

iWay

iWay Java Adapter for Mainframe JCA Adapter Guide

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Preface

The iWay JAM JCA Adapter is a JCA 1.0-compliant adapter that installs into the Connector Container of WebLogic Server and provides a standard API interface to iWay JAM services.

This documentation contains deployment and configuration information for the iWay JAM JCA Adapter.

How This Manual Is Organized

The following table lists the titles and numbers of the chapters for this manual with a brief description of the contents of each chapter.

Chapter		Contents
1	Deploying the iWay JAM JCA Adapter	Describes how to deploy and configure the iWay JAM JCA Adapter using the WebLogic Server Console.

Documentation Conventions

The following table lists and describes the conventions that apply throughout this manual.

Convention	Description
<code>THIS TYPEFACE</code> or <code>this typeface</code>	Denotes syntax that you must enter exactly as shown.
<code>this typeface</code>	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
<u><code>underscore</code></u>	Indicates a default setting.
<i>this typeface</i>	Represents a placeholder (or variable) in a text paragraph, a cross-reference, or an important term.
this typeface	Highlights a file name or command in a text paragraph that must be lowercase.
<i>this typeface</i>	Indicates a button, menu item, or dialog box option you can click or select.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices; type one of them, not the braces.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis points (...).
.	Indicates that there are (or could be) intervening or additional commands.

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your iWay Java Adapter for Mainframe questions. iWay Software consultants can also give you general guidance regarding product capabilities and documentation. Please be ready to provide your six-digit site code number (xxxx.xx) when you call.

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To learn about the full range of available support services, ask your iWay Software representative about InfoResponse Online, or call (800) 969-INFO.

Help Us to Serve You Better

To help our consultants answer your questions effectively, please be prepared to provide specifications and sample files and to answer questions about errors and problems.

The following tables list the specifications our consultants require.

WebLogic Server Platform Operating System and Operating System Version	
WebLogic Server Version and Service Pack / special patch	
iWay JAM CRM Platform Operating System	
CICS or IMS Operating System and Operating System Version	
CICS or IMS Version Information	
Third party SNA stack product and version	

The following table lists components. Specify the version in the column provided.

Component	
iWay JAM Gateway Build / Fix Level	
iWay JAM CRM Build / Fix Level	
Pre-existing eGen Application Compiles? Specify Yes or No.	

In the following table, specify the JVM version and vendor in the columns provided.

Version	Vendor

The following table lists additional questions to help us serve you better.

Request/Question	Error/Problem Details or Information
Provide usage scenarios or summarize the application that produces the problem.	
Did this happen previously?	
Is this configuration working on any other system?	
Can you reproduce this problem consistently?	

Request/Question	Error/Problem Details or Information
Any change in the application environment including: • Migrating to a new WebLogic Server service pack or version. • Installing a new operating system on WebLogic Server side or CRM component side. • Migrating to a new CICS or IMS region, version, or operating system.	
Under what circumstance does the problem <i>not</i> occur?	
Describe the steps to reproduce the problem.	
Describe the problem .	
Specify the error message(s).	

The following table lists error/problem files that might be applicable.

Error/Problem Files	Error/Problem File Detail or Information
WebLogic Server Application logs or error messages	
CICS or IMS application logs or error messages	
WebLogic Server configuration file	
iWay JAM configuration file	
Third party stack SNA configuration	
VTAM Logical Unit definitions	
iWay JAM CRM startup script and script messages	
iWay JAM CRM JCL and JOB information (JESMSG LG, JESJCL, JEYSMSG)	
iWay JAM gateway trace diagnostics	
iWay JAM CRM trace diagnostics	
APPC trace files	

Collecting iWay JAM Diagnostics

If you are requested to collect additional iWay JAM diagnostic files, see the Diagnostics section in the *iWay Java Adapter for Mainframe Programming Guide*.

iWay JAM runtime traces are sent to the WebLogic log as "Debug" messages. Debug messages are written to each WebLogic Server's log file but are not sent to the administration server. In addition, these messages are only sent to the server's `stdout` if the server's configuration has both the *Log to Stdout* and *Debug to Stdout* options selected on the server's Logging/General page.

