Oracle® Insurance Calculation Engine

WebSphere Deployment
Installation Instructions – Step 2

Version 10.1.1.0

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INTRODUCTION

The Oracle Insurance Calculation Engine (OICE) application and the Oracle Insurance Rules Palette form a solution for configuring, managing and processing policy data. Both applications, along with the Web Application Utility, must be installed and then configured to work together.

This install guide will cover step two of the installation process, in which the OICE application and Web Application Utility are configured using IBM WebSphere Version 8.5.5.0. Please refer to the OICE Database Installation Instructions provided in the documentation library to ensure the database is set up correctly.

CUSTOMER SUPPORT

If you have any questions about the installation or use of our products, please visit the My Oracle Support website: https://support.oracle.com, or call (800) 223-1711.

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PREREQUISITES

Before beginning the installation steps, you must have the following components:

- A server with a Windows or Linux operating system
- WebSphere Application Server Version 8.5.5.0
- Administrative rights to the server
- Oracle Insurance Rules Palette V10.1.1.0 Media Pack from the Oracle Software Delivery Cloud. The Web Application Utility files are included in this Media Pack.
- Oracle Insurance Calculation Engine V10.1.1.0 Media Pack from the Oracle Software Delivery Cloud
INITIAL SYSTEM CONFIGURATION

Database Drivers

Create a directory for the database drivers for your database. Copy the necessary driver .jar files into this directory.

Example:  AIX or Linux: /opt/oracle/db_drivers
Windows: C:\oracle\OICE\db_drivers

- **Oracle 12.1** – The necessary driver, ojdbc-11.2.0.2.jar, is included in the libs directory of the OICE Media Pack.
- **IBM DB2** – The two necessary .jar files (db2jcc and db2jcc_license_cu) are included with the purchase of the DB2 software. These files are not available for download. Contact your IT department if you need assistance locating these files.

**Note:** Each version of DB2 requires specific drivers. The files above correspond with DB2 10.1.

OICE Setup

**Note:** For a WebSphere 8.5.5.0 deployment, the .jar files need to be installed only once. If OICE is reinstalled, the existing files may be re-used.

1. Copy the following files to the external jar file directory (e.g. /opt/IBM/WebSphere/AppServer/lib/ext):
   - eclipselink-2.3.0.jar
   - javax.persistence-2.0.3.jar

2. Edit amm.filter.properties from /opt/IBM/WebSphere/AppServer/properties
   a. Remove or comment out the lines listed below:

```
#Ignore-Scanning- Archives = ant.jar,  \    
#   axis.jar,  \    
#   CICS.jar,  \    
#   db2java.zip,  \   
#   db2jcc.jar,  \    
#   db2jcc_javax.jar,  \  
#   dfjcics.jar,  \    
#   ibmjndi.jar,  \   
#   jaxrpc.jar,  \    
#   jakarta.oro.jar,  \  
#   ldapbp.jar,  \    
#   mailapi.jar,  \   
#   mssqlserver.jar,  \  
#   saaj.jar,  \    
#   wsd14j.jar,  \   
#   sqljdbc.jar,  \  
#   struts.jar,  \ 
```
Copy the following files

struts-scaffold.jar

b. Add the lines listed below:

3. Ignore-Scanning-Archives: ant.jar, axis.jar, CICS.jar, db2java.zip, db2jcc.jar, db2jcc_javax.jar, dfjcc.jar, ibmjni.jar, jaxrpc.jar, jakarta.oro.jar, ldapbp.jar, mailapi.jar, mssqlserver.jar, saaj.jar, wsd4j.jar, sqldbc.jar, struts.jar, struts-scaffold.jar, antisamy-1.4.3.jar, aopalliance-1.0.jar, ape-10.1.1.0.jar, backport-utility-concurrent-2.2.jar, batik-css-1.7.jar, batik-ext-1.7.jar, batik-util-1.7.jar, bccl-5.1.jar, bl-10.1.1.0.jar, bval-core-0.4.jar, bval-jsr303-0.4.jar, cglib-nodep-2.2.2.jar, coherence.common-2.1.1.jar, coherence.patterns.processing-1.4.2.jar, commons-beanutils-core-1.8.3.jar, commons-codec-1.4.jar, commons-configuration-1.5.jar, commons-dbutils-1.4.jar, commons-digester-1.3.jar, commons-fileupload-1.2.jar, commons-httpclient-3.1.jar, commons-jxpath-1.3.jar, commons-lang3-3.1.jar, commons-pool-1.5.6.jar, cycle.agent-10.1.1.0.jar, cycle.interface-10.1.1.0.jar, dal-10.1.1.0.jar, dcl-10.1.1.0.jar, dom4j-1.6.1.jar, el-ri-1.2.jar, esapi-2.0GA.jar, ext-10.1.1.0.jar, extensibility-10.1.1.0.jar, FastInfoset-1.2.2.jar, freemarker-2.3.16.jar, global.dal-10.1.1.0.jar, global.dcl-10.1.1.0.jar, global.processing-10.1.1.0.jar, global.ult-10.1.1.0.jar, icefaces-comps-ee-E-1.8.2.GA_P04.jar, icefaces-ee-EE-1.8.2.GA_P04.jar, icefaces-facelets-ee-EE-1.8.2.GA_P04.jar, icu4j-4.6.jar, janino-2.5.16.jar, jaxb-api-2.0.jar, jaxen-1.1.3.jar, jaxws-api-2.1.jar, jep-2.4.jar, jibx-bind-1.2.2.jar, jibx-extras-1.2.2.jar, jibx-run-1.2.2.jar, jsf-api-1.2_15-b01-FCS.jar, jsf-impl-1.2_15-b01-FCS.jar, krysalis-jsCharts-1.0.0-alpha-1.jar, list.txt, log4j-1.2.16.jar, mail-1.4.jar, math-10.1.1.0.jar, model-10.1.1.0.jar, nekohtml-1.9.12.jar, pas.ape-10.1.1.0.jar, pas.bl-10.1.1.0.jar, pas.cycle-10.1.1.0.jar, pas.dal-10.1.1.0.jar, pas.dcl-10.1.1.0.jar, pas.di-extend-10.1.1.0.jar, pas.helper-10.1.1.0.jar, pas.model-10.1.1.0.jar, pas.OICE-10.1.1.0.jar, pas.ui-10.1.1.0.jar, resource-10.1.1.0.jar, saxon-9.1.0.8.jar, saxon-dom-9.1.0.8.jar, slf4j-api-1.6.1.jar, slf4j-log4j12-1.6.1.jar, spring-aop-3.1.0.RELEASE.jar, spring-asm-3.1.0.RELEASE.jar, spring-beans-3.1.0.RELEASE.jar, spring-context-3.1.0.RELEASE.jar, spring-context-support-3.1.0.RELEASE.jar, spring-core-3.1.0.RELEASE.jar, spring-expression-3.1.0.RELEASE.jar, spring-jdbc-3.1.0.RELEASE.jar, spring-jms-3.1.0.RELEASE.jar, spring-orm-3.1.0.RELEASE.jar, spring-tx-3.1.0.RELEASE.jar, spring-web-3.1.0.RELEASE.jar, sre.interface-10.1.1.0.jar, sre-10.1.1.0.jar, uiu-10.1.1.0.jar, utl-10.1.1.0.jar, validation-api-1.0.0.GA.jar, web-10.1.1.0.jar, xml-apis-exit-1.3.04.jar, xws-security-3.0.jar

4. Create a directory on the WebSphere server to store various configuration files for OICE (e.g., /opt/oracle/OICE/ or C:\oracle\OICE):

5. Create sub-directories inside the directory from Step 4 called conf and libs.

Note: Make a note of the path to the libs directory. It will be used later in the classpath for setting up the OICE Shared Library.

6. Copy the following files from the installation media into the conf sub-directory:

- coherence-cache-config.xml
- coherence-config.xml
- PAS.properties

7. Copy the following files from the installation media to the libs sub-directory:

- antlr-3.4.jar
- commons-collections-3.2.1.jar
- commons-logging-1.1.1.jar
8. Download aspectj-1.6.11.jar from
   - Open aspectj-1.6.11.jar with an unzipping software and copy aspectjrt.jar and aspectjweaver.jar from the lib folder into the **libs** sub-directory.

