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*IBM Opportunity Detect and IBM
Interact Advanced Patterns Installation
Guide*



Note

Before using this information and the product it supports, read the information in "Notices" on page 63.

This edition applies to version 11, release 0, modification 0 of IBM Opportunity Detect and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Installation overview

An installation of Opportunity Detect or Interact Advanced Patterns is complete when you install, configure, and deploy the product.

Use the Installation Roadmap section to obtain a broad understanding of the installation process.

If you are installing Interact Advanced Patterns

The installation procedure is nearly identical for Opportunity Detect and Interact Advanced Patterns. For the sake of brevity, this guide generally uses the Opportunity Detect product name to stand for both products.

Topics that apply to Interact Advanced Patterns only are clearly labeled.

See the *IBM Interact Advanced Patterns and IBM Interact Integration Guide* for more configuration information.

Installation roadmap

Use the installation roadmap to quickly find the information that you need for installing Opportunity Detect.

You can use Table 1 to scan the tasks that must be completed for installing Opportunity Detect. The **Information** column in the following table provides links to the topics that describe the tasks for installing Opportunity Detect:

Table 1. Installation roadmap

Chapter	Information
Chapter 1, "Installation overview"	<ul style="list-style-type: none">• "How the installers work" on page 3• "Modes of installation" on page 3• "Opportunity Detect documentation and help" on page 4
Chapter 2, "Planning the Opportunity Detect installation," on page 7	<ul style="list-style-type: none">• "Prerequisites" on page 7• "IBM InfoSphere Streams requirements" on page 9• "Opportunity Detect installation worksheet" on page 10• "Installation order for IBM Marketing Software products" on page 11
Chapter 3, "Preparing data sources for Opportunity Detect," on page 13	<ul style="list-style-type: none">• "Creating databases or schemas" on page 13• "Configuring the web application server for your JDBC driver" on page 14• "Creating data sources in the web application server for Opportunity Detect" on page 15

Table 1. Installation roadmap (continued)

Chapter	Information
Chapter 4, "Installing Opportunity Detect," on page 17	<ul style="list-style-type: none"> • "Opportunity Detect components" on page 17 • "Installing Opportunity Detect using the GUI mode" on page 18 • "Installing Opportunity Detect using the console mode" on page 25 • "Installing Opportunity Detect silently" on page 25
Chapter 5, "Completing a manual installation of Opportunity Detect," on page 29	<p>This topic provides information about performing required tasks when you choose the manual option during installation.</p> <ul style="list-style-type: none"> • "Editing Streams and Opportunity Detect XML files" on page 29 • "Creating and populating the Opportunity Detect system tables" on page 30 • "Registering Opportunity Detect Design Time manually" on page 30
Chapter 6, "Deploying Opportunity Detect," on page 31	<ul style="list-style-type: none"> • "Deploying Opportunity Detect on WebSphere Application Server" on page 31
Chapter 7, "Configuring Opportunity Detect and IBM InfoSphere Streams after deploying Opportunity Detect," on page 35	<ul style="list-style-type: none"> • "Clearing the application server cache" on page 35 • "Setting Opportunity Detect or Interact Advanced Patterns configuration properties" on page 35 • "Configuring IBM InfoSphere Streams for use with Opportunity Detect" on page 36 • "Configuring the Streams database adapter for Oracle" on page 37 • "Configuring the Streams database adapter for DB2" on page 39 • "Starting the Opportunity Detect Run Time server and Interact service" on page 40 • "Verifying the Opportunity Detect installation" on page 40 • "Modifying log levels for Opportunity Detect" on page 41 • "Server group and data source configuration" on page 41
Chapter 9, "Uninstalling Opportunity Detect," on page 49	<p>This topic provides information about how to uninstall Opportunity Detect.</p>
Chapter 10, "configTool," on page 51	<p>This topic provides information about the configTool utility.</p>
Chapter 11, "Opportunity Detect and Interact Advanced Patterns configuration properties," on page 55	<p>This topic provides information about configuration properties.</p>

How the installers work

You must use the suite installer and the product installer when you install or upgrade any IBM® Marketing Software product. For example, for installing Opportunity Detect, you must use the IBM Marketing Software suite installer and the IBM Opportunity Detect installer.

Make sure that you use the following guidelines before you use the IBM Marketing Software suite installer and the product installer:

- The suite installer and the product installer must be in the same directory on the computer where you want to install the product. When multiple versions of a product installer are present in the directory with the master installer, the master installer always shows the latest version of the product on the IBM Marketing Software Products screen in the installation wizard.
- If you are planning to install a patch immediately after you install an IBM Marketing Software product, make sure that the patch installer is in the same directory as that of the suite and product installers.

Modes of installation

The IBM Marketing Software suite installer can run in one of the following modes: X Window System mode, console mode, or silent mode (also called the unattended mode). Select a mode that suits your requirements when you install Opportunity Detect.

For upgrades, you use the installer to perform many of the same tasks that you perform during the initial installation.

X Window System mode mode

Use the X Window System mode for UNIX to install Opportunity Detect by using the graphical user interface.

Console mode

Use the console mode to install Opportunity Detect by using the command line window.

Note: To display the Installer screens correctly in console mode, configure your terminal software to support UTF-8 character encoding. Other character encoding, such as ANSI, will not render the text correctly, and some information will not be readable.

Silent mode

Use the silent or unattended mode to install Opportunity Detect multiple times. The silent mode uses response files for installation, and does not require user input during the installation process.

Note: Silent mode is not supported for upgrade installations in clustered web application or clustered listener environments.

Opportunity Detect documentation and help

Opportunity Detect provides documentation and help for users, administrators, and developers.

Use the following table to get information about how to get started with Opportunity Detect

Table 2. Get up and running

Task	Documentation
View a list of new features, known issues, and workarounds	<i>IBM Opportunity Detect Release Notes</i>
Learn about the structure of the Opportunity Detect database	<i>IBM Opportunity Detect System Tables</i>
Install or upgrade Opportunity Detect and deploy the Opportunity Detect web application	One of the following guides: <ul style="list-style-type: none">• <i>IBM Opportunity Detect Installation Guide</i>• <i>IBM Opportunity Detect Upgrade Guide</i>

Use the following table to get information about how to configure and use Opportunity Detect.

Table 3. Configure and use Opportunity Detect

Task	Documentation
<ul style="list-style-type: none">• Configure data sources• Configure interactive event detection• Automate tasks using the command line interface	<i>IBM Opportunity Detect Administrator's Guide</i>
<ul style="list-style-type: none">• Create trigger systems to detect events• Deploy and run trigger systems	<i>IBM Opportunity Detect User's Guide</i>
Configure IBM Interact Advanced Patterns for use with IBM Interact	<i>IBM Interact Advanced Patterns and IBM Interact Integration Guide</i>

Use the following table to get information about how to get help when you use Opportunity Detect.

Table 4. Get help

Task	Instructions
Open online help	<ol style="list-style-type: none">1. Choose Help > Help for this page to open a context-sensitive help topic.2. Click the Show Navigation icon in the help window to display the full help. <p>You must have web access to view context-sensitive online help. Contact IBM Support for more information about accessing and installing IBM Knowledge Center locally for offline documentation.</p>

Table 4. Get help (continued)

Task	Instructions
Obtain PDFs	Use either of the following methods: <ul style="list-style-type: none">• Choose Help > Product Documentation to access Opportunity Detect PDFs.• Choose Help > All IBM Marketing Software Suite Documentation to access all available documentation.
IBM Knowledge Center	To access the IBM Knowledge Center, choose Help > Support for this product .
Get support	Go to http://www.ibm.com/ and click Support & downloads to access the IBM Support Portal.

Chapter 2. Planning the Opportunity Detect installation

When you plan your Opportunity Detect installation, you must ensure that you have set up your system correctly, and that you have configured your environment to deal with any failures.

Prerequisites

Before you install or upgrade any IBM Marketing Software product, you must ensure that your computer complies with all of the prerequisite software and hardware.

System requirements

For information about system requirements, see the *Recommended Software Environments and Minimum System Requirements* guide.

In order for Opportunity Detect to connect to the DB2 database, the DB2 installation must include the install header files in the `/home/db2inst1/include` directory on client machine. To include the header files in the installation, select the **Custom Install** option when you install DB2 and select the **Base Application Development Tools** feature.

DB2 requirements

In order for Opportunity Detect to connect to the DB2 database, the DB2 installation must include the install header files in the `home/db2inst1/include` directory on client machine. To include the header files in the installation, select the **Custom Install** option when you install DB2 and select the **Base Application Development Tools** feature.

Network domain requirements

The IBM Marketing Software products that are installed as a suite must be installed on the same network domain to comply with the browser restrictions that are designed to limit the security risks that can occur with cross-site scripting.

JVM requirements

IBM Marketing Software applications within a suite must be deployed on a dedicated Java™ virtual machine (JVM). IBM Marketing Software products customize the JVM that is used by the web application server. If you encounter errors that are related to the JVM, you must create a WebSphere® domain that is dedicated to the IBM Marketing Software products.

Knowledge requirements

To install IBM Marketing Software products, you must have a thorough knowledge of the environment in which the products are installed. This knowledge includes knowledge about operating systems, databases, and web application servers.

Internet browser settings

Make sure that your internet browser complies with the following settings:

- The browser must not cache web pages.
- The browser must not block pop-up windows.

Access permissions

Verify that you have the following network permissions to complete the installation tasks:

- Administration access for all necessary databases
- Read and write access to the relevant directory and subdirectories for the operating system account that you use to run the web application server and IBM Marketing Software components
- Write permission for all files that you must edit
- Write permission for all directories where you must save a file, such as the installation directory and backup directory if you are upgrading
- Appropriate read, write, and execute permissions to run the installer
- Root access for the Linux operating system.

Verify that you have the administrative password for your web application server.

For UNIX, all installer files for IBM products must have full permissions, for example, `rwrxr-xr-x`.

JAVA_HOME environment variable

If a **JAVA_HOME** environment variable is defined on the computer where you install an IBM Marketing Software product, verify that the variable points to a supported version of JRE. For information about system requirements, see the *IBM Marketing Software Recommended Software Environments and Minimum System Requirements* guide.

If the **JAVA_HOME** environment variable points to an incorrect JRE, you must clear the **JAVA_HOME** variable before you run the IBM Marketing Software installers.

You can clear the **JAVA_HOME** environment variable by running the following command in the terminal:

```
export JAVA_HOME= (leave empty)
```

The IBM Marketing Software installer installs a JRE in the top-level directory for the IBM Marketing Software installation. Individual IBM Marketing Software application installers do not install a JRE. Instead, they point to the location of the JRE that is installed by the IBM Marketing Software installer. You can reset the environment variable after all installations are complete.

For more information about the supported JRE, see the *IBM Marketing Software Recommended Software Environments and Minimum System Requirements* guide.

DETECT_HOME environment variable

The **DETECT_HOME** environment variable must point to the full path to the location where Opportunity Detect Run Time is installed, for example:

DETECT_HOME=/home/streamsadmin/OpDetection/

Marketing Platform requirement

You must install or upgrade Marketing Platform before you install or upgrade any IBM Marketing Software products. For each group of products that work together, you must install or upgrade Marketing Platform only once. Each product installer checks whether the required products are installed. If your product or version is not registered with Marketing Platform, a message prompts you to install or upgrade Marketing Platform before you proceed with your installation. Marketing Platform must be deployed and running before you can set any properties on the **Settings > Configuration** page.

IBM InfoSphere Streams requirements

IBM InfoSphere Streams is installed when you install Opportunity Detect Run Time and select the **Streams Server** option. Ensure that you meet the requirements described in this section before you install Streams.

Note: Do not install InfoSphere Streams server separately before you install IBM Opportunity Detect.

RPM requirement

You must install the required RPMs before you install Streams.

See the topic "Required RPMs for RHEL 6 and CentOS 6 on x86_64 systems" in the *IBM InfoSphere Streams Version 3.2.1: Installation and Administration Guide*:
http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.install-admin.doc/doc/ibminfospherestreams-install-prerequisites-rpm-tables.html.

