuration Parameters for EXECUTABLE(FND_PROGRAM)' will appear.



The image shows a 'New J2C Java Bean' configuration window. The title bar says 'New J2C Java Bean'. The main heading is 'Configuration Parameters for 'EXECUTABLE (FND_PROGRAM)'. Below this, it says 'Set the configuration parameters, then press OK.' There is a 'Generate a business object for the stored procedure' checkbox which is checked. Under 'Business object', 'Stored procedure name' is 'APPS.EXECUTABLE (FND_PROGRAM)' and 'Maximum number of result sets returned from stored procedure' is '0'. Under 'Attributes', there are three sections: 'EXECUTABLE', 'APPLICATION', and 'SHORT_NAME'. Each has a 'Data type' dropdown set to 'string' and a 'Sample Value' text box. There is also a 'DESCRIPTION' label at the bottom. At the bottom right are 'OK' and 'Cancel' buttons. A help icon is at the bottom left.

New J2C Java Bean

Configuration Parameters for 'EXECUTABLE (FND_PROGRAM)'

Set the configuration parameters, then press OK.

☒ Generate a business object for the stored procedure

Business object

Stored procedure name:

Maximum number of result sets returned from stored procedure:

Attributes

EXECUTABLE

Data type:

Sample Value:

APPLICATION

Data type:

Sample Value:

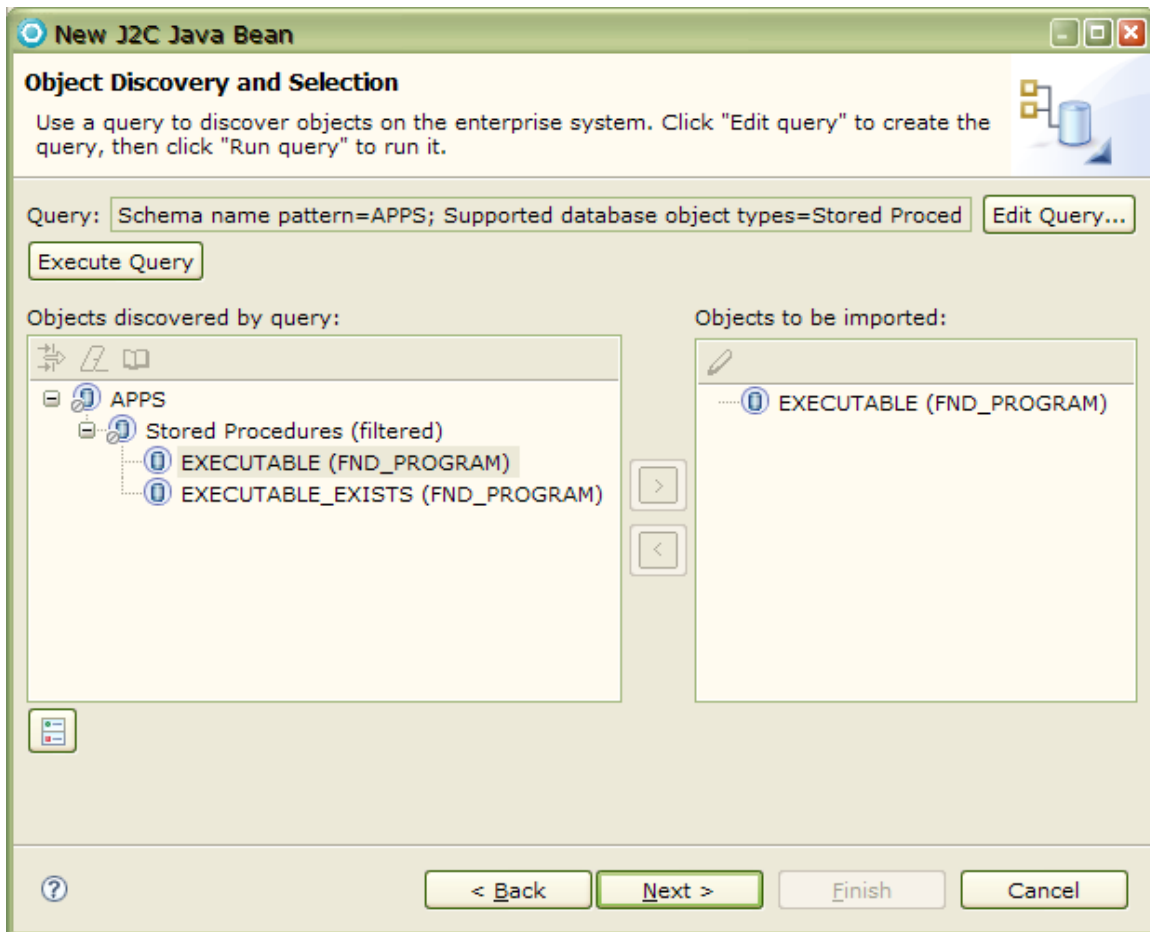
SHORT_NAME

Data type:

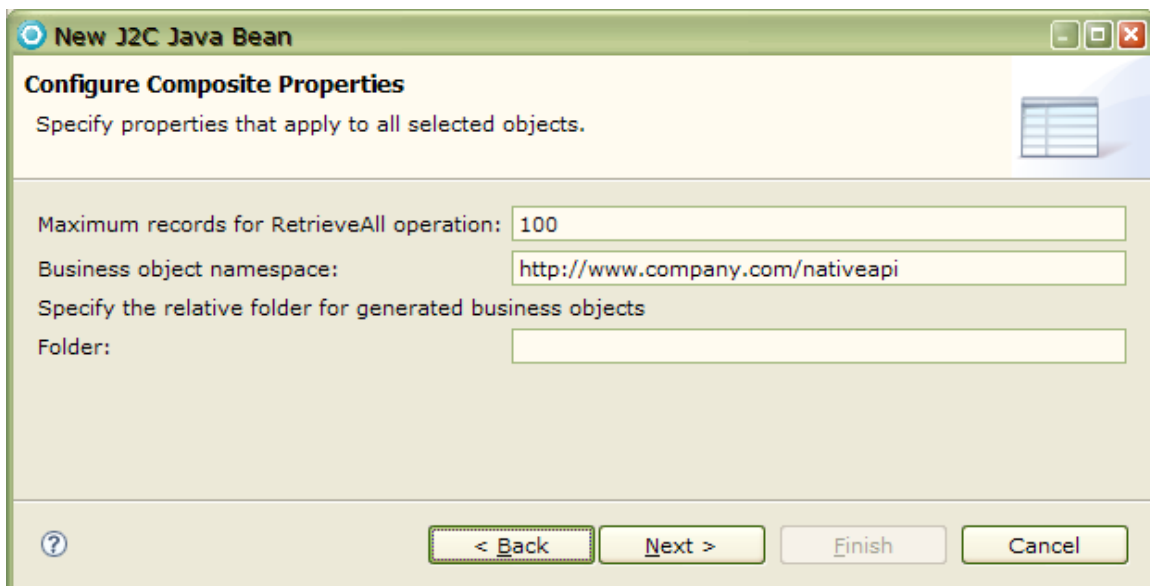
Sample Value:

DESCRIPTION

- Click OK. The Stored Procedure will be added to the 'Objects to be imported:' box.



- Click Next.



- Type “http://www.company.com/naiveapi” in the Business object namespace field. This namespace will be generated in the XSDs representing business data and used to generate Java data bindings.
- Press “Next”

New J2C Java Bean

Java Bean Creation and Deployment Configuration

✖ Project Name: cannot be empty.

Save properties

Project Name: * **Browse...** **New**

Package Name: **Browse...** **New**

Interface Name:

Implementation Name:

Generate Command Bean

Generate Command Bean for method: executeAppsFnd_ProgramU46executable

☐ Enable generate Command Bean

executeAppsFnd_ProgramU46executable:

Command Bean name:

Command Bean input name:

Command Bean output name:

Connection properties

Managed connections are obtained through JNDI name lookup from the application server.
Non-managed connections are obtained directly from the resource adapter.