9. **Unzip OICE distribution and again unzip opss_standalone.zip and copy below jars to **libs** folder**
   - ..\opss_standalone\modules\oracle.pki_11.1.1\oraclepki.jar
   - ..\opss_standalone\modules\oracle.osdt_11.1.1\osdt_cert.jar
   - ..\opss_standalone\modules\oracle.osdt_11.1.1\osdt_core.jar

10. Unzip OICE distribution and again unzip coherence.zip and copy ..\coherence\lib\coherence.jar into **libs** folder.

11. Use a text editor to open the **PAS.properties** file that you just copied to the server.

   The PAS.properties file contains properties for Oracle, and DB2 database types, with the Oracle settings active by default. The inactive settings are commented out with a '#' character at the start of each line. To change a setting, remove the '#' from the required property setting, and insert it at the beginning of the setting you want to de-activate.

12. The properties setting must match the type of database being used. The two properties that are used to do this are:
   - application.databaseType
   - jpa.databasePlatform

   **Note:** Refer to the System Properties document in the Oracle Insurance Calculation EngineE55027_01 Documentation Library on the OTN for a complete list of all properties and allowed values.

13. Identify the default locale in the PAS.properties file. The locale selected will determine the translation that is loaded in the database for OICE when it launches. The default setting is English.
   - application.defaultLocale

14. If using an Oracle database, please skip this step. If using a DB2 database, you will need to modify the PAS.properties file to include configuration for case-insensitive searching:
   - Modify the PAS.properties file to change the following line from the default setting of “false” to “true”:
     - search.field.text.caseInsensitive=true
**Web Application Utility Setup**

1. Create a directory on the WebSphere server to store various configuration files for the Web Application Utility (i.e., /opt/oracle/paletteconfig/ or C:\oracle\paletteconfig/).

2. Create sub-directories inside the directory from Step 1 called **conf**, **libs** and **uploads**.

3. Copy the **PaletteWebApplication.properties** file into the **conf** sub-directory.

4. Use a text editor to open the PaletteWebApplication.properties file and edit the **download.dir** property to point to the **uploads** sub-directory created in Step 2.
CREATE AND CONFIGURE OICE

Using a web browser, connect to the Administrative Console using the appropriate server name and 9060 as the default port (Ex: http://server_name:9060/admin).

Create the OICE Application Server

1. Select Servers>New server.
2. Select server type WebSphere application server.
3. Enter OICE for the name of the server.
4. Click Next.
5. Select the default server template.
6. Click Next.
7. Ensure Generate Unique Http Ports is checked.
8. Confirm the new server by clicking Finish.
9. After the application has been created, review the messages at the top of the Application servers screen to confirm that the new server has been created successfully.
10. Navigate to the OICE server by clicking on its name within the list of application servers.
11. Click the Session management link in the Container Settings section.
12. Verify that Enable Cookies is checked. This is checked by default.
13. Click the Enable Cookies link and verify that 'Restrict cookies to HTTPS sessions' is unchecked. (This is unchecked by default.)
14. Click OK.
15. Click OK to save the configuration changes.

Note: These instructions assume that a fresh installation of the application server was performed. All configuration settings must use the default settings unless otherwise noted. If the application server has been used for previous deployments, you may want to create a new application server specifically for the deployment of the OICE environment.
Configure WebSphere Environment Variable for Database Driver

A variable must be used to define the location where the database driver is located. The name of the variable depends on the type of database.

- **Oracle**: ORACLE_JDBC_DRIVER_PATH
- **IBM DB2**: DB2UNIVERSAL_JDBC_DRIVER_PATH and DB2UNIVERSAL_JDBC_DRIVER_NATIVEPATH

1. Select **Environment>WebSphere Variables**.
2. Select the scope of the OICE server from the drop-down list.
3. Click **New**.
4. Enter the name of the database driver variable, as listed above.
5. In the **Value** field, enter the path to the directory where the database driver is located. For example: /opt/oracle/db_drivers or C:\oracle\OICE\db_drivers
6. Click **OK**.
Configure the OICE Application Server

JVM Settings

1. Navigate to Servers>Server Types>WebSphere application servers.
2. Select the OICE application server.
5. Select Java Virtual Machine.
6. In the Classpath text box, enter the location of the OICE property files.
   Example: /opt/oracle/OICE/conf/ or c:\oracle\OICE\conf\n
Note: Be sure to include the trailing slash (/ or \) character.