Root user requirement

Opportunity Detect supports Streams integration with root users only. If you are running the installation utility as a root user, you are the owner of the InfoSphere Streams installation. During the installation, you can specify the location of the installed InfoSphere Streams files. The default location is *home_directory/InfoSphereStreams*.

Important: The streamsadmin user owns the IBM InfoSphere Streams installation, and must exist before you run the InfoSphere Streams installation utility.

Firewall configuration guidelines

If your security plan requires a firewall on the host operating system or between hosts, the following communications must be enabled between hosts and blocked from unauthorized external access.

- SSH communication between runtime hosts.
- Communication between InfoSphere Streams management services, which is limited to ports in the local port range (TCP/IP port numbers that are automatically assigned by the host machine).
- TCP communication between processing elements (PEs), which is limited to ports in the local port range

- HTTPS connections between the Streams Web Service (SWS) and InfoSphere Streams interfaces such as the Streams Console. Each InfoSphere Streams runtime instance that is running SWS requires a user-assigned HTTPS port.
- All communication protocols between applications and any systems, such as databases or external analytics services

Opportunity Detect installation worksheet

Use the Opportunity Detect installation worksheet to gather information about the database that contains your Opportunity Detect system tables and about other IBM Marketing Software products that are required for the installation of Opportunity Detect.

Runtime tables

You can have multiple databases that contain runtime tables.

Enter the database information for each runtime environment in the following table:

Table 5. Information for the Opportunity Detect runtime environment

Database information	Notes
Database server	
Port	
Database name or SID	
Schema name	
Password	

IBM Marketing Software products information worksheet

Use the IBM Marketing Software products information checklist to gather the information that is required during the installation of an IBM Marketing Software product.

The installation wizards for each IBM Marketing Software product must be able to communicate with the Marketing Platform system table database to register the product. Each time that you run the installer, you must enter the following database connection information for the Marketing Platform system table database:

- Database type
- Database host name
- Database port
- Database name or schema ID
- User name and password for the database account

Obtain the following information for all IBM Marketing Software products that have a web component, which you deploy on a web application server:

- The name of the systems on which the web application servers are installed. You can have one or several web application servers, depending on the IBM Marketing Software environment you are setting up.
- The port on which the application server listens. If you plan to implement SSL, obtain the SSL port.

- The network domain for your deployment system. For example, mycompany.com.

If you are installing an IBM Marketing Software product in one of the countries listed on the Country for Install screen of your product installer, you must enter your IBM Site ID in the space provided. Your IBM Site ID can be found on one of the following documents:

- IBM Welcome letter
- Tech Support Welcome letter
- Proof of Entitlement letter
- Other communications that are sent when you purchase your software

IBM might use the data that is provided by the software to better understand how customers use our products and to improve customer support. The data that is gathered does not include any information that identifies individuals. Complete the following actions if you do not want to have such information to be collected:

1. After Marketing Platform is installed, log on to the Marketing Platform as a user with administration privileges.
2. Go to **Settings > Configuration**, and set the Disable Page Tagging property under the **Platform** category to True.

Installation order for IBM Marketing Software products

When you install or upgrade multiple IBM Marketing Software products, you must install them in a specific order.

The following table provides information about the order that you must follow when you install or upgrade multiple IBM Marketing Software products.

Table 6. Installation or upgrade order for IBM Marketing Software products

For this product or combination:	Install or upgrade in this order:
Campaign (with or without eMessage)	<ol style="list-style-type: none"> 1. Marketing Platform 2. Campaign <p>Note: eMessage is installed automatically when you install Campaign. However, eMessage is not configured or enabled during the Campaign installation process.</p>

Table 6. Installation or upgrade order for IBM Marketing Software products (continued)

For this product or combination:	Install or upgrade in this order:
Interact	<ol style="list-style-type: none"> 1. Marketing Platform 2. Campaign 3. Interact Design Time environment 4. Interact Run Time environment 5. Interact Extreme Scale Server <p>If you want to install or upgrade the Interact design time environment only, then install or upgrade the Interact design time environment in the following order:</p> <ol style="list-style-type: none"> 1. Marketing Platform 2. Campaign 3. Interact Design Time environment <p>If you want to install or upgrade the Interact runtime environment only, then install or upgrade the Interact runtime environment in the following order:</p> <ol style="list-style-type: none"> 1. Marketing Platform 2. Interact Run Time environment <p>If you want to install the Interact Extreme Scale Server only, then install the Interact Extreme Scale Server in the following order:</p> <ol style="list-style-type: none"> 1. Marketing Platform 2. Interact Run Time environment 3. Interact Extreme Scale Server
Marketing Operations	<ol style="list-style-type: none"> 1. Marketing Platform 2. Marketing Operations <p>Note: If you are integrating Marketing Operations with Campaign, you must also install Campaign. The order of installation for those two products does not matter.</p>
Distributed Marketing	<ol style="list-style-type: none"> 1. Marketing Platform 2. Campaign 3. Distributed Marketing
Contact Optimization	<ol style="list-style-type: none"> 1. Marketing Platform 2. Campaign 3. Contact Optimization
Opportunity Detect	<ol style="list-style-type: none"> 1. Marketing Platform 2. Opportunity Detect
Interact Advanced Patterns	<ol style="list-style-type: none"> 1. Marketing Platform 2. Campaign 3. Interact 4. Interact Advanced Patterns
IBM SPSS® Modeler Advantage Enterprise Marketing Management Edition	<ol style="list-style-type: none"> 1. IBM SPSS Modeler Advantage Enterprise Marketing Management Edition

Chapter 3. Preparing data sources for Opportunity Detect

Opportunity Detect uses data sources to store user and interaction data.

Complete the following steps to prepare data sources for Opportunity Detect.

1. Create a database schema for the Opportunity Detect system tables. The empty database that you set up for IBM Campaign can have any name.
2. Create a database user account.
The database user account must have the following rights: CREATE, DELETE, DROP, INSERT, SELECT, and UPDATE.
3. Create ODBC or native connections. If you use UA_SYSTEM_TABLES as the ODBC name for that database, the IBM Campaign system tables will be mapped automatically.
4. Configure the web application server for your JDBC driver.
5. Create JDBC data sources in the web application server.

Creating databases or schemas

Set up data sources so that the Opportunity Detect system can store user and interaction data. Use

Complete the following steps to create databases or schemas for Opportunity Detect.

1. Create a database or a database schema for the Opportunity Detect system tables. The following table provides information about vendor-specific guidelines for creating a database or a database schema for the Opportunity Detect system tables.

Note: If you are using multiple databases, for example for profile and lookup data and system tables, they must all be of the same supported type: DB2 or Oracle.

Table 7. Guidelines for creating databases or schemas

Database vendor	Guidelines
Oracle	Enable the auto commit feature for the environment open. See the Oracle documentation for instructions.
DB2®	Set the database page size to at least 16K, or 32K if you need to support Unicode. See the DB2 documentation for instructions.

Note: If you plan to enable locales that use multi-byte characters, such as Chinese, Korean, and Japanese, ensure that the database is created to support them.

Note: When you create your databases, you should use the same code page for all of your databases. You cannot change this code page once it is set. If you did not create your databases to use the same code page, you must use only the characters supported in the code page.

2. Create a database user account.

The account that you create must have at least CREATE, SELECT, INSERT, UPDATE, DELETE, and DROP rights.

3. Obtain information about your databases or schemas and database accounts and then print and add the information to the “Opportunity Detect installation worksheet” on page 10. You can use this information later in the installation process.

Creating native database connections

The computer or computers on which the Opportunity Detect runtime and design time components are installed must have a native connection to the database or schema that contains the Opportunity Detect State History, Outcome, and Run Detail tables.

See the data source and operating system documentation for specific ODBC driver installation and configuration instructions.

Configuring the web application server for your JDBC driver

The web application server where you plan to deploy Opportunity Detect must contain the correct JAR file to support JDBC connections. This enables your web application to connect to the system tables. The location of the JAR file must be included in the class path of the web application server.

If you allow the installer to create the data source when you install the product, you can skip the step in this procedure about setting the classpath. To enable automatic data source creation during installation, on the Datasource Creation panel, select the **Create Opportunity Detect Datasource** check box and supply information about your WebSphere profile. If you do not want to allow the installer to create the data source, then perform this entire procedure.

1. Obtain the latest vendor-provided Type 4 JDBC driver for your system table database that is supported by IBM Marketing Software, as described in the *Recommended Software Environments and Minimum System Requirements* guide.

Use the following guidelines after you obtain the JDBC driver.

- If the driver does not exist on the server where you plan to deploy Opportunity Detect, obtain it and unpack it on the server. Unpack the drivers in a path that does not include spaces.
- If you obtain the driver from a server where the data source client is installed, verify that the version is the latest supported by Opportunity Detect.

2. Add the full path to the driver, including the file name, to the class path of the web application server where you plan to deploy Opportunity Detect.

Use the following guidelines.

- For all supported versions of WebSphere, set the class path when you set up the JDBC providers for Opportunity Detect.

3. Make a note of the database driver class path in the Opportunity Detect installation worksheet, as you must enter the path when you run the installer.
4. Restart the web application server so that your changes take effect.

During startup, monitor the console log to confirm that the class path contains the path to the database driver.

Information for creating JDBC connections in WebSphere

In this release, WebSphere is the only supported application server.

Note: If you are not using the default port setting for your database, make sure that you enter the correct value.

For more information, see the application server documentation.

DB2

- Driver: DB2 Universal JDBC Driver Provider
- Default port: 50000
- Driver class: `com.ibm.db2.jcc.DB2Driver`
- Driver URL: `jdbc:db2://your_db_host:your_db_port/your_db_name`

Add the following custom property:

Name: `webSphereDefaultIsolationLevel`

Value: 2

Datatype: Integer

Oracle 11

Oracle 11 is supported only for profile tables.

- Driver: Other
- Default port: 1521
- Driver class: `oracle.jdbc.OracleDriver`
- Driver URL: `jdbc:oracle:thin:@your_db_host:your_db_port:your_db_name>`
Enter the driver URL by using the format that is shown. IBM Marketing Software applications do not allow the use of Oracle's RAC (Real Application Cluster) format for JDBC connections.
- Properties: Add `user=your_db_user_name`

Oracle 12c

Oracle 12c is supported for system tables as well as profile tables

- Default port: 1521
- Driver class: `ojdbc7.jar`
- Driver URL: `jdbc:oracle:thin:@//your_db_host:your_db_port/your_db_name>`
Enter the driver URL by using the format that is shown. IBM Marketing Software applications do not allow the use of Oracle's RAC (Real Application Cluster) format for JDBC connections.
- Properties: Add `user=your_db_user_name>`

Creating data sources in the web application server for Opportunity Detect

The Opportunity Detect web application uses JDBC connections to communicate with the system table database and with the IBM Marketing Platform system table database..

You can skip this procedure if you allow the installer to create this data source when you install Opportunity Detect. To enable automatic data source creation

during installation, on the Datasource Creation panel, select the **Create Opportunity Detect Datasource** check box and supply information about your WebSphere profile.

- The installer creates the data source using `OpDetectionDS` as the JNDI name.
- The installer also sets the driver classpath in WebSphere.

If you do not want to allow the installer to create the data source, then you must create this data source by performing the following procedure.

1. Before you create data sources, ensure that the JDBC provider type for Opportunity Detect is correct. Complete the following steps to specify the JDBC provider:
 - a. Log into the WebSphere console
 - b. Go to **Resources > JDBC > JDBC Providers**.
 - c. Click **New** to open the Create new JDBC provider window.
 - d. In the **Database type** field, select the database type you are using.
 - e. In the **Provider type** field, select the type appropriate for your database.
 - f. In the **Implementation type** field, select **Connection pool data source**.
 - g. Click **Next** and enter the required information.
 - h. Click **Next** to view the summary.
 - i. Click **Finish** to configure the JDBC provider.
2. In WebSphere Integrated Solutions Console, go to **Resources > JDBC > Data sources** and click **New**.
3. In the Create a data source window, enter `OpDetectionDS` in the **Data source name** and the **JNDI name fields** and click **Next**.
4. Select the **Select an existing JDBC provider** check box, and select the type appropriate for your database.
5. Click **Next** to see the Enter database specific properties for the data source window.
6. Enter the appropriate values in all the fields.
7. Clear the **Use this data source in container managed persistence (CMP)** check box and click **Next**.
8. In the **Component-managed authentication alias** field, select your global J2C authentication alias.