For instructions on accessing Gateway tracing options, see the *iWay Java Adapter for Mainframe Configuration and Administration Guide*.

User Feedback

In an effort to produce effective documentation, the Documentation Services staff welcomes your opinions regarding this manual. Please use the Reader Comments form at the end of this manual to communicate suggestions for improving this publication or to alert us to corrections. You also can go to our Web site, <http://www.iwaysoftware.com> and use the Documentation Feedback form.

Thank you, in advance, for your comments.

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CHAPTER 1

Deploying the iWay JAM JCA Adapter

Topics:

- Overview
- Deploying the WebLogic JAM JCA Adapter Using the WebLogic Server Console
- Using the iWay JAM JCA Adapter
- Samples

The iWay JAM JCA Adapter is a JCA 1.0-compliant adapter that installs into the Connector Container of WebLogic Server and provides a standard API interface to iWay JAM services.

The iWay JAM JCA Adapter implements all functionality documented in the J2EE Connector Architecture Specification Version 1.0 (JSR 016) including support for:

- Local and XA transactions
- J2EE Connector Common Client Interfaces (CCI)
- Resource Adapter and Connection Metadata
- Container-managed security

In addition, the following extensions are supported:

- DataView record type allowing DataViews generated using the eGen utility to be used as input or output of a mainframe service invocation.
- XML record type allowing a properly constructed XML document to be used as input or returned as the response of a mainframe service.

Overview

The iWay JAM JCA Adapter is installed automatically during the iWay JAM 5.1 installation. The following files are installed:

- iwjamjca.jar

This file contains the classes required to run the JCA Adapter functionality with iWay JAM. This file, or the iwjam.jar file, should be in the CLASSPATH for clients not running under the control of the WebLogic Connector Container.

- iwjamjca.rar

This file must be deployed using the WebLogic Administration Console.

- iwjam.jar

This file contains both the iwjamjca.jar and the iwjamjca.rar files. Because of non-standard interface classes, the iwjamjca.jar must be referenced by the Weblogic connection manager. The iwjam.jar must be defined in the WebLogic system CLASSPATH. This allows WebLogic JAM JCA clients running under the control of the WebLogic Connector Container to have access to the classes which are not defined by standard J2EE JCA interfaces.

Deploying the WebLogic JAM JCA Adapter Using the WebLogic Server Console

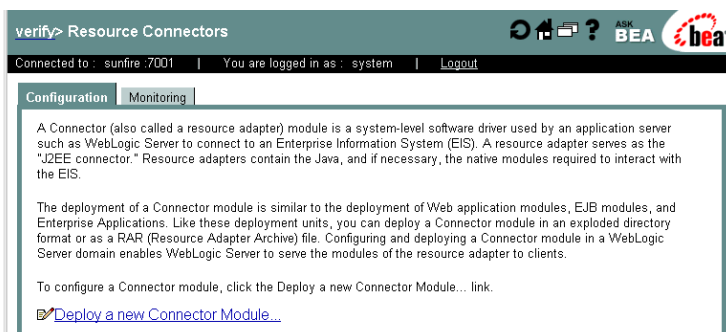
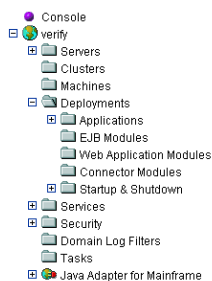
The following section describes how to deploy the iWay JAM JCA Adapter using the WebLogic Server Console.

