# iWay

iWay Java Adapter for Mainframe Migration Guide

# Preface

If you are currently using BEA WebLogic Java Adapter for Mainframe (BEA JAM) 5.1 on WebLogic Server 8.1, you need to understand the changes that have been made to iWay Java Adapter for Mainframe (iWay JAM) 5.1 and determine how these changes will affect the way you use the new product.

This documentation contain migration information that you should consider as you prepare to use iWay JAM 5.1.

## How This Manual Is Organized

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

| Chapter | | Contents |
|---|---|---|
| **1** | Migrating from BEA JAM to iWay JAM 5.1 | Describes how to to undeploy BEA JAM 5.1 and successfully migrate to iWay JAM 5.1. |
| **2** | Considerations For Your BEA JAM Application | Contain important considerations for your existing BEA JAM applications as you prepare to use iWay JAM 5.1. |

# Documentation Conventions

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

| Convention | Description |
|---|---|
| `THIS TYPEFACE` or `this typeface` | Denotes syntax that you must enter exactly as shown. |
| ***this typeface*** | Represents a placeholder (or variable) in syntax for a value that you or the system must supply. |
| <u>underscore</u> | Indicates a default setting. |
| *this typeface* | 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. |
| *this typeface* | 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 (…). |
| `.`<br>`.`<br>`.` | Indicates that there are (or could be) intervening or additional commands. |

# Customer Support

Do you have questions about the iWay Java Adapter for Mainframe?

If you bought the product from a vendor other than iWay Software, contact your distributor.

If you bought the product directly from iWay Software, call Information Builders Customer Support Service (CSS) at (800) 736-6130 or (212) 736-6130. Customer Support Consultants are available Monday through Friday between 8:00 a.m. and 8:00 p.m. EST to address all

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.

You can also access support services electronically, 24 hours a day, with InfoResponse Online. InfoResponse Online is accessible through our World Wide Web site, http://www.iwaysoftware.com. It connects you to the tracking system and known-problem database at the iWay Software support center. Registered users can open, update, and view the status of cases in the tracking system and read descriptions of reported software issues. New users can register immediately for this service. The technical support section of www.iwaysoftware.com also provides usage techniques, diagnostic tips, and answers to frequently asked questions.

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:<br><br>• Migrating to a new WebLogic Server service pack or version.<br><br>• Installing a new operating system on WebLogic Server side or CRM component side.<br><br>• Migrating to a new CICS or IMS region, version, or operating system. | |
| Under what circumstance does the problem *not* 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 (JESMSGLG, JESJCL, JEYSYSMSG) | |
| 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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If you are currently using BEA WebLogic Adapter for Mainframe (BEA JAM) version 5.1, you need to understand the changes that have been made to iWay Java Adapter for Mainframe (iWay JAM) 5.1 and determine how these changes will affect the way you use the new product.

The following sections contain migration information that you should consider as you prepare to use iWay JAM 5.1.

## Overview

iWay JAM 5.1 is supported on WebLogic Server 8.1. Migrating from earlier versions of BEA JAM other than BEA JAM 5.1 for WebLogic Server 8.1 requires you to upgrade to the supported WebLogic Server, and deploy the new iWay JAM 5.1 in this environment. For more information on how to install iWay JAM into a new WebLogic Server environment, see the *iWay Java Adapter for Mainframe Installation Guide*.

Moving from JAM 4.x to iWay JAM 5.1 is currently not supported. Moving from your BEA JAM 5.x to the iWay JAM product is simply a change in deployment of the JAM product. Your existing BEA JAM 5.x eGen application and JAM configuration files can be preserved and deployed into the iWay JAM 5.1 without additional modification.

## Installation Considerations

The following section contains installation information that you should consider as you prepare to install iWay JAM 5.1.