If a global J2C authentication alias does not exist, complete the following steps to create a global J2C authentication alias:

 - a. Click the **Global J2C alias Security domains** link.

Important: Clicking the Global J2C alias Security domains cancels the Create a data source wizard, and all your selections are lost. You must create the data source again after you create a global J2C authentication alias.

 - b. Click **New**.
 - c. Enter the required information in the General Properties window.
 - d. Click **OK** and then click **Save** in the Data sources window.
9. Select **WSLogin** in the **Mapping-configuration alias** field.
10. Click **Finish** to create the `OpDetectionDS` data source.

Chapter 4. Installing Opportunity Detect

You must run the IBM Marketing Software installer to start the installation of Opportunity Detect. The IBM Marketing Software installer starts the Opportunity Detect installer during the installation process. Make sure that the IBM Marketing Software installer and the product installer are saved at the same location.

Each time that you run the IBM Marketing Software suite installer, you must first enter database connection information for the Marketing Platform system tables. When the Opportunity Detect installer starts, you must enter the required information for Opportunity Detect.

After installing Opportunity Detect, you can create an EAR file if necessary.

Important: Before you install Opportunity Detect, make sure that the available temporary space on the computer where you install Opportunity Detect is more than three times the size of the Opportunity Detect installer.

Installation files

The installation files are named according to the version of the product and the operating system on which they must be installed, except UNIX. For UNIX, different installation files exist for the X Window System mode and the console mode.

The following table displays examples of the installation files that are named according to the product version and the operating system:

Table 8. Installation files

Operating system	Installation file
UNIX: X Window System mode	<i>Product_N.N.N.N_RHEL64.bin</i> , where <i>Product</i> is the name of your product, and <i>N.N.N.N</i> is the version number of your product.
UNIX: Console mode	<i>Product_N.N.N.N.bin</i> , where <i>Product</i> is the name of your product, and <i>N.N.N.N</i> is the version number of your product. This file can be used for installation on all UNIX operating systems.

Opportunity Detect components

Opportunity Detect contains two components: Design Time and Run Time. You use the Design Time component to define events. You must install a single instance of Design Time. The system uses the Run Time component to process transactions and produce Outcomes. You can install multiple instances of Run Time.

For best performance, install a Run Time server on a host where no other IBM Marketing Software products are installed.

The following table describes the components that you can select when you install Opportunity Detect.

Table 9. Opportunity Detect components

Component	Description
Opportunity Detect Design Time	<p>The design environment consists of the following.</p> <ul style="list-style-type: none"> • Opportunity Detect Design Time - Required. The web application where you design and run trigger systems • Interact Service - A service that is part of the environment that enables Interact integration. Required for Interact Advanced Patterns.
Opportunity Detect Run Time	<p>The run time environment consists of the following.</p> <ul style="list-style-type: none"> • Streams Server - Required. Selecting this option installs InfoSphere Streams along with IBM Opportunity Detect. You can add multiple servers in your environment to create an IBM InfoSphere Streams instance. You can map the instance to a server group. • Server Files - Required. • RealTime Connector - Required if you want to operate using a queue connector or the Web Service. • Streams Remote Control Service - Required.

Installing Opportunity Detect Run Time

The Opportunity Detect installer installs Opportunity Detect Run Time.

Opportunity Detect Run Time is installed at the following location: `/home/streamsadmin/OpDetection` You cannot change the folder where Opportunity Detect Run time is installed.

The streamsadmin user must be the owner of all the files. Use the **chown** command to change the owner of the OpDetection directory structure to streamsadmin. The server.xml file in the WAS liberty profile for StreamsRemoteControlService and InteractServlet services points to the dropin directory, and is configured with the installers. You must start the server where Run Time is installed.

You must start the Run Time server after you have deployed and configured Opportunity Detect.

Installing Opportunity Detect using the GUI mode

For UNIX, use the X Window System mode to install Opportunity Detect.

Important: Before you install Opportunity Detect, make sure that the available temporary space on the computer where you install Opportunity Detect is more than three times the size of the Opportunity Detect installer.

Make sure that the following components are located in the same directory:

- IBM Suite installer
- Opportunity Detect installer
- The InfoSphere Streams file

The file is named `Streams-3.2.1.2-x86_64-e16.tar.gz` It is required for installing the Run Time component only.

1. In a command-line prompt window, navigate to the directory where you have saved the IBM Suite and the Opportunity Detect installers.

2. Run the following:

```
./IBM_suite_installer_full_name_linux.bin
```

For example:

```
./IBM_Marketing_Software_Installer_11.0.0.0_linux.bin
```

The IBM Suite Installer opens.
3. Click **OK** on the first screen to see the Introduction window.
4. Follow the instructions on the installer, and click **Next**. Use the information in the following table to take the appropriate actions on each window in the suite installer.

Table 10. IBM Marketing Software installer GUI

Window	Description
Introduction	<p>This is the first window of the IBM Marketing Software installer. You can open the Opportunity Detect installation and upgrade guides from this window.</p> <p>Click Next to go to the next window.</p>
Response Files Destination	<p>Click the Generate Response File check box if you want to generate response files for your product. Response files store the information that is necessary for the installation of your product. You can use response files for an unattended installation of your product, or to get pre-filled answers if you rerun the installer in the GUI mode</p> <p>Click Choose to browse to a location where you want to store the response files.</p> <p>Click Next to go to the next window.</p>
IBM Marketing Software Products	<p>In the Install Set list, select Custom to select the products that you want to install.</p> <p>In the Install Set area, you can see all the products whose installation files are in the same directory on your computer.</p> <p>In the Description field, you can view the description of the product that you select in the Install Set area.</p> <p>Click Next to go to the next window.</p>
Installation Directory	<p>Click Choose to browse to the directory where you want to install IBM Marketing Software.</p> <p>Click Next to go to the next window.</p>
Select Application Server	<p>Select IBM WebSphere as the application server. Oracle Weblogic is not supported for Opportunity Detect</p> <p>Click Next to go to the next window.</p>
Platform Database Type	<p>Select IBM DB2 or Oracle as the database. Opportunity Detect is supported only on IBM DB2 or Oracle.</p> <p>Click Next to go to the next window.</p>

Table 10. IBM Marketing Software installer GUI (continued)

Window	Description
Platform Database Connection	<p>Enter the following information about your database:</p> <ul style="list-style-type: none"> • Database host name • Database port • Database name or System ID (SID) • Database user name • Database password <p>Click Next to go to the next window.</p> <p>Important: If IBM Marketing Software products are installed in a distributed environment, you must use the machine name rather than an IP address in the navigation URL for all of the applications in the suite. Also, if you are on a clustered environment and choose to use ports that are different from the default ports 80 or 443 for your deployment, do not use a port number in the value of this property.</p>
Platform Database Connection (continued)	<p>Review and confirm the JDBC connection.</p> <p>Click Next to go to the next window.</p>
Preinstallation Summary	<p>Review and confirm the values that you added during the installation process.</p> <p>Click Install to start the installation process.</p> <p>The Marketing Platform installer opens. If a previous instance of Marketing Platform exists, the instance is upgraded to the current version. If a previous instance of Marketing Platform does not exist, Marketing Platform is installed.</p>

5. Follow the instructions on the Marketing Platform installer to install or upgrade Marketing Platform. See the *IBM Marketing Platform Installation Guide* for more information.
6. In the Installation Complete window, click **Done**. The Marketing Platform installation is complete, and the Opportunity Detect installer opens.
7. In the Platform Database Connection window, enter all the required information and click **Next** to start the Opportunity Detect installer.
8. Use the information in the following table to navigate the Opportunity Detect installer.

Table 11. Opportunity Detect installer GUI

Window	Description
Introduction	<p>This is the first window of the Opportunity Detect installer. You can open the Opportunity Detect installation and upgrade guides from this window.</p> <p>Click Next to go to the next window.</p>
Software License Agreement	<p>Carefully read the agreement. Use Print to print the agreement. Click Next after you accept the agreement.</p>
Installation Directory	<p>Click Choose to browse to the directory where you want to install Opportunity Detect.</p> <p>Click Next to go to the next window.</p>
Select Modules	<p>You can choose to install either Opportunity Detect or Interact Advanced Patterns, or you can install both. Note that Opportunity Detect must be purchased separately from Interact Advanced Patterns.</p> <p>Click Next to go to the next window.</p>

Table 11. Opportunity Detect installer GUI (continued)

Window	Description
Opportunity Detect Components	<p>Select the components you want to install.</p> <ul style="list-style-type: none"> • Design Time <ul style="list-style-type: none"> – Opportunity Detection Design Time – Interact Service • Run Time <ul style="list-style-type: none"> – Streams Server – Server Files – RealTime Connector – Streams Remote Control Service <p>Click Next to go to the next window.</p>
Opportunity Detect Web Application Connection Settings	<p>Enter the following information about the web application connection settings:</p> <ul style="list-style-type: none"> • Network domain name • Host name • Port number <p>Select the Use secure connection check box if you want to use HTTPS to secure the web application.</p> <p>Click Next to go to the next window.</p>
DesignTime Database Setup	<p>Select one of the following check boxes:</p> <ul style="list-style-type: none"> • Automatic database setup • Manual database setup <p>Click Next to go to the next window.</p>
DesignTime Database Type	<p>You can see this window if you selected the Automatic database setup check box in the DesignTime Database Setup window.</p> <p>Select the database type that you are using for your system tables.</p> <p>Click Next to go to the next window.</p>
DesignTime Database Connection	<p>You can see this window if you selected the Automatic database setup check box in the DesignTime Database Setup window.</p> <p>Enter the following details for the Design Time database:</p> <ul style="list-style-type: none"> • Database host name • Database port • Database system ID (SID) • Database user name • Database password <p>Important: If IBM Marketing Software products are installed in a distributed environment, you must use the machine name rather than an IP address in the navigation URL for all of the applications in the suite. Also, if you are on a clustered environment and choose to use ports that are different from the default ports 80 or 443 for your deployment, do not use a port number in the value of this property.</p> <p>Click Next to go to the next window.</p>
DesignTime database JDBC Connection	<p>Review and confirm the JDBC connection.</p> <p>Click Next to go to the next window.</p>

Table 11. Opportunity Detect installer GUI (continued)

Window	Description
Datasource creation	<p>The installer can create the JDBC data source in your web application server (WebSphere). This data source is required to enable the Opportunity Detect web application to connect to the Opportunity Detect system tables. You have the option to skip this step in the installer and create the data source in the administration console of your web application server after installation is complete.</p> <p>If you select the Create Opportunity Detect Datasource check box, the installer creates the data source using information you provide..</p> <ul style="list-style-type: none"> • Your application server must be running. • Enter any name for the datasource. The installer creates the JNDI name automatically (OpDetectionDS). • Enter the directory in which the application server is installed. For WebSphere, this is the directory that contains the profiles directory. You must restart WebSphere after the installer finishes and before you use this data source. <p>Click Next to go to the next window.</p>
Application server information (WebSphere)	<p>Applies only if your application server is WebSphere.</p> <ul style="list-style-type: none"> • Enter the application server profile where you plan to deploy Opportunity Detect. • Enter the name of the server in the profile. • If security is enabled in WebSphere, enter the administrator user ID and password. <p>Click Next to go to the next window.</p>
Default locale	<p>Select a default locale for your installation. English is selected by default.</p> <p>Click Next.</p>
Interact Service Settings	<p>This applies only when you are installing IBM Interact Advanced Patterns.</p> <p>Enter the following information to configure the Interact service:</p> <ul style="list-style-type: none"> • Host name or IP address • Port number The installer provides the default port number (8181). <p>Click Next to go to the next window.</p>
RunTime Database Setup	<p>Select one of the following check boxes:</p> <ul style="list-style-type: none"> • Automatic database setup • Manual database setup <p>Click Next to go to the next window.</p>
Detect Database Type (Unix)	<p>Select the database type, which must match the database type used for Marketing Platform.</p> <p>Click Next to go to the next window.</p>

Table 11. Opportunity Detect installer GUI (continued)

Window	Description
RunTime Database Connection	<p>Enter the following details for the Run Time database:</p> <ul style="list-style-type: none"> • Database host name • Database port • Database system ID (SID) • Database user name • Database password <p>Important: If IBM Marketing Software products are installed in a distributed environment, you must use the machine name rather than an IP address in the navigation URL for all of the applications in the suite. Also, if you are on a clustered environment and choose to use ports that are different from the default ports 80 or 443 for your deployment, do not use a port number in the value of this property.</p> <p>Click Next to go to the next window.</p>
RunTime database JDBC Connection	<p>Review and confirm the JDBC connection.</p> <p>Click Next to go to the next window.</p>
RealTime Connector Settings	<p>Enter the following information to configure the RealTime Connector:</p> <ul style="list-style-type: none"> • Host name or IP address • Port number <p>The installer provides the default port number (8282).</p> <p>Click Next to go to the next window.</p>
Streams Remote Control Service Settings	<p>Enter the following information to configure the Streams Remote Control Service:</p> <ul style="list-style-type: none"> • Host name or IP address • Port number <p>The installer provides the default port number (8080).</p> <p>Click Next to go to the next window.</p>
Preinstallation Summary	<p>Review and confirm the values that you added during the installation process.</p> <p>Click Install to start the installation process.</p>
Installation Complete	<p>Click Done to close the Opportunity Detect installer and go back to the IBM Marketing Software installer.</p>

9. Follow the instructions on the IBM Marketing Software installer to finish installing Opportunity Detect. Use the information in the following table to take the appropriate actions on each window in the IBM Marketing Software installer.