7. Set Initial Heap Size to 512.
8. Set Maximum Heap Size to 2048.
9. In the Generic JVM Arguments text box, enter the following arguments, replacing the location of each file (highlighted) with the correct location for the configuration.

   Note: You may find it easier to copy the text below to a text editor and make the necessary changes there, then copy and paste it into the JVM Arguments text box.


10. Click OK.

Configure the Listening Port

1. Select Servers>Server Types>WebSphere application servers.
2. Select the OICE server.
3. In the Communications section, select Ports.
4. Note the port listed for WC_defaulthost.
   a. If the port number needs to be changed, select the WC_defaulthost port.
   b. Modify the Port text box as needed.
   c. Click OK.
Configure the Virtual Host

1. Select Environment > Virtual Hosts.
2. Click default_host.
3. Click Host Aliases.
4. Click New.
5. Enter the port assigned for WC_defaulthost in the previous listening port section.
6. Click OK.

Create Data Sources

Add the JDBC Provider

1. Select Resources>JDBC>JDBC providers.
2. Select the scope of the server from the drop-down list (the drop-down list displays if the “Show scope selection drop-down list…” is checked).
3. Click New.
4. Select the Database type.
   - For Oracle, select Oracle.
   - For DB2, select DB2.
5. Select the Provider type.
   - For Oracle, select Oracle JDBC Driver.
   - For DB2, select DB2 Universal JDBC Driver Provider.
6. Select Implementation type.
   - For Oracle, select XA data source.
   - For DB2, select XA data source.
7. Click Next.
8. Enter the variable name used for the database driver.
   - For Oracle, enter ${ORACLE_JDBC_DRIVER_PATH}
   - For DB2, click Next.
9. Click Finish

Note: For Oracle, skip steps 10 and 11. For DB2, continue at step 10.

10. Click on the newly created JDBC provider.
11. Confirm that the class path field is set to correctly reference the two DB2 drivers. Refer to the examples below. Edit the field if needed.
   - ${DB2UNIVERSAL_JDBC_DRIVER_PATH}/db2jcc.jar
   - ${DB2UNIVERSAL_JDBC_DRIVER_PATH}/db2jcc_license_cu.jar
   - ${DB2UNIVERSAL_JDBC_DRIVER_PATH}/db2jcc_license_cisuz.jar

12. Click OK.

Create the Data Sources

Four data sources must be created:

- ADMINSERVERDS
- ADMINSERVERRESOURCEDS
- ADMINSERVERSEARCHDS
- ADMINSERVERREADONLYDS.

A readonly database user should be used for ADMINSERVERRESOURCEDS, ADMINSERVERSEARCHDS and ADMINSERVERREADONLYDS. Repeat the following steps for each data source, replacing `<DATASOURCE_NAME>` with the specific data source being configured.

1. Select Resources>JDBC>Data sources.
2. Click New.
3. For the data source name, enter `<DATASOURCE_NAME>`.
4. For the JNDI name, enter `<DATASOURCE_NAME>`.
5. Click Next.
6. Select the JDBC provider created in the last step.
7. Click Next.
8. Enter the database connection information.
   - For Oracle, enter the database information in the following format:
     jdbc:oracle:thin:@hostname:port:SID
   - For DB2, enter the database name, hostname and port.
9. Uncheck the checkbox for Use this data source in container managed persistence.
10. Click Next.
12. Click Finish.
13. Select `<DATASOURCE_NAME>` from the list of data sources that appears.
15. Click New to create new variables for each property listed below.
   - For Oracle:
- Name: **user**
  Value: database user name

- Name: **password**
  Value: database password

- For DB2:
  - Name: **user**
    Value: database user name
  - Name: **password**
    Value: database password
  - Name: **currentSchema**
    Value: schema name (only needed for readonly data source.)