### iWay JAM 5.1 Directory Structure

The following table lists the directory structure of BEA JAM 1.5 and the corresponding locations in iWay JAM 5.1. You can use this table as a reference to find your old JAM components in the new iWay JAM installation directory.

| BEA JAM 5.1 | iWay JAM 5.1 |
| --- | --- |
| bin | tools\egen\bin |
| samples | tools\egen\samples |
| Dcl libs | tools\crm\lib |
| Dcl bins | tools\crm\bin |
| Mainframe | etc\setup\iwjamcrmmf.zip\iwjamcrmmf.tar |
| lib\jam.jar | lib\iwjam.jar |
| lib\jamjca.jar | **Deleted**. Function folded into iwjam.jar |
| lib\jamjca.rar | etc\setup\iwjamjca.rar |
| lib\jam.ear | etc\setup\iwjam.ear |
| classdocs\jamdoc.jar | etc\doc\iwjamdoc.jar |
| config | etc\samples\iwjam\domains |

| BEA JAM 5.1 | iWay JAM 5.1 |
|---|---|
| uninstaller | etc\uninstall\iwjam |
| BEA_HOME\license.bea | iWay51\license.xml |

## iWay Licensing

During the iWay JAM 5.1 installation, a 120 day licensing evaluation is installed with the product.

To license the iWay JAM product, you must perform the following steps.

**1.** Include the iwutil.jar file in the WebLogic startup CLASSPATH. For example,

```
CLASSPATH=%CLASSPATH%;%IWAY51%\lib\iwutil.jar;%IWAY51%\lib\iwjam.jar
```

**2.** Add the following argument to the startup class:

```
iway.home=<base directory of your iWay JAM product>
```

**Note:** If your existing BEA JAM domain is currently running the iWay 5.5 product, the iWay JAM 5.1 and iWay 5.5 product licensing must coexist by ensuring the following order in the WebLogic startup CLASSPATH:

```
CLASSPATH=%CLASSPATH%;%IWAY55%\lib\iwutil.jar;%IWAY51%\lib\iwjam.jar
```

## Deployment

Once iWay JAM has been installed, it must be deployed in the WebLogic Server environment. The following tasks must be completed if you are not running a pre-configured JAM domain.

**Note:** The pre-configured domains are installed with the iWay JAM product and can be found under the `etc` subdirectory.

## Performing Post-Installation Tasks

The management component of the iWay JAM product is deployed as an application into the WebLogic Server. The iWay JAM gateway component is initiated by the WebLogic Server when the WebLogic Server is started. The licensing of the iWay JAM product is performed when the gateway is started.

**1.** Add the *iwjam.jar* to the WebLogic Server startup CLASSPATH of the adminstration server and every managed server that will run a JAM gateway.

This .jar file contains the Startup class. It contains the classes that are referenced by your deployed applications.

**2.** Add the *iwutil.jar* to the WebLogic Server startup CLASSPATH and the IWAY51 Java system property to the startup command for licensing of the iWay JAM product.

3. From the WebLogic Administration console, deploy the iWay JAM application, *iwjam.ear*, to your WebLogic domain, and target the administration and every managed server/cluster that will run an iWay JAM gateway.

4. From the WebLogic Administration console, add the Startup Class to the WebLogic Server domain.

   ```
   com.iwaysoftware.jam.GatewayStartup
   ```

For more information on how to deploy iWay JAM see the see the *iWay Java Adapter for Mainframe Installation Guide*.

# Using BEA JAM 4.x Customer Applications

BEA JAM 4.x applications are not supported in iWay JAM 5.1. Please see the *BEA WebLogic Java Adapter for Mainframe 4.x Migration Guide*.

# Using BEA JAM 5.x Customer Applications

When migrating to iWay JAM 5.1, any existing customer applications created with BEA JAM 5.x will continue to be supported. Because of this, regenerating the BEA JAM eGen classes and recompiling your customer applications is not required.

In addition, you can develop new applications with the iWay JAM tools, and these new applications can co-exist in your WebLogic domain with your BEA JAM applications.

However, in most cases, you cannot extend a BEA JAM application with functionality generated with the iWay JAM tools. If you find that you are doing development of your BEA JAM application, it is suggested that you plan a full migration to the iWay JAM. For more information, see Chapter 2, *Considerations For Your BEA JAM Application*.