Table 12. IBM Marketing Software installer GUI

Window	Description
Deployment EAR file	<p>Specify whether you want to create an enterprise archive (EAR) file to deploy your IBM Marketing Software products.</p> <p>Click Next to go to the next window.</p>
Package EAR file	<p>You can see this window if you select Create an EAR file for deployment in the Deployment EAR file window.</p> <p>Select the applications that you want to package in the EAR file.</p>

Table 12. IBM Marketing Software installer GUI (continued)

Window	Description
EAR file details	Enter the following information for your EAR file: <ul style="list-style-type: none"> • Enterprise application identifier • Display name • Description • EAR file path
EAR file details (continued)	Select Yes or No to create an additional EAR file. If you select Yes , you must enter the details for the new EAR file. Click Next to complete the installation of your product.
Deployment EAR file	Specify whether you want to create another EAR file to deploy your IBM Marketing Software products. Click Next to go to the next window.
Installation Complete	This window provides the locations of the log files that are created during installation. Click Previous if you want to change any installation details. Click Done to close the IBM Marketing Software installer.

Creating an EAR file after running the installer

You can create an EAR file after you install IBM Marketing Software products. You might do this to create an EAR file with a desired combination of products.

Note: Run the installer in console mode from the command line.

Use the following procedure if you want to create an EAR file after you install IBM Marketing Software products:

1. If this is the first time you are running the installer in console mode, make a backup copy of the installer's `.properties` file for each of your installed products.
 - Each IBM product installer creates one or more response files with a `.properties` extension. These files are in the same directory where you placed the installers. Be sure to back up all files with the `.properties` extension, including the `installer_<product initials><product version number>.properties` files and the file for the IBM installer itself, which is named `installer.properties`.

For example, the properties files for Marketing Platform `installer_ump11.0.0.0.properties` and the properties file for Optimize `installer_uo11.0.0.0.properties`.
 - If you plan to run the installer in unattended mode, you must back up the original `.properties` files, because when the installer runs in unattended mode, it clears these files. To create an EAR file, you need the information that the installer writes in the `.properties` files during the initial installation.
2. Open a command window and change directories to the directory that contains the installer.
3. Run the installer executable with this option:
`-DUNICA_GOTO_CREATEEARFILE=TRUE`
On UNIX type systems, run the `.bin` file rather than the `.sh` file.

- The installer wizard runs.
4. Follow the instructions in the wizard.
 5. Before you create more EAR files, overwrite the `.properties` file or files with the backups you created before you ran in console mode for the first time.

Installing Opportunity Detect using the console mode

The console mode allows you to install Opportunity Detect using the command-line window. You can select various options in the command-line window to complete tasks such as selecting the products to install, or selecting the home directory for the installation.

Before you install Opportunity Detect, ensure that you have configured the following.

- An application server profile
- A database schema

To display the installer screens correctly in console mode, configure your terminal software to support UTF-8 character encoding. Other character encodings, such as ANSI, do not render the text correctly, and some information is not readable with these encodings.

1. Open a command-line prompt window and navigate to the directory where you have saved the IBM Marketing Software installer and the Opportunity Detect installer.
2. Run the IBM Marketing Software installer file.
For example: **IBM_Marketing_Software_Installer_11.0.0.0.sh**
3. Follow the directions that are displayed in the command-line prompt. Use the following guidelines when you have to select an option in the command-line prompt:
 - The default options are defined by the symbol [X].
 - To select or clear an option, type the number that is defined for the option, and then press Enter.
4. The IBM Marketing Software installer launches the Opportunity Detect installer during the installation process. Follow the instructions in the command-line prompt window of the Opportunity Detect installer.
5. After you enter `quit` in the Opportunity Detect installer command-line prompt window, the window shuts down. Follow the instructions in the command-line prompt window of the IBM Marketing Software installer to complete the installation of Opportunity Detect.

Note: If any error occurs during the installation, a log file is generated. You must exit the installer to view the log file.

Installing Opportunity Detect silently

Use the unattended or silent mode to install Opportunity Detect multiple times.

Before you install Opportunity Detect, make sure that you have configured the following elements:

- An application server profile
- A database schema

When you install Opportunity Detect by using the silent mode, response files are used to obtain the information that is required during installation. You must create response files for a silent installation of your product. You can create response files by using one of the following methods:

- Using the sample response files as a template for creating your response files. The sample response files are included with your product installers in the ResponseFiles compressed archive. For more information about sample response files, see “Sample response files.”
- Running the product installers in the X Window System (UNIX) mode or the console mode before you install the product in the silent mode. One response file is created for the IBM Marketing Software suite installer, and one or more response files are created for your product installer. The files are created in the directory that you specify.

Important: For security reasons, the installer does not save database passwords in the response files. When you create response files, you must edit each response file to enter database passwords. Open each response file and search for PASSWORD to find where you must edit the response file.

When the installer runs in the silent mode, it looks for the response files in the following directories sequentially:

- In the directory where the IBM Marketing Software installer is saved
- In the home directory of the user who installs the product

Make sure that all response files are in the same directory. You can change the path where response files are read by adding arguments to the command line. For example: `-DUNICA_REPLAY_READ_DIR="myDirPath" -f myDirPath/installer.properties`

Use the following command for Linux:

```
ibm_ims_installer_full_name_operating_system .bin -i silent
For example:
IBM_Marketing_Software_Installer_11.0.0.0_linux.bin -i silent
```

Sample response files

You must create response files to set up a silent installation of Opportunity Detect. You can use sample response files to create your response files. The sample response files are included with the installers in the ResponseFiles compressed archive.

The following table provides information about sample response files:

Table 13. Description of sample response files

Sample response file	Description
installer.properties	The sample response file for the IBM Marketing Software master installer.
installer_product initials and product version number.properties	The sample response file for the Opportunity Detect installer.

Installing Interact Advanced Patterns over Opportunity Detect

If you install Interact Advanced Patterns over Opportunity Detect, and you select the **Manual database setup** option, you must manually update the password attribute of the `properties` tag in the `server.xml` file.

This file is located in the `InteractService/wlp/usr/servers/InteractService` directory under your Opportunity Detect installation.

To create an encrypted password that you can paste into the `server.xml` file, you can use the `securityUtility`. This utility is located under the `InteractService/wlp/bin` directory under your Opportunity Detect installation.

For example:

```
./securityUtility encode your_password
```

Chapter 5. Completing a manual installation of Opportunity Detect

If you select manual database set up when you install Opportunity Detect, you must complete the tasks in this section after you run the IBM Marketing Software and the Opportunity Detect installer.

Editing Streams and Opportunity Detect XML files

If you select manual database set up when you install Opportunity Detect, you must complete the tasks in this section after you run the IBM Marketing Software and the Opportunity Detect installer.

1. In the `InteractService/wlp/usr/servers/InteractService` directory under your Opportunity Detect installation, modify the `server.xml` file to reflect the following settings. Replace the values shown in the example with values appropriate for your environment.

```
<dataSource id="OpDetectionDS" jndiName="OpDetectionDS">
  <jdbcDriver libraryRef="DB2JCC4Lib"/>
  <properties.db2.jcc
    currentSchema="SCHEMA_NAME"
    databaseName="DB_name"
    password="encrypted_database_password"
    portNumber="port_number"
    serverName="server_name"
    user="database_user_name"/>
</dataSource>
```

Important: The schema name must be capital letters.

2. If you are using DB2 for your system tables, and if you have installed the DB2 client in a location that is different from the default location, you must update the `function.xml` file as follows.

The `function.xml` file is located in the `/home/streamsadmin/OpDetection/toolkits/unica_db_access/db.access/native.function` directory.

- a. Locate the following section in the file.

```
<library>
  <cmn:description></cmn:description>
  <cmn:managedLibrary>
    <cmn:lib>UnicaDatabaseAccessLib</cmn:lib>
    <cmn:lib>db2</cmn:lib>
    <cmn:libPath>../../impl/lib</cmn:libPath>
    <cmn:libPath>/IBM_DB2_installation_directory/lib64</cmn:libPath>
    <cmn:includePath>../../impl/include</cmn:includePath>
    <cmn:includePath>/IBM_DB2_installation_directory/include</
      cmn:includePath>
  </cmn:managedLibrary>
</library>
```

- b. Correct the path in the following lines to reflect the location of your DB2 client. In the following example, the DB2 install path is `/data/dbclient/DB2`.

```
<cmn:libPath>/data/dbclient/DB2/lib64</cmn:libPath>
<cmn:includePath>/data/dbclient/DB2/include</cmn:includePath>
```

3. Restart the Streams server.

Creating and populating the Opportunity Detect system tables

If you have not allowed the installer to create and populate the system tables during the installation process, use your database client to run the Opportunity Detect SQL scripts against the appropriate database.

Design environment tables

Run the `OpDetectDesignSchema.sql` script against your design time database.

The script is located in the `/OpDetection/database/database_type/DesignTime` directory under your Opportunity Detect installation.

Run Time environment table

Run the `opDetectRunTimeSchema.sql` script against your run time database.

The script is located in the `/OpDetection/database/database_type/RunTime` directory under your Opportunity Detect installation.

Registering Opportunity Detect Design Time manually

If the Opportunity Detect installer cannot connect to the Marketing Platform database during the installation process, you must register Opportunity Detect manually.

A product is registered when its menu items and configuration properties are added to the Marketing Platform database. To register a product manually, you use the **configTool** utility, along with XML files provided with your product installation. The **configTool** utility is located in the `tools/bin` directory under your Marketing Platform installation.

Complete details about using the **configTool** utility are provided elsewhere in this guide.

You must run the **configTool** utility as many times as there are files. For Opportunity Detect, there are two files, located in the `conf` directory under your Opportunity Detect installation.

- `detect_navigation.xml`
- `DetectCommon.xml`

Examples:

- `configTool -v -i -o -p "Affinium|suite|uiNavigation|mainMenu" -f "OpDetection_Installation_Dir\conf\detect_navigation.xml"`
- `configTool -r Detect -f "OpDetection_Installation_Dir\conf\DetectCommon.xml"`

Chapter 6. Deploying Opportunity Detect

To deploy Opportunity Detect, you must deploy Opportunity Detect Design Time using an EAR or WAR file.

You must know how to work with your web application server. Consult your web application server documentation for details such as navigation in the Administration console.

Switching to IBM JDK 1.7 on the WebSphere application server

Install IBM JDK 1.7 and enable this version on the WebSphere application server for the profile on which Opportunity Detect is deployed.