Procedure: How to Deploy the iWay JAM JCA Adapter

To deploy the iWay JAM JCA Adapter:

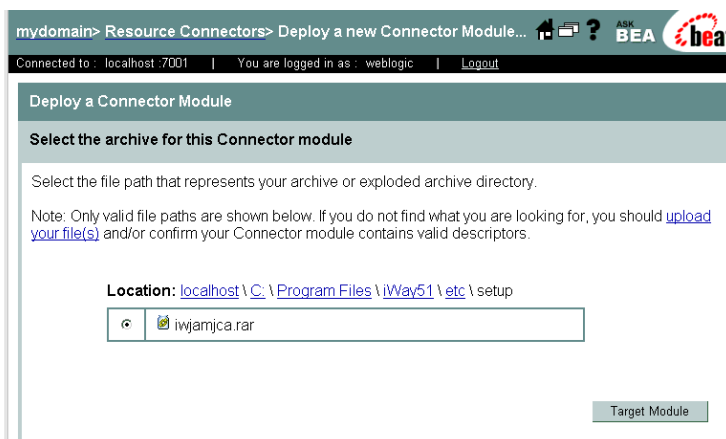
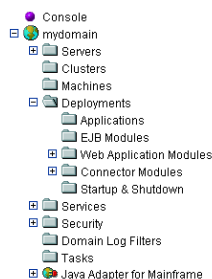
1. Log onto the WebLogic Server Console.
2. In the left pane, expand the *Deployments* folder and click *Connector Modules*.

The Resource Connectors screen opens in the right pane.



3. Click *Deploy a new Connector Module*.

The Deploy a Connector Module screen opens.



4. Use the links on the right next to *Location* to specify the location of the iWay JAM JCA Adapter (jamjca.rar). For example:

`drive:\Program Files\iWay51\etc\setup\iwjamjca.rar`

where

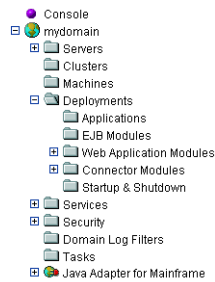
`drive`

Is the location where iWay JAM 5.1 is installed.

5. Select the radio button next to `iwjamjca.rar` and click *Target Module*.

The following panel displays details about the server where the iWay JAM JCA Adapter is deployed.

Deploying the WebLogic JAM JCA Adapter Using the WebLogic Server Console



mydomain> Resource Connectors> Deploy a new Connector Module...

Connected to : localhost :7001 | You are logged in as : weblogic | [Logout](#)

Deploy a Connector Module

Review your choices and deploy

Deployment Targets

Your Connector module will be deployed to the following locations:

iwjamjca will be deployed to
Servers - myserver

Source Accessibility

Since this is a single server environment, no further stage configuration is required. The server will access this Connector module's files from the location specified.

Identity

Enter a name to be used to identify this Connector module.

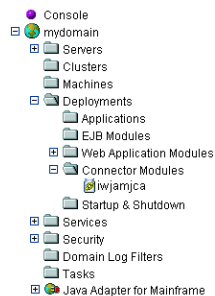
Name:

The name of this Connector module deployment.

[Deploy](#)

6. Click *Deploy* to complete the deployment process.

When the deployment completes, iwjamjca appears on the left pane under Connector Modules.



mydomain> Resource Connectors> iwjamjca

Connected to : localhost :7001 | You are logged in as : weblogic | [Logout](#)

[Configuration](#) [Targets](#) [Deploy](#) [Monitoring](#) [Notes](#)

This page allows you to view the deployment status of each Connector module, and to stop or redeploy individual Connector modules. (To configure additional deployment targets for these Connector modules, click the Targets tab.)