# Using BEA JAM 5.x RMI Access Methods

BEA JAM provided the capability to monitor and administer your JAM configuration with a remote Java application. iWay JAM continues to provide this functionality, but with some minimal changes to the monitoring and management classes. This will require you to change your Java application to use the new iWay JAM classes. For more information, see Chapter 2, *Considerations For Your BEA JAM Application*.

# Removing BEA JAM 5.x From the WebLogic Domain

iWay JAM 5.1 is supported on the WebLogic Server 8.1 platform.  You must upgrade to WebLogic Server 8.1 if you are running prior versions of BEA JAM 5.x.

Removing BEA JAM 5.1 for WebLogic Server 8.1 requires that the WebLogic administration server for the domain is started. The managed servers in the domain do not need to be started. You must remove the prior deployment of BEA JAM components (other than the JAM configuration and customer eGen applications) before installing the new iWay JAM product.

## Preparing to Remove BEA JAM 5.x From the WebLogic Domain

It is suggested that you backup your domain configuration environment, including the managed servers, prior to removing BEA JAM 5.x from the environment.

## Preserving the Data Integrity of Your Existing Application

You must prepare for the removal of the BEA JAM product by resolving any outstanding transaction recovery issues prior to recovery. Any outstanding transactions with the mainframe application collected while running the BEA JAM product cannot be recovered by the iWay JAM product. It is your responsibility to maintain the integrity of your data by resolving all outstanding transactions.

Your domain must be prepared for a cold start of the environment when starting the iWay JAM product for the first time. For more information on how to perform a cold start, see *Administering Transactions* in the *iWay Java Adapter for Mainframe Configuration and Administration Guide*. It is suggested that you backup or rename your BEA JAM transactional logs, and potentially your WebLogic Server and OLTP transactional logs, prior to uninstalling your BEA JAM product.

If you are running transactional requests to your mainframe applications, it is suggested that the BEA JAM product components be stopped prior to the removal of the BEA JAM product from the WebLogic domain.

If you have not properly resolved any outstanding transaction recovery items, the items cannot be recovered by the iWay JAM product. You could experience an exchange logs failure between your CICS or IMS region and the CRM. If the items have not been removed from the WebLogic transaction and heuristic logs, then you will see the following message:

```
<Warning> <JAM Management> <000000> <An attempt was made to recover a
transaction that was initiated by BEA/JAM.  These transactions should be
removed from the JTA log.  See the iWay JAM Migration Guide for details.>
```

In the case of an error, you must manually recover the outstanding data and then remove the old transaction logs.

**Note:** There is a known problem for transaction information that is erroneously left in the WebLogic Server transaction log for transactional requests initiated from your CICS or IMS region into your WebLogic Server application. For more information about the known issue and a workaround, see the *iWay Java Adapter for Mainframe Release Notes*.

**Procedure: How to Remove BEA JAM 5.x From the WebLogic Domain**

Perform the following steps to remove BEA JAM 5.x from the WebLogic domain.

1. Stop each JAM gateway in the domain from the WebLogic Server (WLS) console or using the RMI method provided with BEA JAM.

2. Stop the CRM task or tasks for the Weblogic domain and undeploy each JAM gateway.

   **Note:** Although the BEA JAM product can continue processing requests while you are removing the BEA JAM deployment from your WebLogic domain, it is highly recommended that you perform this task as the first step. If you are running transactional requests, and you do not stop the JAM components, you can compromise the integrity of your data for any requests that are inflight when the domain is finally stopped.

3. From the WebLogic console remove the JAM administration application.

   This application was created in BEA JAM by deploying the BEA JAM .ear file (jam.ear).

4. From the WebLogic console, remove the JAM startup Class.

5. Remove the jam.jar and jamjca.jar files from the environment variables script, application CLASSPATH script, and the WebLogic startup CLASSPATH for the administration server and managed server startup procedures.

6. Uninstall the BEA JAM product.

   **Note:** It is recommended that this step be deferred until the Weblogic domain or domains are running successfully, and the applications using iWay JAM have been succesfully tested.