Follow instructions in the WebSphere documentation: https://www-01.ibm.com/support/knowledgecenter/SSZJPZ_11.3.0/com.ibm.swg.im.iis.productization.iisinfsv.install.doc/topics/wsisinst_pln_jdk7.html.

Deploying Opportunity Detect Design Time

When you run the IBM Marketing Software installer, you can either include Opportunity Detect in an EAR file, or you can choose to deploy the Opportunity Detect WAR file. If you include Marketing Platform or other products in an EAR file, you must follow all the deployment guidelines that are detailed in the individual installation guides for the products that are included in the EAR file.

After you install Opportunity Detect, Design Time is deployed automatically when you deploy the `detect.war` file. The `detect.war` file is in the Opportunity Detect installation directory.

Deploying Opportunity Detect on WebSphere Application Server

You can deploy Opportunity Detect runtime environment on supported versions of WebSphere Application Server (WAS) from a WAR file or EAR file.

- Make sure that multiple language encoding is enabled in WAS.
- When you run the Install New Application wizard, ensure that you set the JDK Source Level to 17.

Important: If you are using IBM WebSphere Application Server 8.5.5.x Fix Pack 9 or earlier, you must use the following workaround to disable the annotation scanning for the `xstream` jar and to allow the application to be deployed correctly.

Go to the `app_server_root/properties` folder in the WebSphere installation. In the `amm.filter.properties` file, add the following line under `Ignore-Scanning-Packages`.

```
com.thoughtworks.xstream
```

Deploying Opportunity Detect on WAS from a WAR file

You can deploy the Opportunity Detect application from a WAR file on WAS.

Complete the following tasks before you deploy Opportunity Detect:

- Confirm that your version of WebSphere meets the requirements in the *Recommended Software Environments and Minimum System Requirements* document, including any necessary fix packs or upgrades.
- Confirm that you created the data sources and database provider in WebSphere.
- Please follow the below steps while deploying Campaign.war file on IBM Websphere Application Server 8.5.5.x Fix Pack 9 or below versions
 - a) Go to <app_server_install_directory>/properties location
Example: /data/webservers/IBM/WebSphere8.5.5/properties
 - b) Edit "amm.filter.properties" file to include "com.thoughtworks.xstream"

Example:

```
Ignore-Scanning-Packages = javassist, \
organtlr, \
org.apache.avalon, \
org.apache.batik, \
org.apache.bcel, \
org.apache.commons, \
org.apache.log4j, \
org.apache.poi, \
org.apache.regexp, \
org.apache.xalan, \
org.apache.xerces, \
org.apache.xml, \
org.apache.xpath, \
org.ajax4jsf, \
org.dbunit, \
org.richfaces, \
org.jboss.el, \
org.jchrontab, \
org.omg, \
org.seasar, \
org.slf4j, \
com.thoughtworks.xstream
```

By doing this, WebSphere will disable the annotation scanning for the xstream jar

and allow the application deployed properly.

This is also mentioned in here <http://x-stream.github.io/faq.html>

This steps are not required for Websphere version 8.5.0.x or 8.5.5 Fix Pack 10 or higher.

1. Go to the WebSphere Integrated Solutions Console.
2. Complete the following steps if your system tables are in DB2:
 - a. Click the data source that you created. Go to the Custom Properties for the data source.
 - b. Select the Custom properties link.
 - c. Set the value for the **resultSetHoldability** property to 1.
If you do not see the **resultSetHoldability** property, create the **resultSetHoldability** property and set its value to 1.

3. Go to **Applications > Application Types > WebSphere enterprise applications** and click **Install**.
4. In the Preparing for the application installation window, select the **Detailed - Show all options and parameters** check box and click **Next**.
5. Click **Continue** to see the Install New Application wizard.
6. Accept the default settings on the windows of the Install New Application wizard except the following windows:
 - In step 1 of the Install New Application wizard, select the **Precompile JavaServer Pages files** check box.
 - In step 3 of the installation wizard, set the **JDK Source Level** to 17.
7. In the left navigation panel of WebSphere Integrated Solutions Console, navigate to **Applications > Application Types > WebSphere enterprise applications**.
8. In the Enterprise Applications window, click the `detect.war` file.
9. In the **Web Module Properties** section, click **Session Management** and select the following check boxes:
 - **Override session management**
 - **Enable Cookies**
10. Click **Enable Cookies**, and in the **Cookie name** field, enter a unique cookie name.
11. In the **Applications > Enterprise Applications** section of the server, select the WAR file that you deployed.
12. In the **Detail Properties** section, select **Class loading and update detection**.
13. In the **Class loader order** section, select the **Classes loaded with local class loader first (parent last)** option.
14. In the **Modules** section, select **Manage modules > detect**, and under **Class loader order** select the **Classes loaded with local class loader first (parent last)** option.
15. For **WAR class loader policy**, select **Single class loader for application**.
16. Go to **Application Servers > your server > Process definition > Java Virtual Machine**.
17. In the **Generic JVM arguments** section, enter the following JVM arguments:


```
-Dcom.ibm.websphere.webservices.DisableIBMJAXSEngine=true
-Dibm.cl.verbose=PersistenceProvider
-Dibm.cl.verbose=PersistenceProviderImpl
-agentlib:getClasses -verbose:dynload
-Dcom.ibm.xml.xpath.jaxb.opti.level=3
```
18. Start your deployment.

Deploying Opportunity Detect on WAS from an EAR file

You can deploy Opportunity Detect by using an EAR file if you included Opportunity Detect in an EAR file when you ran the IBM Marketing Software installer.

- Confirm that your version of WebSphere meets the requirements in the *Recommended Software Environments and Minimum System Requirements* document, including any necessary fix packs or upgrades.
- Confirm that you created the data sources and database provider in WebSphere.
 1. Go to the WebSphere Integrated Solutions Console.
 2. Complete the following steps, if your system tables are in DB2:

- a. Click the data source that you created. Go to the **Custom Properties** for the data source.
- b. Select the Custom properties link.
- c. Set the value for the **resultSetHoldability** property to 1.
If you do not see the **resultSetHoldability** property, create the **resultSetHoldability** property and set its value to 1.
3. Go to **Applications > Application Types > WebSphere enterprise applications** and click **Install**.
4. In the Preparing for the application installation window, select the **Detailed - Show all options and parameters** check box and click **Next**.
5. Click **Continue** to see the Install New Application wizard.
6. Accept the default settings on the windows of the Install New Application wizard except the following windows:
 - In step 1 of the Install New Application wizard, select the **Precompile JavaServer Pages files** check box.
 - In step 3 of the installation wizard, set the **JDK Source Level** to 17.
7. In the left navigation panel of WebSphere Integrated Solutions Console, navigate to **Applications > Application Types > WebSphere enterprise applications**.
8. In the Enterprise Applications window, select the EAR file that you want to deploy.
9. In the **Web Module Properties** section, click **Session Management** and select the following check boxes:
 - **Override session management**
 - **Enable Cookies**
10. Click **Enable Cookies**, and in the **Cookie name** field, enter a unique cookie name.
11. In the **Detail Properties** section, select **Class loading and update detection**.
12. In the **Class loader order** section, select the **Classes loaded with local class loader first (parent last)** option.
13. For **WAR class loader policy**, select the **Class loader for each WAR file in application** option.
14. Go to **Application Servers > your server > Process definition > Java Virtual Machine**.
15. In the **Generic JVM arguments** section, enter the following JVM arguments:


```
-Dcom.ibm.websphere.webservices.DisableIBMJAXSEngine=true
-Dibm.cl.verbose=PersistenceProvider
-Dibm.cl.verbose=PersistenceProviderImpl
-agentlib:getClasses -verbose:dynload
-Dcom.ibm.xml.xlsp.jaxb.opti.level=3
```
16. Start your deployment.
For more information about WebSphere Application Server version 8.5, see Welcome to the WebSphere Application Server information center.

Chapter 7. Configuring Opportunity Detect and IBM InfoSphere Streams after deploying Opportunity Detect

After you deploy Opportunity Detect, perform the additional configuration tasks described in this chapter.

- Clear the application server cache and restart the application server.
- Set values for Opportunity Detect or Interact Advanced Patterns configuration properties
- Synchronize the new Streams servers.
- Start the Opportunity Detect run time and design time servers
- Optionally, you can modify Opportunity Detect logging levels.
- If you are using Interact Advanced Patterns, see the *IBM Interact Advanced Patterns and IBM Interact Integration Guide* for additional required setup tasks.

When you have completed configuration, verify your installation as described in this section.

When you have verified the basic installation, configure Opportunity Detect server groups and data sources within the application. If you are upgrading, you previously configured data sources and server groups are migrated to the new version.

Clearing the application server cache

After you deploy the web application, stop the application server, clear the application server cache, and restart the web server.

1. Stop the web application server.
2. For UNIX platforms, run the `osgiCfgInit.sh` script in each profile.
The script is located in the `profiles/profile_name/bin` directory under your WebSphere installation.
3. For Windows, Linux and AIX platforms only, run the `clearClassCache.sh` script to clear the JVM class cache.
The script is located in the `bin` directory under your WebSphere installation.
4. Restart the web application server.

Setting Opportunity Detect or Interact Advanced Patterns configuration properties

You must set the configuration properties for Opportunity Detect or Interact Advanced Patterns.

The configuration properties are located on the **Settings > Configuration** page.

Set the following properties whether you are using Opportunity Detect or Interact Advanced Patterns.

- Set one of the following properties, as appropriate for your environment.
 - **IBM Opportunity Detect and Interact Advanced Patterns | Navigation | httpPort**

Set this property if you are not using SSL.

- **IBM Opportunity Detect and Interact Advanced Patterns | Navigation | httpsPort**

Set this property if you are using SSL.

- **IBM Opportunity Detect and Interact Advanced Patterns | Navigation | serverURL**
- **IBM Opportunity Detect and Interact Advanced Patterns | System | Streams Remote Control Web Service | ServerURL**
- **IBM Opportunity Detect and Interact Advanced Patterns | System | Real Time Connector | ServerURL**
- **IBM Opportunity Detect and Interact Advanced Patterns | logging | log4jConfig**

If you are using Interact Advanced Patterns, set the following additional configuration property.

- **IBM Interact Advanced Patterns | System | Interact Design Service | ServerURL**

See the context help for the properties to learn more about what they do and how to set them.

Related reference:

“IBM Opportunity Detect and Interact Advanced Patterns | Navigation” on page 55

“IBM Opportunity Detect and Interact Advanced Patterns | System | Streams Remote Control Web Service” on page 57

“IBM Opportunity Detect and Interact Advanced Patterns | System | Real Time Connector” on page 57

“IBM Interact Advanced Patterns | System | Interact Design Service” on page 59

“IBM Opportunity Detect and Interact Advanced Patterns | logging” on page 58

Configuring IBM InfoSphere Streams for use with Opportunity Detect

You must perform some configuration tasks in IBM InfoSphere Streams to prepare Streams for use with Opportunity Detect.

Refer to the following chapters in the *IBM InfoSphere Streams: Installation and Administration Guide* for instructions on completing the Streams configuration for your Opportunity Detect installation.

- Configuring a secure shell environment for IBM InfoSphere Streams:
http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.cfg.doc/doc/ibminfospherestreams-user-configuring-secureshellaccess.html
- Creating and managing instances for IBM InfoSphere Streams:
http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.admin.doc/doc/ibminfospherestreams-instances-manager.html
- Running IBM InfoSphere Streams: http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.admin.doc/doc/ibminfospherestreams-instance-running.html

- Running IBM InfoSphere Streams: http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.install-admin.doc/doc/ibminfospherestreams-install-operating-system-settings.html

Note: If you are using the First Steps application to complete the post installation tasks, the following tasks are required:

- Configure the SSH environment for InfoSphere Streams.
- Configure the InfoSphere Streams environment variables.
- Generate public and private keys for InfoSphere Streams.
- Verify the InfoSphere Streams installation.
- Create and manage InfoSphere Streams instances.

In addition, see *Monitoring and managing IBM InfoSphere Streams*, for instructions on using Streams tools to monitor and manage your Streams installation: http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.admin.doc/doc/ibminfospherestreams-instance-admin-main.html

In addition, perform the steps described below.

