

Using DataDirect Connect[®] for JDBC[®] Resource Adapters

Introduction

J2EE Connector Architecture resource adapters are used by application servers to connect to Enterprise Information Systems (EIS), such as mainframe transaction processing systems, database systems, or legacy applications not written in the Java[®] programming language. The resource adapter communicates with the server to provide the underlying transaction, security, and connection pooling mechanisms. DataDirect Connect for JDBC provides resource adapters as an installable option.

This document takes you step-by-step through an example that shows you how to install and set up the DataDirect Connect for JDBC Resource Adapters with a J2EE application server, configure a Connection Factory, and use that Connection Factory from within an Enterprise Java Bean (EJB). Use the example in this document to set up and configure your own environment using DataDirect Connect for JDBC Resource Adapters.

NOTE: This document uses the IBM WebSphere 4.0 Advanced Edition (with FixPack 5) application server in its examples to describe the deployment and configuration of the DataDirect Connect for JDBC Oracle Resource Adapter and the Connection Factory. If you choose to use another type of application server, expect the deployment and configuration steps to be different, but similar.

Installation

This section describes how to install the DataDirect Connect for JDBC Resource Adapters and the ConnectorSample demo code you can use to test them.

Installing the DataDirect Connect for JDBC Resource Adapters

DataDirect Connect for JDBC provides resource adapters as an installable option. Refer to the *DataDirect Connect for JDBC Installation Guide* for instructions on installing the resource adapters (see <http://www.datadirect.com/techres/jdbcproddoc/index.ssp> to reference the DataDirect Connect for JDBC documentation library).

Installing the ConnectorSample Demo Code

After you have installed DataDirect Connect *for* JDBC, locate the ConnectorSample demo code, which is installed in the *install_dir/examples/connector* directory, where *install_dir* is your DataDirect Connect *for* JDBC installation directory.

This directory should contain the following files and subdirectories:

- ConnectorSample.pdf - This document.
- ConnectorSample.ear - The J2EE Application Enterprise Archive (EAR) file containing the ConnectorSample application.

/src

- ConnectorSample.jsp - The source for the JavaServer Page (JSP) used to access the ConnectorSample application.

/src/connectorsample

- ConnectorSample.java - The Java source file that defines the remote interface for the ConnectorSample EJB.
- ConnectorSampleHome - The Java source file that defines the home interface for the ConnectorSample EJB.
- ConnectorSampleBean - The Java source file that contains the implementation for the ConnectorSample EJB.

Setting up the Demo

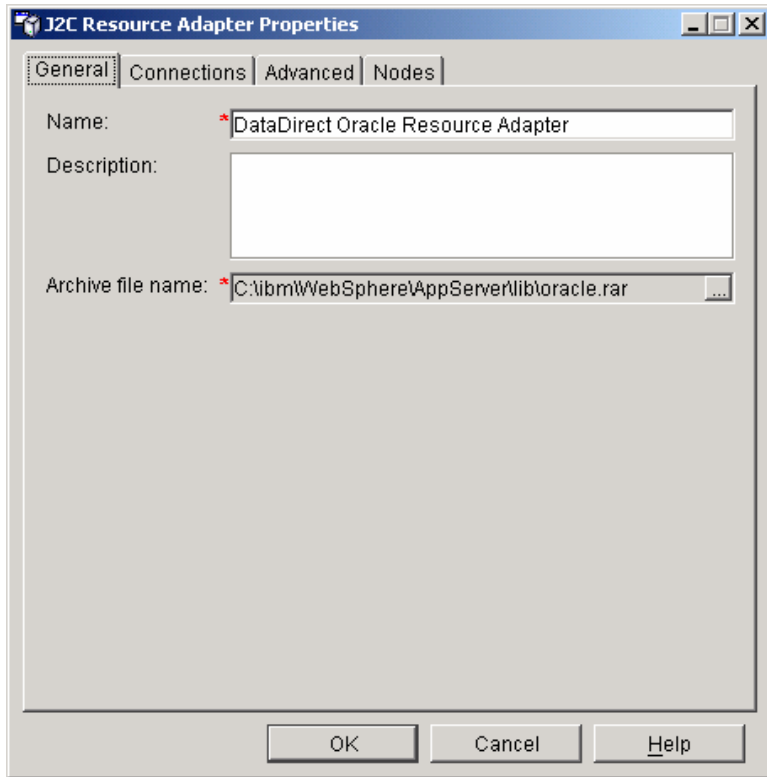
Setting up the demo in our example involves deploying the DataDirect Connect *for* JDBC Oracle Resource Adapter, configuring a Connection Factory, and deploying the ConnectorSample application.