# Deploying iWay JAM 5.1

Once you have removed BEA JAM 5.x from the WebLogic domain, you can deploy iWay JAM 5.1 to a domain. For more information on how to deploy iWay JAM to your WebLogic domain, see the *iWay Java Adapter for Mainframe Installation Guide*.

**Procedure: How to Deploy iWay JAM 5.1**

Perform the following steps to deploy iWay JAM 5.1 to a WebLogic domain.

1. Stop all managed and administration servers in your WLS domain.

2. Install iWay JAM 5.1.

   For more informationon how to install iWay JAM, see the *iWay Java Adapter for Mainframe Installation Guide*.

3. Prepare for a cold start of your Weblogic domain. For more information on how to perform a cold start, see *Administering Transactions* in the *iWay Java Adapter for Mainframe Configuration and Administration Guide*.

   **Note:** As a best practice, remove all transaction logs after any outstanding transaction issues have been resolved for the domain. At a minimum, the CRM transaction logs should be renamed or removed prior to starting the domain.

4. Add the iWay JAM components, *iwjam.jar* and *iwutil.jar*, to the WebLogic startup CLASSPATH for the administration server and all managed servers in your domain.

5. Add the IWAY51 Java system property to your WebLogic startup java command.

   This property is set to the iWay installation directory.

6. Start the WebLogic administration server.

7. From the WebLogic Administration console, add the JAM application and deploy the JAM application to the administration server, and then to each managed server or cluster that will run a JAM gateway.

   Once the new iWAY JAM application is added, the administration component will be enabled in the WLS console.

8. From the WebLogic Administration console, add the iWay JAM startup class and deploy the startup class to each managed server or cluster that will run a JAM gateway.

9. Deploy the gateway (Optional).

   This can be done using the WLS console or the RMI method. If a gateway is deployed to the administration server at this step, errors will be generated to the WLS console.

10. Modify or create the CRM start procedures to point to the new CRM installation.

    a. Modify existing startup scripts by pointing to the new CRM load image.

    b. If a new configuration is performed, for example, upgrading to a new mainframe operating system or OLTP as part of this installation, or if a different CRM configuration (port, name) is to be used, configure the iWay JAM product during this step.

11. Start the Weblogic domain with the new iWay JAM product.

    a. Start the CRM task.

    b. Start the Weblogic domain managed servers.

       **Note:** If the administration server runs with a JAM gateway, you must stop and restart the administration server for the new product to be activated.

**Procedure: How to Verify Startup of the WebLogic Domain**

Perform the following steps to verify that the domain started successfully.

1. Check the SYSOUT in the CRM to see that is running with the new product.

2. Verify that the JAM gateway started and is running with the new product.

3. Verify that the link or links serviced by each CRM in the domain have successfully been activated.

4. Verify that the applications using the JAM product deployed successfully without any JAM related errors.

5. Run the verification test (optional).

# Troubleshooting

This section provides troubleshooting information with workarounds once you have migrated from BEA JAM 5.1 to iWay JAM 5.1.

Please contact Customer Support for assistance in tracking any unresolved problems.

| 1 | | **Missing JAM Component** |
|---|---|---|
| | Problem | The JAM component is not showing up in the administration server. |
| | Workaround | Validate that the application is deployed in the administration server. |
| | | You can also try closing and reopening a new browser. |
| 2 | | **Authorizing JAM** |
| | Problem | iWay JAM is not authorized. |
| | Workaround | Verify that the iwutil.jar is in the WebLogic Startup Classpath and that the IWAY51 Java system property is set in your WebLogic startup java command. |
| 3 | | **WebLogic Domain Startup Exceptions** |
| | Problem | Exceptions occur during WebLogic domain startup about recovering outstanding BEA JAM transactions. |