1. Update the JAVA_HOME entry in the .bashrc file of streamsadmin user.
Change this:
JAVA_HOME=/opt/ibm/java-x86_64-60
to this:
JAVA_HOME=/home/streamsadmin/InfoSphereStreams/java
2. Ensure that \$JAVA_HOME/bin is added to the PATH environment variable.
3. If you are using DB2, check the .bashrc file for both root and the streamsadmin user to verify that the *Db2Instance* variable points to your correct DB2 instance.
4. Run the Streams dependency checker script.
See the topic "Dependency checker script for InfoSphere Streams":
http://www-01.ibm.com/support/knowledgecenter/SSCRJU_3.2.1/com.ibm.swg.im.infosphere.streams.install-admin.doc/doc/ibminfospherestreams-install-prerequisites-dependency-checker.html
5. Confirm that the following IBM InfoSphere Streams elements exist.
 - streamsadmin user
 - IBM InfoSphere Streams files

Installing boost libraries

You must install C++ boost libraries on the Streams server to operate Opportunity Detect with Streams.

Run `yum install boost` command to install boost package.

Run `yum install boost-devel` command to install boost-devel package.

Configuring the Streams database adapter for Oracle

This procedure is necessary only if you plan to use an Oracle database.

Ensure that the following prerequisites are met.

- The Oracle 12c client is installed on the machine where the Streams server is installed.
 - Use UnixODBC 2.3.2
1. On the machine where the Streams server is installed, edit the Streamsadmin user's /home/streamsadmin/.bashrc file to add the following environment variable commands.

Example commands:

```
export ORACLE_HOME=/data/DatabaseServer/Oracle12C/product/12.1.0/dbhome_1
export LD_LIBRARY_PATH=/data/DatabaseServer/Oracle12C/product/12.1.0/dbhome_1
/lib:/data/DatabaseServer/Oracle12C/product/12.1.0/dbhome_1/lib64:/usr/local
/lib:/usr/local/lib64
export ODBCINI=/home/streamsadmin/ODBCINI/odbc.ini
export STREAMS_ADAPTERS_ODBC_ORACLE=true
export STREAMS_ADAPTERS_ODBC_INCPATH=/usr/local/include
export STREAMS_ADAPTERS_ODBC_LIBPATH=/usr/local/lib
```

Table 14. Environment variables for Oracle on Streams

Environment variable	Example value
Variables for compiling Streams adapters with Oracle	
STREAMS_ADAPTERS_ODBC_ORACLE	True
STREAMS_ADAPTERS_ODBC_INCPATH	/mydir/unixodbc/include
STREAMS_ADAPTERS_ODBC_LIBPATH	/mydir/unixodbc/lib
Variables for running Streams adapters with Oracle	
ODBCINI	/mydir/odbc.ini
ORACLE_HOME	/home/oracle/oracle/112client/oracle/product/11.2.0/client_1
LD_LIBRARY_PATH	<ul style="list-style-type: none"> • If you use static linking: /home/oracle/oracle/112client/oracle/product/11.2.0/client_1/lib • If you do not use static linking: /home/oracle/oracle/112client/oracle/product/11.2.0/client_1/lib:/mydir/unixodbc/lib

2. Configure UNIX ODBC as follows.

- a. Untar UnixODBC and execute following commands.

```
./configure
make
make install
```

- b. Create a file named odbc.ini under /home/streamsadmin/ODBCINI with the following content.

```
[Your_Oracle_database_instance_name]
Driver = Driver_path
description = description
ServerName = IP:port/Your_Oracle_database_instance_name
server = IP
port = Port_No
Longs = F
```

Use the Oracle database instance name, server name, and port appropriate for your environment. You must use the exact name of your Oracle database instance in this file.

For example, if your Oracle database instance is named orcl, your odbc.ini file would look like this.

```
[orc1]
Driver=/data/DatabaseServer/Oracle12C/product/12.1.0/dbhome_1
/lib/libsqora.so.12.1
description = test
serverName = 11.22.33.44:9002/orc1
server = 11.22.33.44
port = 9002
Longs = F
```

- To test your configuration, run the following command as the streamsadmin user.

Use the Oracle database instance name, user name, and password appropriate for your environment.

```
isql Oracle_database_instance_name user_name password
```

If the test fails, check your execution of the preceding steps. Remember that names are case-sensitive.

Configuring the Streams database adapter for DB2

This procedure is necessary only if you plan to use a DB2 database.

- On the machine where the Streams server is installed, edit the Streamsadmin user's /home/streamsadmin/.bashrc file to add the following environment variable commands.

Table 15. Environment variables for DB2 on Streams

Environment variable	Example value
Variables for compiling Streams adapters with DB2	
STREAMS_ADAPTERS_ODBC_DB2	True
STREAMS_ADAPTERS_ODBC_INCPATH	<DB2 Home>/sqllib/include/
STREAMS_ADAPTERS_ODBC_LIBPATH	<DB2 Home>/sqllib/lib64
Variable for running Streams adapters with DB2	
DB2INSTANCE	myDB2InstanceName

- To test your configuration, run the following command as the streamsadmin user.

Use the DB2 instance name, user name, and password appropriate for your environment.

```
isql DB2_instance_name user_name password
```

If the test fails, check your execution of the preceding steps. Remember that names are case-sensitive.

If the DB2 environment variables are not set correctly and the DB2 command line client does not work, you must source the /home/db2inst1/sqllib/db2profile script in the .bashrc script to initialize DB2 environment variables correctly.

Configuring SSL on Streams for WebSphere MQ

If you plan to use WebSphere MQ with Opportunity Detect queue data source connectors, and if you want communication to take place over SSL, follow these guidelines.

These guidelines assume that you have SSL enabled on the WebSphere MQ server and that you have generated all of the required certificates, keystores, and truststores.

1. Add the SSL configuration parameters to the `JAVA_TOOL_OPTIONS` environment variable in the `.bashrc` file for the `streamsadmin` user. The SSL certificate repository must be accessible from all nodes on Streams Runtime.
For example:

```
export JAVA_TOOL_OPTIONS="-Djavax.net.ssl.trustStore=/opt/mqm/clientkey.kdb
-Djavax.net.ssl.keyStore=/opt/mqm/clientkey.kdb
-Djavax.net.ssl.keyStorePassword=123456
-Djavax.net.ssl.trustStorePassword=123456
-Djavax.net.ssl.keyStoreType=CMS
-Djavax.net.ssl.trustStoreType=CMS"
```
2. Ensure that the Security Provider is available in the `java.security` file used by the Streams installation.
The Streams installation uses the Java package located under the `/home/streamsadmin/InfoSphereStreams/java/jre/lib/security` directory.

Starting the Opportunity Detect Run Time server and Interact service

You must start the Run Time server and RealTimeConnector service after you have deployed and configured Opportunity Detect.

1. Complete the following steps to start the Run Time server.
 - a. Log in as the `streamsadmin` user to the Streams server where Run Time is installed.
 - b. Navigate to the StreamsRemoteControlService liberty service.
Use the following path as a guideline.
`/home/streamsadmin/OpDetection/StreamsRemoteControlService/wlp/bin`
 - c. Use the following command to start the StreamsRemoteControlService liberty service.
`./server start StreamsRCS --clean`
 - d. Navigate to the RealTimeConnector service.
Use the following path as a guideline.
`/home/streamsadmin/OpDetection/RealTimeConnector/wlp/bin`
 - e. Use the following command to start the RealTimeConnector service.
`./server start RealTimeConnector --clean`
2. Complete the following steps to start the Interact Service
 - a. Log in as the root user to the server where Design Time is installed.
 - b. Navigate to the following path.
`Opportunity_Detect_Install_Home/InteractService/wlp/bin`
 - c. Run the following command.
`./server start InteractService --clean`

Verifying the Opportunity Detect installation

To verify whether Opportunity Detect is correctly installed, confirm that you can access the interactive channels and the Opportunity Detect runtime URL.

1. To verify that the Opportunity Detect design time environment is installed, log in to Opportunity Detect and confirm that you can access **Detect > Workspace Manager**.
2. Run the following URL in a web browser:

- `http://host.domain.com:port/axis2/services/InteractService?wsdl`
Confirm that you get the WSDL for the Interact Design Service.
3. Run the following URL in a web browser:
`http://host.domain.com:port/axis2/services/RemoteControl?wsdl`
Confirm that you get the WSDL for the Remote Control Service.
4. Run the following URL in a web browser:
`http://host.domain.com:port/servlets/StreamServlet?command=ping`
Confirm that you see the following message in the browser:
OK

Modifying log levels for Opportunity Detect

You can modify log levels for Opportunity Detect Design Time and RunTime.

1. Log in to Opportunity Detect by root.
2. In the `Opportunity_Detect_installation_home/conf` directory, modify the `detect_log4j.properties` file to reflect the following information:
`log4j.logger.com.ibm.unica.detect=INFO, FILE`
3. In the `Opportunity_Detect_installation_home/InteractService/wlp/usr/servers/InteractService` directory, change the console log level in the `server.xml` file. For example, the `server.xml` file can reflect the following settings:

```
<logging logDirectory="/opt/Detect/FakeInstall/OpDetection/InteractService/wlp/usr/servers/InteractService/logs"
  consoleLogLevel="ERROR" messageFileName="messages.log"/>
```
4. Log in to StreamsRemoteControl as the `streamsadmin` user.
5. In the `/home/streamsadmin/OpDetection/StreamsRemoteControlService/wlp/usr/servers/StreamsRCS` directory, change the console log level in the `server.xml` file. For example, the `server.xml` file can reflect the following setting:
`consoleLogLevel="DEBUG"`
6. Log in to RealTimeConnector as the `streamsadmin` user.
7. In the `/home/streamsadmin/OpDetection/RealTimeConnector/wlp/usr/servers/RealTimeConnector` directory, change the console log level in the `server.xml` file. For example, the `server.xml` file can reflect the following setting:
`consoleLogLevel="DEBUG"`
8. Restart the server for your changes to take effect.

Server group and data source configuration

After you deploy and start Opportunity Detect, you must perform additional tasks before you can use the product.

- Create the State History and Outcome tables in your database, using SQL scripts provided with your installation.
- Configure server groups and data sources within the application.

For Opportunity Detect, these tasks are described in the *IBM Opportunity Detect Administrator's Guide*.

For Interact Advanced Patterns, see the *IBM Interact Advanced Patterns and IBM Interact Integration Guide*.

When you have completed these steps, your organization can design, test, and run event detection.

Partition the State History table for better performance

Opportunity Detect relies on the State History table to access customer data that is saved from previous runs. Opportunity Detect reads and updates these records frequently during execution of trigger systems. To optimize this access and to scale with multiple engines, you can partition the State History table.

See your database documentation for complete details on managing partitions. For Oracle, partitioning is an extra cost option, for Enterprise Edition only.

The number of partitions to use depends on your usage patterns. General testing has shown that one partition per engine is a good basic guideline.

Oracle example

For Oracle, use a hash partitioning clause on the audienceId field.

The following example creates 16 partitions.

```
CREATE TABLE State
(
  id                NUMBER NOT NULL ,
  audienceId       NVARCHAR2(60) NOT NULL ,
  data             BLOB NOT NULL ,
  audienceType     NVARCHAR2(36) NOT NULL ,
  firingTime       TIMESTAMP NOT NULL ,
  runId            NUMBER NOT NULL ,
  cycleTime        TIMESTAMP NOT NULL ,
  CONSTRAINT State_PK PRIMARY KEY (id)
)
PARTITION BY HASH (audienceId)
PARTITIONS 16
```

DB2 example

DB2 does not provide the hash partition by default, so you must do the following to ensure that records are uniformly allocated among partitions on a round robin basis.

- Change the ID generator to create a maxvalue range based on the number of partitions that you intend to use.
- Recycle these generated IDs.
- Use range partitioning with the ID column.