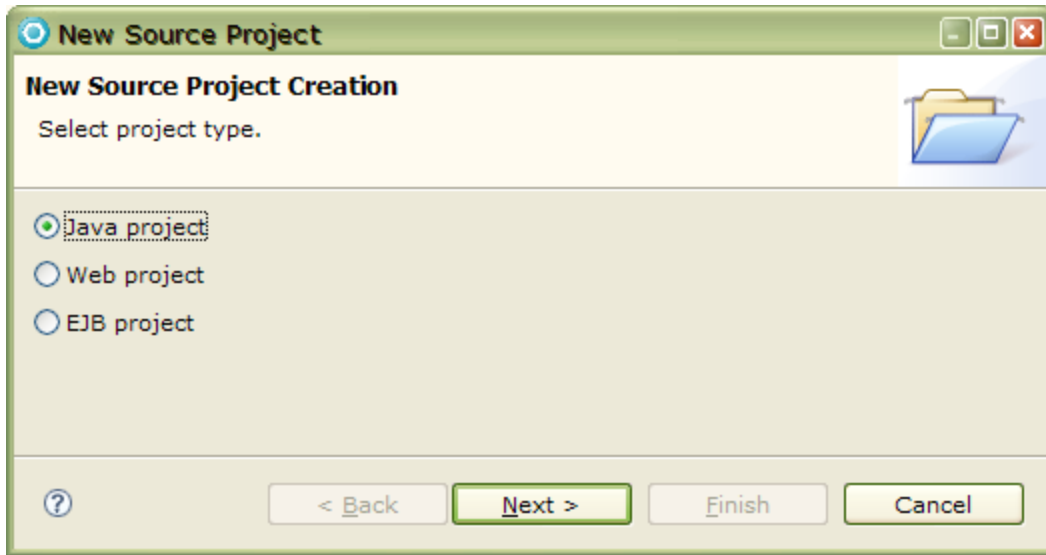
☒ Managed Connection (recommended)