| | | |
|---|---|---|
| Workaround | | Your WebLogic domain was not properly resolved for transactional requests that failed inflight while running the BEA JAM 5.1 product. To preserve the integrity of the data, these should inspected and manually applied to your data. If you backed up your transactional logs prior to the removal of BEA JAM 5.1, you should use the corresponding log utilities to inspect the items. |
| | | To restart your domain with iWay JAM 5.1, you must perform a cold start by removing all of the transactional logs in question. For more information on how to perform a cold start, see *Administering Transactions* in the *iWay Java Adapter for Mainframe Configuration and Administration Guide*. |
| **4** | | **Deploying Customer Applications** |
| | Problem | Customer applications using the JAM product do not deploy correctly. |
| | Workaround | Check the WLS server startup CLASSPATH for each server where the application did not correctly deploy. |
| **5** | | **Starting Gateways** |
| | Problem | The gateway did not start successfully. |
| | Workaround | Perform the following: |

- Verify that the new startup has been configured for the Weblogic domain.
- Verify that the WLS server startup CLASSPATH for each server where the gateway did not start.
- Verify that the gateway is deployed.
- Verify that the CRM that the gateway communicates with is running.
- If a new configuration was performed, check the configuration parameters.

# CHAPTER 2

# Considerations For Your BEA JAM Application

**Topics:**

- Running Your Existing eGen Applications

- Compiling your Existing eGen Application

- Extending your Existing eGen Application

- Generating RMI monitoring and administration application

The following sections contain important considerations for your existing BEA JAM applications as you prepare to use iWay JAM 5.1.

# Running Your Existing eGen Applications

Your existing BEA JAM eGen application can run in your iWay JAM environment without regenerating your JAM classes or recompiling your application. However, please consider the following when running your existing application:

- If your application is accessing the eGen method calls from outside the Weblogic serverenvironment, you must change your CLASSPATH to reference the iWay JAM component iwjam.jar file.

- If your application is running a non-managed JCA CCI request, then you must reference the iWay JAM component iwjam.jar. The iWay JAM JCA interface contract classes are contained in the iwjam.jar archive. If the application is running a managed JCA request, then the iWay JAM component resource archive file must be deployed into your domain. For more information on how to deploy the iWay JAM resource file, see the *iWay Java Adaper for Mainframe JCA Adapter Guide*.

# Compiling your Existing eGen Application

You may compile your existing BEA JAM application without modification using the iWay JAM product. Simply add the the iwjam.jar file to your compile CLASSPATH.

# Extending your Existing eGen Application

It is suggested that when you extend an application that contains the BEA JAM eGen classes, you take the opportunity to migrate your application to use the iWay JAM eGen classes. An application cannot contain references to both BEA JAM and iWay JAM classes.

When you perform this migration, you must consider not only your eGen classes, but all application code that access these classes. The steps are outlined as follows:

1.  Generate the dataview classes with the iWay JAM eGen tool. This requires that you obtain the copybook that you used to generate the original dataview classes. Inspect the package name and import statements of the newly generated dataview class understand what the iWay product has changed.

2.  Generate the application code that contains the callService() method. Inspect the package name and import statements of this generated code to understand what the iWay product has changed.

3.  If the application code generated in step 2 is a Client or Server EJB application, check your BEA JAM EJB to see if you extended the EJB with your own code. Apply that custom code to the new EJB extension method.

4.  Change all application code that references either the dataview classes or eGen application classes. The import statements and / or qualified references to eGen classes simply need to be changed to reflect the iWay JAM package names.

5. Change all application code that references the JAM Exception classes. This simply requires you to change the import statements and / or all qualified references to the snaException class and subclasses.

6. Compile and construct your application. The iWay JAM jar file should be in your compile CLASSPATH. At this point, there should be no remaining references to the old BEA JAM classes. Be sure to redeploy all components of your application.

For more information on how to perform these steps, see the *iWay Java Adapter for Mainframe Programming Guide.*

# Generating RMI monitoring and administration application

You must change your existing Java applications that reference the JAM monitoring and management methods by replacing the BEA class package name with the corresponding iWay JAM class name. For more information on these methods, see the *iWay Java Adapter for Mainframe Programming Guide.*

# Reader Comments

In an ongoing effort to produce effective documentation, the Documentation Services staff at Information Builders welcomes any opinion you can offer regarding this manual.

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# Reader Comments