16. In the Messages area at the top of the screen, click the link for **Save to the master configuration**.

17. Once complete, return to the **Datasources** screen and use the **Test Connection** button on the main data source list to confirm that the settings were successful for each data source.
Deploy the OICE Application

1. Select Applications> New Application.
2. Select New Enterprise Application.
3. Use the Local file system or Remote file system browsing feature to locate the PASJava-websphere.war file and rename to PASJava.war.
4. Click Next.
5. Confirm that Fast Path is selected and click Next.

6. On the Select installation options screen, click Next.
7. On the Map modules to servers screen:
   - Select the server from the scrolling list.
   - Check the box for PASJava.war and click Apply.
   - Click Next.
8. On the **Map resource references to resources** screen, enter proper datasources and click **Next**.

9. On the **Map virtual hosts for Web modules** screen, check the box for PASJava.war and click **Next**.

10. On the **Map context roots for Web modules** screen, enter **PASJava** for the Context Root and click **Next**.

11. On the **Metadata for modules** screen, select checkbox of the metadata-complete attribute and click on **Next**.
12. Confirm the settings on the Summary screen and click Finish.
13. The system lists output from the installation, with the final status at the end. Look for “Application PASJava_war installed successfully.”

14. Click the link to Save directly to the master configuration.
Create a Shared Library for OICE

2. Select the OICE application server from the selection box.
3. Click New.
4. For the Name field, enter SharedLibs.
5. For the Classpath field, enter the full paths to the following jar files (using the directory that was created in steps 4 and 5 in the OICE Setup section):
   - antlr-3.4.jar
   - aspectjrt-1.6.11.jar
   - aspectjweaver-1.6.11.jar
   - commons-collections-3.2.1.jar
   - commons-logging-1.1.1.jar
   - log4j-1.2.16.jar
   - spring-instrument-3.1.0.RELEASE.jar
   - coherence.jar
   - oraclepki.jar
   - osdt_cert.jar
   - osdt_core.jar
6. For the Native Library Path field, enter the full path for the following jar file:
   - el-api-2.2.jar
7. Click OK.
8. Save the configuration changes.
9. Select Applications>WebSphere enterprise applications.
10. Click on the OICE application.
11. Under the References heading, click the Shared library references link.
12. Check the PASJava.war module and click the Reference shared libraries button.
13. In the Available box, click on SharedLibs and then click the >> button. This will move SharedLibs to the Selected box.
14. Click OK.
15. Click OK.
16. Save the configuration changes.
Configure the OICE Application

1. Select **Applications>Application Types>**WebSphere enterprise application. 
2. Select the **PASJava.war** application. 
3. Click **Class loading and update detection.** 
4. Check the radio button for **Classes loaded with application class loader first (parent last)** 
5. Check the radio button for **Single class loader for application.** 
6. Click **OK.** 
7. Save the configuration. 

Start the OICE Application

1. Select **Servers>Server Types>**WebSphere application servers. 
2. Select the OICE application. 
3. Click **Start.** 
4. Look for the message: “<server name> server started successfully.”
CREATE AND CONFIGURE THE WEB APPLICATION UTILITY

Using a web browser, connect to the Administrative Console using the appropriate server_name and port. (Ex: http://server_name:port/admin)

Note: The files that are used to set up the Web Application Utility are often named PaletteConfig. Any files with the name PaletteConfig are part of the Web Application Utility.

Create the Web Application Utility Server

1. Select Servers-New server.
2. Select WebSphere application server for the server type and click Next.
3. Enter PaletteConfig for the name of the server.
4. Click Next.
5. Select the default server template.
6. Click Next.
7. Ensure Generate Unique Ports is checked.
8. Click Next.
9. Confirm the server settings and click Finish.

The system displays the Application servers screen.

Configure the Web Application Utility Server

JVM Settings

1. Select the PaletteConfig server.
2. Expand Java and Process Management.
5. In the Classpath text box, enter the location of the Web Application Utility property files.
6. Example: /opt/oracle/paletteconfig/conf/ or C:\oracle\paletteconfig\conf\

Note: Be sure to include the trailing slash (/ or \) character.