JNDI Lookup Name: **Browse...** **New**

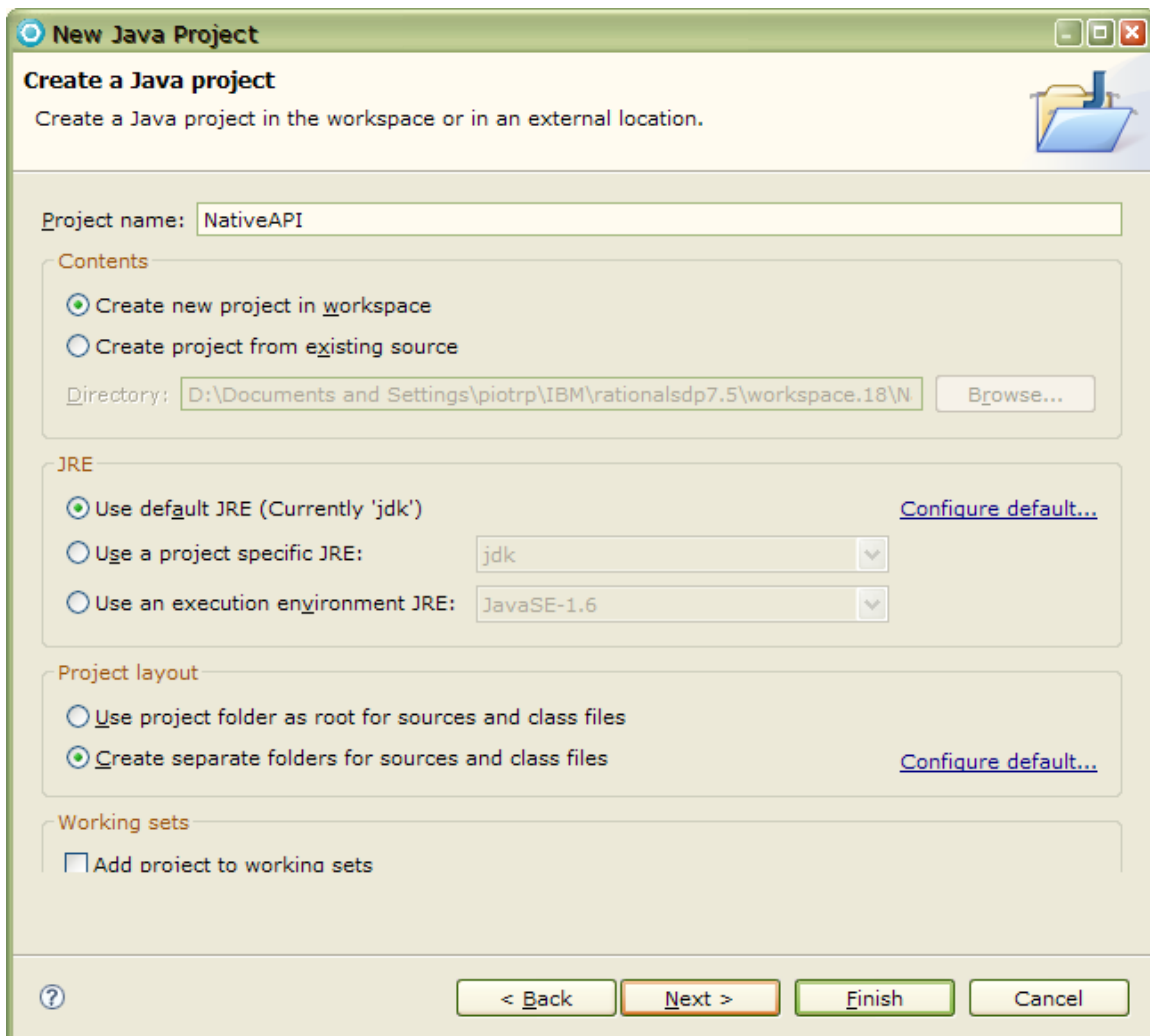
☐ Non-managed Connection

< Back **Next >** **Finish** **Cancel**

- Press “New” to create new project to contain the application.



- Select Java Project and click Next.



- Specify Project Name, “NativeAPI” and Click Finish
- In the Publishing Properties, create new package, “nativeapi.executable” and the interface name “EBSAPI”.
- The implementation name will be filled automatically.

New J2C Java Bean

Java Bean Creation and Deployment Configuration

Specify the properties for creating and running the J2C Java bean.

Save properties

Project Name: * NativeAPI Browse... New...

Package Name: * nativeapi.executable Browse... New...

Interface Name: * EBSAPI

Implementation Name: * EBSAPIImpl

Generate Command Bean

Generate Command Bean for method: executeAppsFnd_ProgramU46executable

☐ Enable generate Command Bean

executeAppsFnd_ProgramU46executable:

Command Bean name:

Command Bean input name:

Command Bean output name:

Connection properties

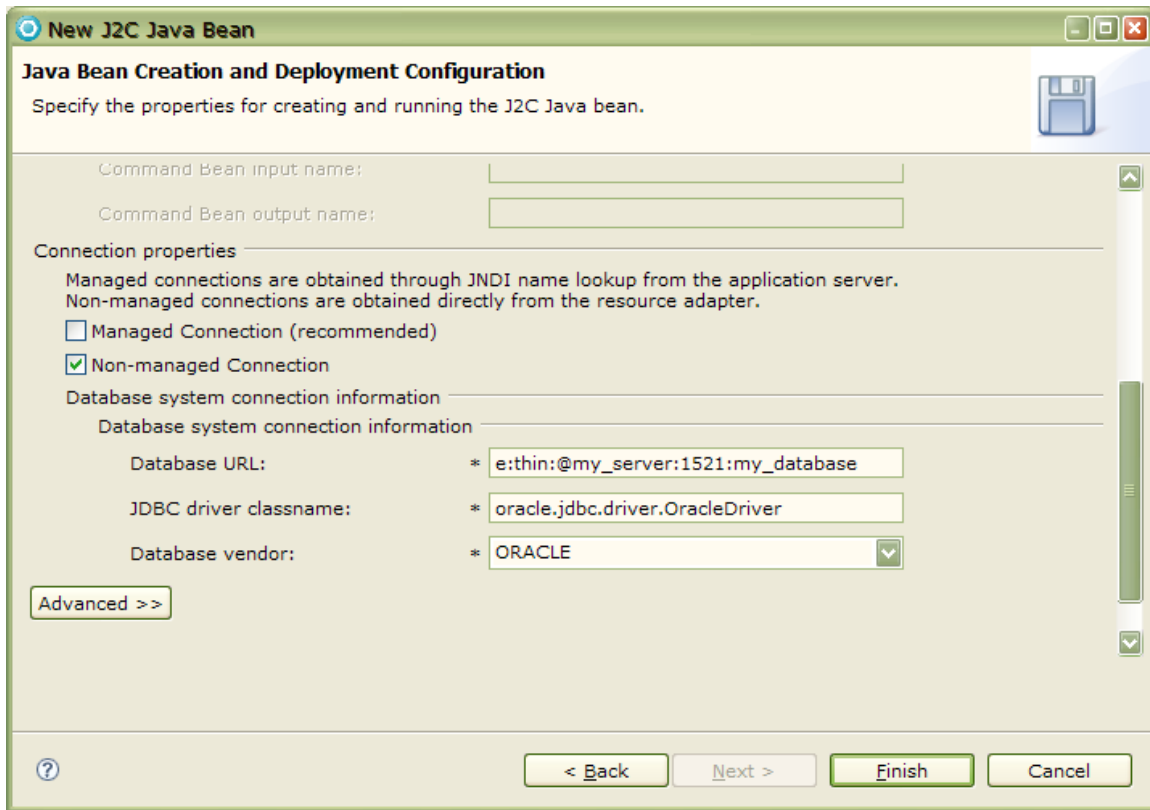
Managed connections are obtained through JNDI name lookup from the application server.
Non-managed connections are obtained directly from the resource adapter.

☐ Managed Connection (recommended)

☒ Non-managed Connection

< Back Next > Finish Cancel

- Deselect the option Managed Connection
- Select Non-managed Connection



The image shows the 'New J2C Java Bean' dialog box in WebSphere. The title bar says 'New J2C Java Bean'. The main heading is 'Java Bean Creation and Deployment Configuration'. Below this, it says 'Specify the properties for creating and running the J2C Java bean.' There are two input fields: 'Command Bean input name:' and 'Command Bean output name:'. Below these is the 'Connection properties' section. It contains a text box explaining that managed connections are obtained through JNDI name lookup from the application server, and non-managed connections are obtained directly from the resource adapter. There are two checkboxes: 'Managed Connection (recommended)' (unchecked) and 'Non-managed Connection' (checked). Below this is the 'Database system connection information' section. It contains three fields: 'Database URL:' with the value 'e:thin:@my_server:1521:my_database', 'JDBC driver classname:' with the value 'oracle.jdbc.driver.OracleDriver', and 'Database vendor:' with the value 'ORACLE'. There is an 'Advanced >>' button. At the bottom, there are four buttons: '?', '< Back', 'Next >', and 'Finish'. There is also a 'Cancel' button.

Command Bean input name:

Command Bean output name:

Connection properties

Managed connections are obtained through JNDI name lookup from the application server.
Non-managed connections are obtained directly from the resource adapter.