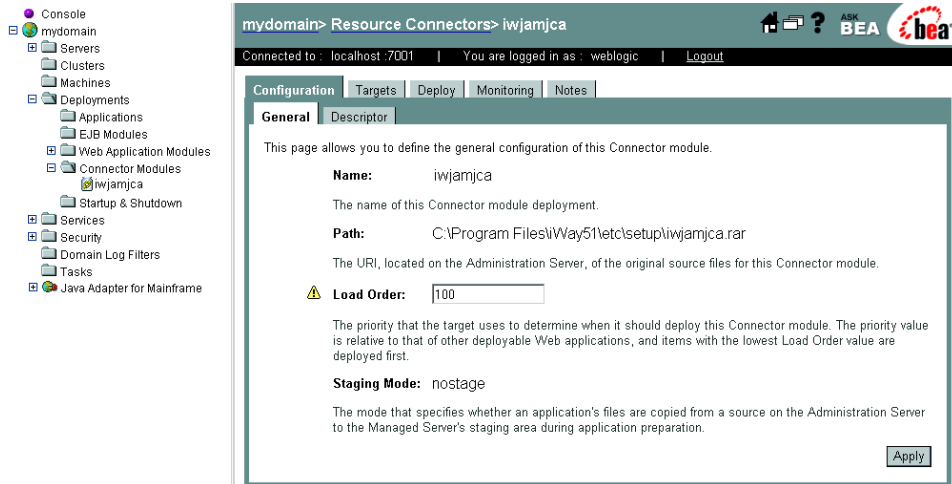
Module Status	Target	Target Type	Status of Last Action	Actions
Active	myserver	Server		Stop Redeploy

Using the iWay JAM JCA Adapter

iWay JAM JCA Adapter provides a client interface using standard JCA system contracts to access iWay JAM services. The following sections provide guidelines for configuration and programming with the iWay JAM JCA Adapter.

Configuring the JCA Adapter

After installing the iWay JAM JCA Adapter, you may configure it using the Configuration tab in the WebLogic Administration Console. For more information on the Connector Container options in WebLogic Server, see the WebLogic Server documentation.



Programming Client Applications

Creating client applications which make use of the iWay JAM JCA Adapter follows the standard practices for all Connector clients. The general steps are:

1. Obtain a JAM JCA Connection Factory. In the Managed case, this factory is obtained from a Pool maintained by the WebLogic Connector Container. In the Non-managed (stand-alone) case, the ConnectionFactory is directly instantiated by the client.
2. Use the ConnectionFactory to obtain a Connection object.
3. Using the Connection object, request an Interaction object.
4. Instantiate an InteractionSpec object used to identify the mainframe service to be invoked.
5. Create a Record object for the input data to the service and for the response.

6. Use the Interaction object to execute the mainframe service passing the InteractionSpec, Input Record, and Output Record.
7. Close the connection.

Example Code

The following listing is simple example code that outlines the previous programming steps for a non-managed (standalone) invocation:

```
1. import javax.resource.cci.*;
2. import com.iwaysoftware.jam.jca.*;
3. String url = "t3://localhost:7001";
4. ConnectionFactory fact = new ConnectionFactoryImpl(url);
5. Connection conn = fact.getConnection();
6. Interaction action = conn.createInteraction();
7. InteractionSpecImpl actionSpec = new InteractionSpecImpl();
8. actionSpec.setFunctionName("sampleRead");
9. actionSpec.setInteractionVerb(InteractionSpec.SYNC_SEND_RECEIVE);
10. RecordFactory rfact = fact.getRecordFactory();
11. XmlRecord input = new XmlRecord("EmployeeRecord");
12. MappedRecord output = rfact.createMappedRecord("EmployeeRecord");
13. String xml = "<?xml
version='1.0'?><empRecord><empName><empLastName>Smith
</empLastName></empName></empRecord>";
14. input.setData(xml);
15. action.execute(actionSpec, input, output);
16. conn.close();
```

The following table describes each line of code.

Line Number	Description
1 and 2	Import the packages for the J2EE Connector CCI and the iWay JAM implementation of these interfaces.
3 and 4	Obtain a connection factory using the URL of the WebLogic Server which is hosting the iWay JAM Gateway.
5	Obtain a connection from the connection factory.
6	Use the connection to obtain an Interaction object.