Deploying the Resource Adapter

Follow these steps to add the DataDirect Connect *for* JDBC Oracle resource adapter to the WebSphere 4.0 application server:

1. Copy the resource archive file (*oracle.rar*) from the *install_dir/lib* directory (where *install_dir* is the DataDirect Connect *for* JDBC installation directory) to the *WebSphere_Home/lib* directory (where *WebSphere_Home* is the WebSphere installation directory).
2. Start the WebSphere Admin Server.
3. Start the WebSphere Administrators Console.
4. Expand the WebSphere Administrative Domain node. Then, expand the Resources directory.

5. Right-click the **J2C Resource Adapters** folder, and select **New**.
6. In the General tab of the J2C Resource Adapter Properties dialog, specify the name as `DataDirect Oracle Resource Adapter`.
7. Click the button to the right of the Archive File Name control.
8. In the Install Driver dialog, select the node to which the resource adapter will be installed, and click the **Browse** button.
9. Navigate to the `WebSphere_Home/lib` directory and select the `oracle.rar` file, and click **Open**.
10. In the Install Driver dialog, click **Install**. The J2C Resource Adapter Properties dialog should look like the following figure:



The J2C Resource Adapter Properties dialog allows you to perform the following actions:

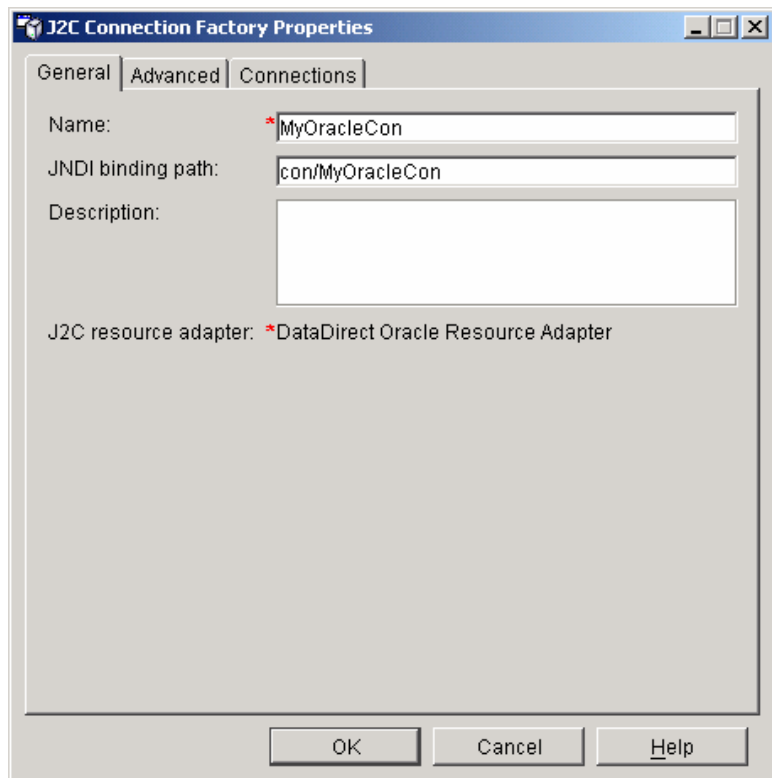
- Select the Connections tab to show the list of properties supported by the resource adapter and their values. The values cannot be changed.
- Select the Advanced tab to show information contained in the resource adapter deployment descriptor.
- Select the Nodes tab to show the nodes on which the resource adapter is installed.

11. Click **OK** to finish installing the resource adapter.

Configuring a Connection Factory

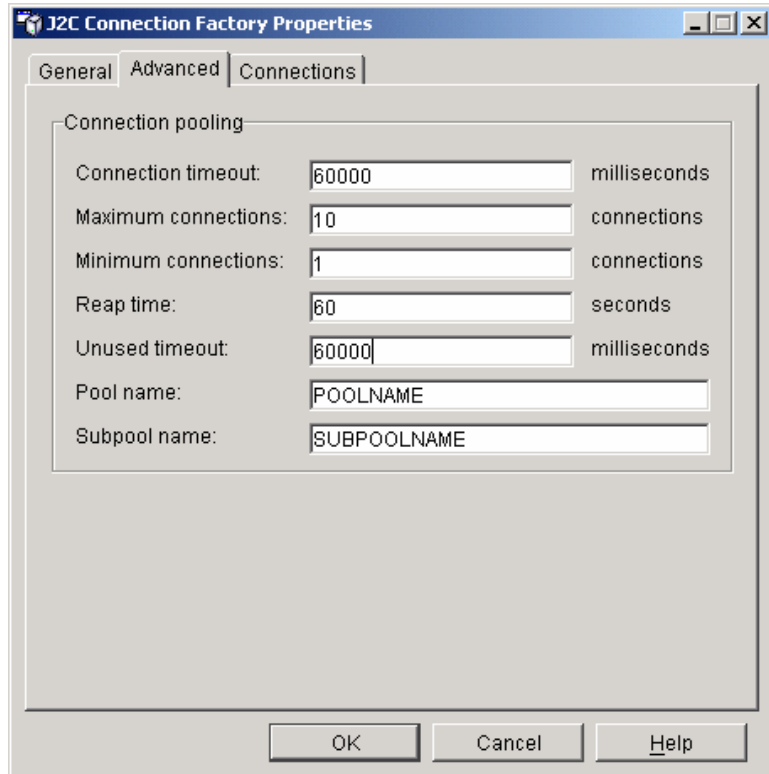
Follow these steps to configure a connection factory for the DataDirect Connect for JDBC Oracle resource adapter:

1. Expand the DataDirect Oracle Resource Adapter node created in the previous section.
2. Right-click the **J2C Connection Factories** folder, and select **New**.
3. In the J2C Connection Factories Properties dialog, specify the name of the connection factory as MyOracleCon.
4. Specify the JNDI binding path as con/MyOracleCon.
5. The General tab of the J2C Connection Factory Properties dialog should look like the following figure:



6. Select the Advanced tab.

7. Specify the connection pooling values for the Connection factory. The following figure shows what the Advanced tab looks like when a connection pool has been configured to hold 10 connections.



8. Select the Connections tab.
9. Specify the values for the following properties as appropriate for connecting to your Oracle database:
 - ServerName – The name of the server on which the Oracle database is running.
 - Port – The port number on the server to be used for the connection.
 - UserName – The user name to be used for the connection.
 - Password – The user password to be used for the connection.
 - SID – The Oracle Server ID to be used for the connection.
10. Click **OK** to finish configuring the Connection Factory.

Deploying the ConnectorSample Application

Follow these steps for deploying the ConnectorSample demo application to the WebSphere application server:

1. Right-click the **Enterprise Applications** folder, and select **Install Enterprise Application**.
2. In the Install Enterprise Application Wizard, click the **Browse** button.
3. Navigate to the *install_dir/examples/connector* (where *install_dir* is your DataDirect Connect for JDBC installation directory). Then, select the **ConnectorSample.ear** file, and click **Open**.
4. Click **Next** in the Install Enterprise Application Wizard.
5. Continue to click **Next** in the wizard until the Mapping Resource References to Resources page is reached.
6. Map the jdbc/ConnectorDS resource reference to the MyOracleCon Connection Factory created in the previous section. To do this, click **Select Resource**.
7. In the Select Resource dialog, select the MyOracleCon entry from the drop-down list, and click **OK**.
8. Continue to click **Next** until the Completing the Application Installation Wizard page is reached, and click **Finished**.
9. Click **Yes** in the message box that is displayed to generate the installable code.
10. Click **OK** in the Deploy dialog box.
11. Once the Deploy operation is complete, right-click the ConnectorSample node in the Enterprise Applications folder. Then, select **Start**.

NOTE: Examine the source code for the ConnectorSampleBean class. The getConnection method of that class uses the jdbc/ConnectorDS resource reference to look up a DataSource object. Steps 6 and 7 in this procedure mapped that resource reference to the MyOracleCon Resource Adapter Connection Factory that was created in the previous section. It can do this because the DataDirect Connect for JDBC Resource Adapter connection factories construct an object that implements the java.sql.DataSource interface. The jdbc/ConnectorDS resource reference could just as easily have been mapped to a JDBC data source. The application code does not need to do anything different to work with a JDBC driver or a DataDirect Connect for JDBC Resource Adapter.

Setting Up the Database

Before you run the ConnectorSample application demo, the ConnectorSampleTbl must be created in the Oracle database. Using Oracle SQLPlus, DataDirect Test™ for JDBC, or another database tool of your choice, execute the following SQL statement to create the table required for the ConnectorSample application:

```
CREATE TABLE ConnectorSampleTbl (id int, name varchar(30))
```

Running the Demo

To run the ConnectorSample application demo, open your favorite web browser and navigate to the following URL:

<http://localhost:9080/ConnectorSampleWeb/ConnectorSample.jsp>.

If the WebSphere application server is not running on a local machine, replace *localhost* in the URL with the name of the server running the WebSphere application server. Then, perform these actions as appropriate:

- Enter a name and a positive integer ID, and click **Insert** to insert records into the database.
- Enter a name or an ID, and click **Lookup** to look up (fetch) a record from the database.
- Enter a name, an ID, or both, and click **Delete** to delete a record from the database.

Summary

J2EE Connector Architecture resource adapters allow you to integrate existing EIS with Java-based systems. This document has taken you step-by-step through an example that shows how to install the DataDirect Connect for JDBC Resource Adapters, configure a Connection Factory, and use that Connection Factory from within an Enterprise Java Bean (EJB). Use this example to help you install and configure your own environment using DataDirect Connect for JDBC Resource Adapters.

We welcome your feedback! Please send any comments concerning documentation, including suggestions for other topics that you would like to see, to:

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