☐ Managed Connection (recommended)

☒ Non-managed Connection

Database system connection information

Database system connection information

Database URL: * e:thin:@my_server:1521:my_database

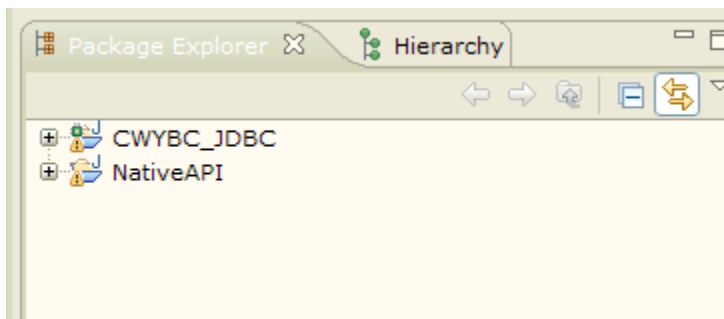
JDBC driver classname: * oracle.jdbc.driver.OracleDriver

Database vendor: * ORACLE

Advanced >>

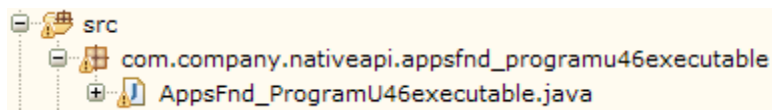
? < Back Next > Finish Cancel

- The Database Connection Information will be prefilled.
- Click Finish
- The specified project will be created and you will see the following in the Project Explorer

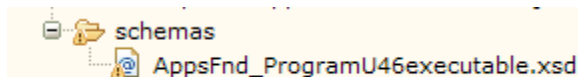


The set of generated artifacts includes

- Java Data Binding representing data exchanged with the Oracle EBS system



- The metadata represented as schema (AppFnd_ProgramU46executable.xsd)



- J2C Java Bean, interface and implementation: EBSAPI, EBSAPIImpl



The last part of recreating the PeopleSoft sample requires creation of the non-managed driver program to instantiate and interact with the generated J2C Java Bean. Using RAD tools create package named “client” in the NativeAPI project. Within this package, create class “ApplicationClient”.



Paste the following code snippet as ApplicationClient class content:

```
package client;

import javax.resource.ResourceException;
import nativeapi.executable.EBSAPI;
import nativeapi.executable.EBSAPIImpl;
```

```

import
com.company.nativeapi.appsfnf_programu46executable.AppsFnd_ProgramU46ex
ecutable;

public class ApplicationClient {

    public static void main(String[] args) {

        try {
            // Create input instance of java data binding
            AppsFnd_ProgramU46executable inputData = new
AppsFnd_ProgramU46executable();

            // Create output instance of java data binding
            AppsFnd_ProgramU46executable outputData = null;

            // Populate input data
            inputData.setapplication("AR");
            inputData.setexecutable("IBMSAMPLENAME1");

            inputData.setexecution_file_name("TEST_PACKAGE.TEST_PROCEDURE");
            inputData.setexecution_method("PL/SQL Stored Procedure");
            inputData.setlanguage_code("US");
            inputData.setshort_name("IBMSAMPLENAME1");

            // Create instance of the J2C Java Bean
            EBSAPI storedProcedure = new EBSAPIImpl();

            // Invoke executable program using adapter
            outputData =
storedProcedure.executeAppsFnd_ProgramU46executable(inputData);

            // Print returned subroutine name
            if(outputData != null)
                System.out.println(outputData.getsubroutine_name());
        }
        catch (ResourceException e) {
            System.out.println("Exception during execution: " +
e.getMessage());
        }
    }
}

```

Verify the results using the Oracle EBS web client

- Log into Oracle EBS.
- Select System Administrator responsibility.
- Select Concurrent -> Program option. This will bring up a Concurrent Program screen.
- Query the window for the executable.
- In the Short Name field, type 'IBMSAMPLENAME'. Click Go.
- You should see the executable details listed.

Clearing the sample content

The only new artifact introduced to Oracle is the executable program. To remove it, use the same steps above for verifying the content. After the executable is located, choose the menu bar option Edit, Delete, and save your changes.

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