Line Number	Description
7-9	Create an InteractionSpec object and the following properties: The FunctionName is the name of the mainframe service as defined in the iWay JAM configuration. The InteractionVerb for a synchronous send and receive of data. This is the only interaction verb supported by the iWay JAM JCA Adapter.
10	Obtain a record factory which can be used for the creation of Indexed and Mapped Records.
11	Create an instance of an XmlRecord. This is a iWay JAM JCA extension which provides support for conforming XML data. This Record object will contain data translation code to convert the XML data to mainframe data.
12	Create an instance of a MappedRecord which will be used to receive the response from the mainframe service.
13 and 14	Set the value of the input XmlRecord to the requested employee last name.
15	Invoke the mainframe service. On successful return the MappedRecord we passed in as output will contain the service response data.
16	Close the connection.

Record Types

The iWay JAM JCA Adapter supports four types of records for input and/or output when executing mainframe services.

Record Type	Description	Record Name Definition
IndexedRecord	This record always contains a single entry which is a byte array containing the binary data record.	An arbitrary name.

Record Type	Description	Record Name Definition
MappedRecord	This record contains a Java Map of name/value pairs. - The name is the field name from the data record. - The value is the data associated with that field. This Map is created using the iWay JAM HashtableLoader and HashtableUnloader classes. Note: See the <i>iWay Java Adapter for Mainframe Programming Guide</i> for more information about these classes.	Must match the name of the DataView class for the record.
DataViewRecord	This record is a wrapper around the iWay JAM DataView class.	Must match the name of the DataView class for the record.
XmlRecord	This record converts an XML document to a binary data record using a iWay JAM generated DataView class. Note: See <i>Understanding How iWay JAM Uses XML</i> in the <i>iWay Java Adapter for Mainframe Programming Guide</i> for more information about these classes.	Must match the name of the DataView class for the record.

Samples

The iWay JAM JCA Adapter provides a container-managed connection sample and a non-managed connection sample. These samples are in the following locations:

- Container-Managed Connection Sample
`<JAM_INSTALL_DIR>\tools\egen\bin\samples\jca\managed`
- Non-Managed Connection Sample
`<JAM_INSTALL_DIR>\tools\egen\bin\samples\jca\nonmanaged`

Container Managed Connections

The Container Managed sample is a simple JSP page that accesses the readSample mainframe service using the EmployeeRecord which ships as a iWay JAM 5.1 sample.

Procedure: How to Build the Sample

To build the Container Managed sample using ant:

1. Ensure that the WebLogic bin directory is in your PATH.
2. Enter the command to start ant passing the directory where WebLogic is installed.

For example:

```
ant -DWLSDIR=<WEBLOGIC_HOME_DIR>
```

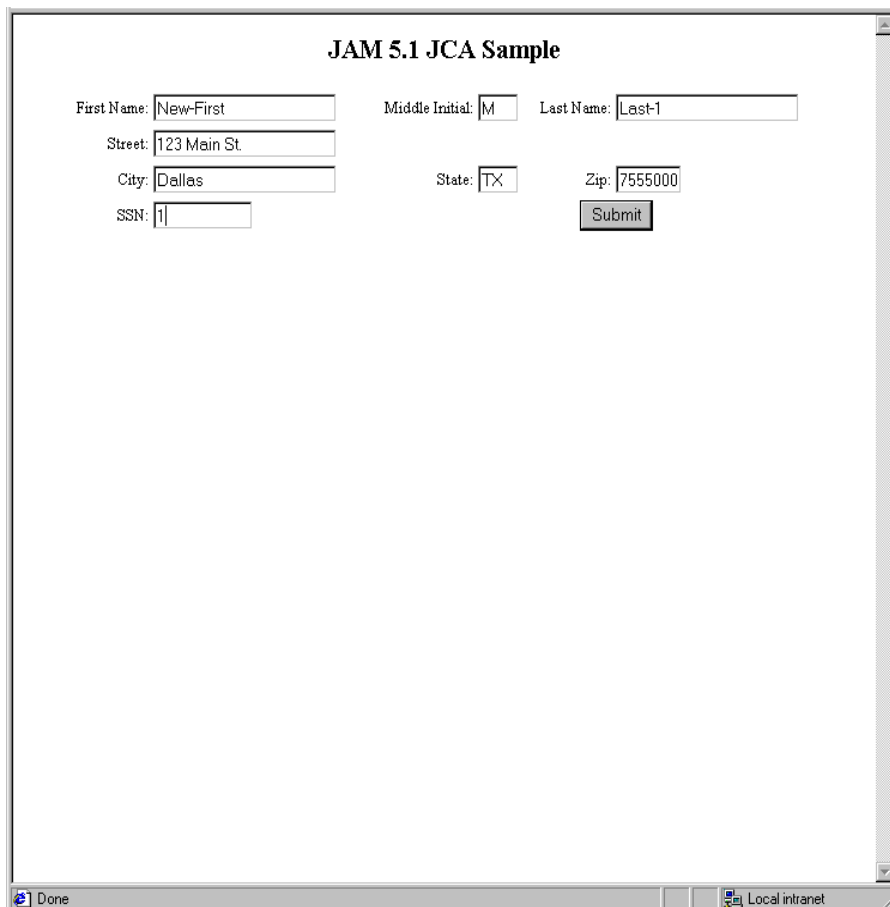
3. Copy the classes to a directory, such as a dataview classes directory, that is defined in the CLASSPATH.
4. Install the managedjca.war file.