The following example creates five partitions.

```
CREATE TABLE "OPDETECT"."STATE" (
  "ID" INTEGER NOT NULL GENERATED ALWAYS AS IDENTITY (
    START WITH +1
    INCREMENT BY +1
    MINVALUE +1
    MAXVALUE +5
    CYCLE
    CACHE 40
    NO ORDER ) ,
  "AUDIENCEID" VARCHAR(60) NOT NULL ,
  "DATA" BLOB(10485760) NOT LOGGED NOT COMPACT NOT NULL ,
  "AUDIENCETYPE" VARCHAR(36) NOT NULL ,
  "FIRINGTIME" TIMESTAMP NOT NULL ,
  "RUNID" INTEGER NOT NULL ,
```

```
"CYCLETIME" TIMESTAMP NOT NULL )
PARTITION BY RANGE (ID)
(
  PARTITION state_000 starting from (minvalue) exclusive ending at (1)
    EXCLUSIVE ,
  PARTITION state_001 starting from (1) inclusive ending at (2) EXCLUSIVE ,
  PARTITION state_002 starting from (2) inclusive ending at (3) EXCLUSIVE ,
  PARTITION state_003 starting from (3) inclusive ending at (4) EXCLUSIVE ,
  PARTITION state_004 starting from (4) inclusive ending at (maxvalue)
    EXCLUSIVE
);
```

Chapter 8. Configuring Opportunity Detect in a cluster

Opportunity Detect can be installed and deployed in a cluster.

1. Install IBM InfoSphere Streams on multiple servers by using a shared NFS Streams support installation. To ensure this run the Opportunity Detect RunTime installer from a server that has the following elements:
 - The streamsadmin user.
 - The home directory of the streamsadmin user is /home/streamsadmin.
 - The /home/streamsadmin directory is shared across the servers that are a part of the cluster.
 - The root user on the server where you install Opportunity Detect RunTime has read and write access to streamsadmin.
2. After installing IBM InfoSphere Streams, use the following command to create instances of Streams with multiple hosts:

```
streamstool mkinstance -i instance_name hosts FQDN/IP list
```

3. Create a copy of RealTimeConnector for every server in the cluster, as follows.
 - a. Create a copy of RealTimeConnector with a unique name suffix for each server in the cluster in the /home/streamsadmin/OpDetection/ directory.
 - b. Go to /home/streamsadmin/OpDetection/RealTimeConnector_copytag>/wlp/usr/servers/RealTimeConnector/ and change the server.xml file to reflect the following values:

```
<server description="new server">
  <!-- Enable features -->
  <featureManager>
    <feature>jsp-2.2</feature>
    <feature>localConnector-1.0</feature>
    <feature>servlet-3.0</feature>
    <feature>serverStatus-1.0</feature>
  </featureManager>
  <httpEndpoint id="defaultHttpEndpoint" host="<hostname>"
    httpPort="<portnum>" httpsPort="9443"/>
  <application context-root="servlets" id="StreamServlet"
    name="StreamServlet" type="war"
    location="/home/streamsadmin/OpDetection/RealTimeConnector/wlp/usr/
    /servers/RealTimeConnector/dropins/RealTimeConnector"/>
    <logging logDirectory="/home/streamsadmin/OpDetection/RealTimeConnector/
    wlp/usr/servers/RealTimeConnector/logs" consoleLogLevel="ERROR"
    messageFileName="messages.log"/>
    <webContainer deferServletLoad="false"/>
  </server>
```

4. Go to /home/streamsadmin/OpDetection/RealTimeConnector_copytag>/wlp/usr/servers/RealTimeConnector/dropins/RealTimeConnector/WEB-INF/ and change the web.xml file to reflect the following values:

```
<init-param>
  <param-name>ProxyOutboundHostNames</param-name>
  <param-value>localhost</param-value>
</init-param>
```

5. Start RealTimeConnector on each server of the cluster.

Installing the IBM HTTP Server and the configuring load balancer plugin

To support clustering Opportunity Detect needs IBM HTTP server and plugin. The IBM HTTP server and the plugin provides load balancing and a single point of entry for Interact RunTime. The server and the plugin are a part of the Wepshere Application Server (WAS) extensions. See IBM documentation to configure WAS, the IBM HTTP Server, and the plugin.

1. Create a `plugin_cfg.xml` file by using WAS, or use the following `plugin_cfg.xml` as an example.

Note: Replace `host_noden` and `port_noden` with the host and port of the RealTimeConnectors from the Opportunity Detect RunTime cluster.

```
<?xml version="1.0" encoding="UTF-8"?>
<Config ASDisableNagle="false" AcceptAllContent="false"
AppServerPortPreference="HostHeader" ChunkedResponse="false" FIPSEnable="false"
IISDisableNagle="false" IISPluginPriority="High" IgnoreDNSFailures="false"
RefreshInterval="60" ResponseChunkSize="64" SSLConsolidate="false"
SSLPKCSDriver="REPLACE" SSLPKCSPassword="REPLACE" TrustedProxyEnable="false"
VHostMatchingCompat="false">
  <Log LogLevel="Error" Name="./logs/defaultServer/http_plugin.log"/>
  <Property Name="ESIEnable" Value="true"/>
  <Property Name="ESIMaxCacheSize" Value="1024"/>
  <Property Name="ESIInvalidationMonitor" Value="false"/>
  <Property Name="ESIEnableToPassCookies" Value="false"/>
  <Property Name="PluginInstallRoot" Value="."/>
  <VirtualHostGroup Name="default_host">
    <VirtualHost Name="host:port"/>
  </VirtualHostGroup>
  <ServerCluster CloneSeparatorChange="false" GetDWLMTable="false"
IgnoreAffinityRequests="true" LoadBalance="Round Robin"
Name="defaultServer_default_node_Cluster" PostBufferSize="64"
PostSizeLimit="-1" RemoveSpecialHeaders="true" RetryInterval="60">
    <Server CloneID="9ec9fa61-0e3e-431f-a497-8c7b5fdd201e" ConnectTimeout="0"
ExtendedHandshake="false" MaxConnections="-1" Name="default_node_defaultServer0"
ServerIOTimeout="900" WaitForContinue="false"
>
    <Transport Hostname="Host_Node1 Port=Port_node1 Protocol="http"/>
  </Server>
  <Server Name="Detectdb2" ConnectTimeout="5" ExtendedHandshake="false"
ServerIOTimeout="60" LoadBalanceWeight="1" MaxConnections="-1"
WaitForContinue="false">
    <Transport Hostname="Host_Node2 Port=Port_node2 Protocol="http"/>
  </Server>
  <Server Name="Detectn1" ConnectTimeout="5" ExtendedHandshake="false"
ServerIOTimeout="60" LoadBalanceWeight="1" MaxConnections="-1"
WaitForContinue="false">
    <Transport Hostname="Host_Node3 Port=Port_node3 Protocol="http"/>
  </Server>
  <ServerCluster>
    <UriGroup Name="default_host_defaultServer_default_node_Cluster_URIs">
      <Uri AffinityCookie="JSESSIONID" AffinityURLIdentifier="jsessionid"
Name="/servlets/*"/>
    </UriGroup>
    <Route ServerCluster="defaultServer_default_node_Cluster"
UriGroup="default_host_defaultServer_default_node_Cluster_URIs"
VirtualHostGroup="default_host"/>
  </ServerCluster>
</Config>
```

2. Configure the `httpd.conf` file to add the plugin module and provide the path of the `plugin-cfg.xml` file by adding the following lines at the end of `httpd.conf` file:

```
LoadModule was_ap22_module
WAS_INSTALLATION_DIR>/Plugins/bin/64bits/mod_was_ap22_http.so
WebSpherePluginConfigIBM_HTTP_SERVER_DIR/conf/plugin-cfg.xml
```

3. Make sure that you add the IBM HTTP Servers URL to the RealTimeConnector URL in Opportunity Detect configuration. Complete the following steps to add the IBM HTTP Servers URL to RealTimeConnector URL:
 - a. Login to Platform and navigate to **Settings > Configuration**.
 - b. In the configuration tree, go to **IBM Opportunity Detect and Interact Advanced Patterns > System > Real Time Connector**.
 - c. Edit the Server URL to reflect the following value:
`http://HTTP_SERVER_HOST:HTTP_SERVER_PORT/servlets/StreamServlet`

Additional configuration for enhanced security

The procedures in this section describe some additional configurations in the web application server. They are optional, but you might want to perform them for enhanced security.

Disabling the X-Powered-By flag

If your organization is concerned that the X-Powered-By flag in the header variable is a security risk, you can disable it using this procedure.

1. If you are using WebLogic, in the administration console, under *domainName* > **Configuration > Web Application**, set **X-Powered-By Header** to **X-Powered-By Header will not be sent**.
2. If you are using WebSphere, perform the following steps.
 - a. In the WebSphere administration console, navigate to **Servers > Server Types > WebSphere application servers > server_name > Web Container Settings > Web container**.
 - b. Under **Additional Properties** select **Custom Properties**.
 - c. On the Custom Properties page, click **New**.
 - d. On the Settings page, create a custom property named `com.ibm.ws.webcontainer.disableXPoweredBy` and set the value to `false`.
 - e. Click **Apply** or **OK**.
 - f. Click **Save** on the console task bar to save your configuration changes.
 - g. Restart the server.

Configuring a restrictive cookie path

In your web application server, you can restrict cookie access to a specific application for enhanced security. If not restricted, cookies are valid across all the deployed applications.

1. If you are using WebLogic, perform the following steps.
 - a. Extract the `weblogic.xml` file from the WAR or EAR package where you want to add the restrictive cookie path.
 - b. Add the following to the `weblogic.xml` file, where *context-path* is the context path for the deployed application. For IBM Marketing Software applications the context path is typically `/unica`.

```
<session-descriptor>
  <session-param>
    <param-name>CookiePath</param-name>
    <param-value>/context-path</param-value>
  </session-param>
</session-descriptor>
```

- c. Rebuild the WAR or EAR file.
2. If you are using WebSphere, perform the following steps.
 - a. In the WebSphere administration console, navigate to the **Session Manager** > **Cookie** tab.
 - b. Set the **Cookie Path** to the context path of your application.
For IBM Marketing Software applications the context path is typically /unica.

Chapter 9. Uninstalling Opportunity Detect

Run the Opportunity Detect uninstaller to uninstall Opportunity Detect. When you run the Opportunity Detect uninstaller, the files that were created during the installation process are removed. For example, files such as configuration files, installer registry information, and user data are removed from the computer.

When you install IBM Marketing Software products, an uninstaller is included in the `Uninstall_Product` directory, where *Product* is the name of your IBM product.

If you manually remove the files in your installation directory instead of running the uninstaller, the result might be an incomplete installation if you later reinstall an IBM product in the same location. After uninstalling a product, its database is not removed. The uninstaller only removes default files that are created during installation. Any file that is created or generated after installation is not removed.

Note: On UNIX, the same user account that installed Opportunity Detect must run the uninstaller.

1. If you have deployed the Opportunity Detect web application, undeploy the web application from WebSphere .
2. Shut down WebSphere .
3. Stop the processes that are related to Opportunity Detect.
4. Complete one of the following steps to uninstall Opportunity Detect:
 - Click the Opportunity Detect uninstaller that exists in the `Uninstall_Product` directory. The uninstaller runs in the mode in which you installed Opportunity Detect.
 - In a command-line window, navigate to the directory where the uninstaller exists, and run the following command to uninstall Opportunity Detect by using the console mode:

Uninstall_Product -i console

- In a command-line window, navigate to the directory where the uninstaller exists, and run the following command to uninstall Opportunity Detect by using the silent mode:

Uninstall_Product -i silent

When you uninstall Opportunity Detect by using the silent mode, the uninstallation process does not present any dialogs for user interaction.

Note: If you do not specify an option for uninstalling Opportunity Detect, the Opportunity Detect uninstaller runs in the mode in which Opportunity Detect is installed.

Chapter 10. configTool

The properties and values on the Configuration page are stored in the Marketing Platform system tables. You can use the configTool utility to import and export configuration settings to and from the system tables.

When to use configTool

You might want to use configTool for the following reasons.

- To import partition and data source templates that are supplied with Campaign, which you can then modify and duplicate by using the Configuration page.
- To register (import configuration properties for) IBM Marketing Software products, if the product installer is unable to add the properties to the database automatically.
- To export an XML version of configuration settings for backup or to import into a different installation of IBM Marketing Software.
- To delete categories that do not have the **Delete Category** link. You do this by using configTool to export your configuration, then manually deleting the XML that creates the category, and by using configTool to import the edited XML.