7. Set Initial Heap Size to 256.
8. Set Maximum Heap Size to 512.
Configure the Listening Port

1. Select Servers>Server Types>WebSphere application servers.
2. Select the PaletteConfig server.
3. In the Communications section, select Ports.
4. Note, or change if needed, the port listed for WC_defaulthost.
5. Select Finish.

Configure the Virtual Host

1. Select Environment>Virtual Hosts.
2. Click default_host.
3. Click Host Aliases.
4. Click New.
5. Enter the port selected for WC_defaulthost in the previous step.
6. Click OK.

Deploy the Web Application Utility

1. Select Applications>New Application.
2. Select New Enterprise Application.
3. Use the Local file system and Remote file system browsing feature to locate and select the PaletteConfig.warsl.war and rename to PaletteConfig.war file.
4. Click Next.
5. Confirm that Fast Path is selected, and click Next.
6. On the Select installation options screen, click Next to accept the default options.
7. On the Map modules to servers screen:
   - Select the server from the scrolling list.
   - Check the box for PaletteConfig.war and click Apply
   - Click Next.
8. On the Map resource references to resources screen, click next.
9. On the Map virtual hosts for Web modules screen, check the box for PaletteConfig.war and click Next.
10. On the Map context roots for Web modules screen, enter PaletteConfig for the Context Root and click Next.
11. **On the Metadata for modules screen**, select checkbox of the metadata-complete attribute and click Next

12. Confirm the settings on the Summary screen and Click Finish

13. The system lists output from the installation, with the final status at the end. Look for “Application PaletteConfig.war installed successfully.”

14. Click the link to **Save** directly to the master configuration.

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**Create a Shared Library for Web Application Utility**

1. Select **Environment>Shared Libraries**.

2. Select the Web Application Utility application server from the selection box.

3. Click **New**.

4. For the **Name** field, enter **SharedLibs**.

5. For the **Classpath** field, enter the full paths to the database driver jar files (using the directory that was created in the **Database Drivers** section on page 5). Be sure to supply the appropriate drivers for the database type you are using.
   
   - **AIX or Linux example for Oracle:**
   
     `/opt/oracle/db_drivers/ojdbc-11.2.0.2.jar`
   
   - **Windows example for Oracle:**
   
     `C:\oracle\db_drivers\ojdbc-11.2.0.2.jar`

6. Click **OK**.

7. Save the configuration changes.

8. Select **Applications>WebSphere enterprise applications**.

9. Click on the Web Application Utility application.

10. Under the **References** heading, click the **Shared library references** link.

11. Check the **PaletteConfig.war** module and click the **Reference shared libraries** button.
12. In the Available box, click on SharedLibs and then click the >> button. This will move SharedLibs to the Selected box.

13. Click OK.

14. Click OK.

15. Save the configuration changes.

Configure the Web Application Utility

1. If not already on this screen, select Applications>Application Types>WebSphere enterprise applications.
2. Select the PaletteConfig application.
3. Click Class loading and update detection.
4. Check the radio button for Classes loaded with application class loader first (parent last).
5. Check the radio button for Single class loader for application.
6. Click OK.

Start the Web Application Utility

1. Select Servers>Application Types>WebSphere application servers.
2. Select the PaletteConfig application.
3. Click Start.
4. Look for the message: “<server name> server started successfully.”
**TEST THE DEPLOYMENTS**

The initial test of the deployment is to confirm that the application presents a login screen when the application URL is opened. Final testing of the OICE deployment must wait until after the Web Application Utility is configured and initial users have been set up.

**OICE Deployment**

1. Open a new Internet Explorer window.

   **Note:** If you change the context name, use that name in the URL instead of PASJava.

3. Confirm that the OICE login screen appears.

**Web Application Utility Deployment**

1. Open a new Internet Explorer window.

   **Note:** If you change the context name, use that name in the URL instead of PaletteConfig.

3. Confirm that the Web Application Utility set-up screen appears.

**Important:** When configuring the Rules Palette environment use the host name and port number of the PaletteConfig server. The Web Application Utility must always be running in order for users to access the Rules Palette.