Procedure: How to Run the Sample

1. After installing the managedjca.war file, use the following HTTP URL to launch the JSP in a browser:

<http://localhost:7001/managedjca/DisplayEmployee.jsp>

The following page appears.



The screenshot shows a web browser window displaying a form titled "JAM 5.1 JCA Sample". The form contains several input fields for employee information: "First Name" (containing "New-First"), "Middle Initial" (containing "M"), "Last Name" (containing "Last-1"), "Street" (containing "123 Main St."), "City" (containing "Dallas"), "State" (containing "TX"), "Zip" (containing "7555000"), and "SSN" (containing "1"). A "Submit" button is located to the right of the SSN field. The browser's status bar at the bottom shows "Done" and "Local intranet".

2. Enter a name in the Last Name field and click *Submit* to access the mainframe and display the returned data.

Non-Managed Connections

The non-managed JCA sample is a command line application that runs the readSample service and displays results in various formats.

Procedure: How to Build the Sample

To build this sample using ant:

1. Ensure the WebLogic bin directory is in your PATH.
2. Enter the following command to start ant passing the directory where WebLogic is installed.

For example:

```
ant -DWLSDIR=<WEBLOGIC_HOME_DIR>
```

3. Copy the classes to a directory, such as a dataview classes directory, that is defined in the CLASSPATH.
4. Make sure the jam.jar files are in your CLASSPATH. Also include the directory where you copied the dataview classes into your CLASSPATH.

Syntax: How to Run the Sample

Run the sample with the following command line format:

```
java DisplayEmployee <URL of WLS> <Last Name of Employee>
```

Running this sample does the following:

1. Obtains the JAM JCA metadata classes and displays product name, version, etc.
2. Executes the readSample service returning a MappedRecord. The first and last names appear from this response.
3. Executes the readSample service returning an XmlRecord.

The following syntax shows the resulting XML document that appears.

```
java DisplayEmployee t3://localhost:7001 Last-1
```

```
Product Name: iWay Java Adapter for Mainframe
```

```
Product Version: 5.1
```

```
Support for J2EE Connector Version 1.0
```

```
First Name:    New-First
```

```
Last Name:     Last-1
```

```
<?xml version="1.0"?>
<empRecord>
  <empSsn>1</empSsn>
  <empName>
    <empNameLast>Last-1</empNameLast>
    <empNameFirst>New-First</empNameFirst>
    <empNameMi>M</empNameMi>
  </empName>
  <empAddr>
    <empAddrStreet>123 Main St.</empAddrStreet>
    <empAddrSt>TX</empAddrSt>
    <empAddrZip>775550000</empAddrZip>
  </empAddr>
</empRecord>
```

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