Important: This utility modifies the `usm_configuration` and `usm_configuration_values` tables in the Marketing Platform system table database, which contains the configuration properties and their values. For best results, either create backup copies of these tables, or export your existing configurations by using configTool and back up the resulting file so you have a way to restore your configuration if you make an error when you use configTool to import.

Syntax

```
configTool -d -p "elementPath" [-o]
```

```
configTool -i -p "parent ElementPath" -f importFile [-o]
```

```
configTool -x -p "elementPath" -f exportFile
```

```
configTool -vp -p "elementPath" -f importFile [-d]
```

```
configTool -r productName -f registrationFile [-o] configTool -u  
productName
```

Commands

```
-d -p "elementPath" [o]
```

Delete configuration properties and their settings, specifying a path in the configuration property hierarchy.

The element path must use the internal names of categories and properties. You can obtain them by going to the Configuration page, selecting the wanted category or property, and looking at the path that is displayed in parentheses in the right pane. Delimit a path in the configuration property hierarchy by using the | character, and surround the path with double quotation marks.

Note the following.

- Only categories and properties within an application can be deleted by using this command, not whole applications. Use the `-u` command to unregister a whole application.
- To delete categories that do not have the **Delete Category** link on the Configuration page, use the `-o` option.

When you use `-d` with the `-vp` command, the `configTool` deletes any child nodes in the path you specify if those nodes are not included in the XML file you specify.

`-i -p "parentElementPath" -f importFile [o]`

Import configuration properties and their settings from a specified XML file.

To import, you specify a path to the parent element under which you want to import your categories. The `configTool` utility imports properties under the category you specify in the path.

You can add categories at any level below the top level, but you cannot add a category at same level as the top category.

The parent element path must use the internal names of categories and properties. You can obtain them by going to the Configuration page, selecting the required category or property, and looking at the path that is displayed in parentheses in the right pane. Delimit a path in the configuration property hierarchy by using the `|` character, and surround the path with double quotation marks.

You can specify an import file location relative to the `tools/bin` directory or you can specify a full directory path. If you specify a relative path or no path, `configTool` first looks for the file relative to the `tools/bin` directory.

By default, this command does not overwrite an existing category, but you can use the `-o` option to force an overwrite.

`-x -p "elementPath" -f exportFile`

Export configuration properties and their settings to an XML file with a specified name.

You can export all configuration properties or limit the export to a specific category by specifying a path in the configuration property hierarchy.

The element path must use the internal names of categories and properties, which you can obtain by going to the Configuration page, selecting the wanted category or property, and looking at the path that is displayed in parentheses in the right pane. Delimit a path in the configuration property hierarchy by using the `|` character, and surround the path with double quotation marks.

You can specify an export file location relative to the current directory or you can specify a full directory path. If the file specification does not contain a separator (`/` on UNIX, `/` or `\` on Windows), `configTool` writes the file to the `tools/bin` directory under your Marketing Platform installation. If you do not provide the `xml` extension, `configTool` adds it.

`-vp -p "elementPath" -f importFile [-d]`

This command is used mainly in manual upgrades, to import configuration properties. If you applied a fix pack that contains a new configuration property, and you then upgrade, importing a configuration file as part of a manual upgrade process can override values that were set when the fix pack was applied. The `-vp` command ensures that the import does not override previously set configuration values.

Important: After you use the `configTool` utility with the `-vp` option, you must restart the web application server on which Marketing Platform is deployed so the changes are applied.

When you use `-d` with the `-vp` command, the `configTool` deletes any child nodes in the path you specify if those nodes are not included in the XML file you specify.

`-r productName -f registrationFile`

Register the application. The registration file location can be relative to the `tools/bin` directory or can be a full path. By default, this command does not overwrite an existing configuration, but you can use the `-o` option to force an overwrite. The `productName` parameter must be one of those names that are listed above.

Note the following.

- When you use the `-r` command, the registration file must have `<application>` as the first tag in the XML.
Other files can be provided with your product that you can use to insert configuration properties into the Marketing Platform database. For these files, use the `-i` command. Only the file that has the `<application>` tag as the first tag can be used with the `-r` command.
- The registration file for the Marketing Platform is named `Manager_config.xml`, and the first tag is `<Suite>`. To register this file on a new installation, use the `populateDb` utility, or rerun the Marketing Platform installer as described in the *IBM Marketing Platform Installation Guide*.
- After the initial installation, to re-register products other than the Marketing Platform, use `configTool` with the `-r` command and `-o` to overwrite the existing properties.

The `configTool` utility uses product names as parameters with the commands that register and unregister products. With the 8.5.0 release of IBM Marketing Software, many product names changed. However, the names that are recognized by `configTool` did not change. The valid product names for use with `configTool` are listed below, along with the current names of the products.

Table 16. Product names for configTool registration and unregistration

Product name	Name used in configTool
Marketing Platform	Manager
Campaign	Campaign
Distributed Marketing	Collaborate
eMessage	emessage
Interact	interact
Contact Optimization	Optimize
Marketing Operations	Plan

Table 16. Product names for configTool registration and unregistration (continued)

Product name	Name used in configTool
Opportunity Detect	Detect
IBM SPSS Modeler Advantage Enterprise Marketing Management Edition	SPSS
Digital Analytics	Coremetrics

-u *productName*

Unregister an application that is specified by *productName*. You do not have to include a path to the product category; the product name is sufficient, and it is required. The process removes all properties and configuration settings for the product.

Options

-o

When used with *-i* or *-r*, it overwrites an existing category or product registration (node).

When used with *-d*, you can delete a category (node) that does not have the **Delete Category** link on the Configuration page.

Examples

- Import configuration settings from a file named `Product_config.xml` in the `conf` directory under the Marketing Platform installation.

```
configTool -i -p "Affinium" -f Product_config.xml
```
- Import one of the supplied Campaign data source templates into the default Campaign partition, `partition1`. The example assumes that you placed the Oracle data source template, `OracleTemplate.xml`, in the `tools/bin` directory under the Marketing Platform installation.

```
configTool -i -p "Affinium|Campaign|partitions|partition1|dataSources" -f OracleTemplate.xml
```
- Export all configuration settings to a file named `myConfig.xml` in the `D:\backups` directory.

```
configTool -x -f D:\backups\myConfig.xml
```
- Export an existing Campaign partition (complete with data source entries), save it to a file named `partitionTemplate.xml`, and store it in the default `tools/bin` directory under the Marketing Platform installation.

```
configTool -x -p "Affinium|Campaign|partitions|partition1" -f partitionTemplate.xml
```
- Manually register an application named `productName`, by using a file named `app_config.xml` in the default `tools/bin` directory under the Marketing Platform installation, and force it to overwrite an existing registration of this application.

```
configTool -r product Name -f app_config.xml -o
```
- Unregister an application named `productName`.

```
configTool -u productName
```

Chapter 11. Opportunity Detect and Interact Advanced Patterns configuration properties

This section describes the Opportunity Detect and Interact Advanced Patterns configuration properties on the Configuration page.

IBM Opportunity Detect and Interact Advanced Patterns | Navigation

Properties in this category specify values that are used internally to navigate among IBM Marketing Software products.

welcomePageURI

Description

The Uniform Resource Identifier of the IBM Opportunity Detect index page. This value is used internally by IBM Marketing Software applications. Changes to this value are not recommended.

Default value

/index.jsp

seedName

Description

Used internally by IBM Marketing Software applications. Changes to this value are not recommended.

Default value

Detect

type

Description

Used internally by IBM Marketing Software applications. Changes to this value are not recommended.

Default value

Detect

httpPort

Description

The port number that is used by the application server for connections to the Opportunity Detect application.

Default value

7001

httpsPort

Description

The port number that is used by the application server for secure connections to the Opportunity Detect application.

Default value

7001

serverURL

Description

The URL of the Opportunity Detect installation. Accepts either the HTTP or HTTPS protocol. If you are on a clustered environment and choose to use ports that are different from the default ports 80 or 443 for your deployment, do not use a port number in the value of this property.

If users access Opportunity Detect with the Chrome browser, use the fully qualified domain name (FQDN) in the URL. If the FQDN is not used, the Chrome browser cannot access the product URLs.

Important: If IBM Marketing Software products are installed in a distributed environment, you must use the machine name rather than an IP address in the navigation URL for all of the applications in the suite.

Default value

[server-url]

logoutURL

Description

Used internally. Changes to this value are not recommended.

IBM Marketing Platform uses this value to call the logout handler of each registered application if the user clicks the logout link in IBM Marketing Software.

serverURLInternal

Description

Used internally. Changes to this value are not recommended.

displayName

Description

Used internally. Changes to this value are not recommended.

Default value

Opportunity Detect

Related tasks:

“Setting Opportunity Detect or Interact Advanced Patterns configuration properties” on page 35

IBM Opportunity Detect and Interact Advanced Patterns | System | Streams Remote Control Web Service

The property in this category specifies the URL for the IBM InfoSphere Streams remote control web service. Opportunity Detect Design Time communicates with Opportunity Detect Run Time over this service.

ServerURL

Description

The person who installs the product sets this property value during installation. The default port number is 8080.

Default value

`http://[SRCSTHost]:[SRCSPort]/axis2/services/RemoteControl`

Related tasks:

“Setting Opportunity Detect or Interact Advanced Patterns configuration properties” on page 35

IBM Opportunity Detect and Interact Advanced Patterns | System | Real Time Connector

The property in this category specifies the URL for the web service used when Interact is integrated with Interact Advanced Patterns or when the Web Service connector is used for input data.

ServerURL

Description

The person who installs the product sets this property value during installation. The default port number is 8282.

Default value

`http://[RealTimeConnectorHost]:[RealTimeConnectorPort]/servlets/StreamServlet`

Related tasks:

“Setting Opportunity Detect or Interact Advanced Patterns configuration properties” on page 35

IBM Opportunity Detect and Interact Advanced Patterns | System | Monitoring

Properties in this category specify values that affect the monitoring tool.

Poll Interval (In Seconds)

Description

The number of seconds that the monitoring service waits between two successive polls of the Streams server for the statistics. The default is 300 seconds, or 5 minutes.

Default value

300

Retaining Time (In Days)

Description

The number of days the monitoring service should keep the polled data in the database. The default is 10 days. Data that is older than the time specified here is purged.

Default value

10

IBM Opportunity Detect and Interact Advanced Patterns | System | Processing Options

Properties in this category specify values that affect the monitoring tool.

Cache profile records

Description

Opportunity Detect can cache profile data, which provides optimal performance. To enable caching of profile data, set the value of this property to True.

If you have very large profile data sets, you might want to retain the default value of this property, which is False. This disables caching of profile data and eliminates the out of memory issues that caching large amounts of profile data can cause.

If you change this property value, you must restart your web application server, the Streams instance, and the StreamsRCS service, and redeploy all affected deployments.

Default value

False

IBM Opportunity Detect and Interact Advanced Patterns | logging

The property in this category specifies the location of the Opportunity Detect log file.

log4jConfig

Description

The location of the configuration file that Opportunity Detect uses for logging. This value is set automatically during installation, but if you change this path, you must restart the web application server to apply the change.

Default value

[absolute-path]/conf/detect_log4j.properties

Related tasks:

“Setting Opportunity Detect or Interact Advanced Patterns configuration properties” on page 35

IBM Interact Advanced Patterns | System | Interact Design Service

The property in this category specifies the URL for the web service that allows Interact to automatically create and deploy advanced patterns when Interact is integrated with Interact Advanced Patterns.

ServerURL**Description**

This web service is the integration point between Interact and Interact Advanced Patterns design time. The person who installs the product sets this property value during installation. The default port number is 8181.

Default value

```
http://[InteractServiceHost]:[InteractServicePort]/axis2/services/  
InteractDesignService
```

Related tasks:

“Setting Opportunity Detect or Interact Advanced Patterns configuration properties” on page 35

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Note: To enter a support request, you must log in with an IBM account. This account must be linked to your IBM customer number. To learn more about associating your account with your IBM customer number, see **Support Resources > Entitled Software Support** on the Support Portal.

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