Oracle® Cloud

Using the JMS Adapter

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This guide describes how to configure and add the JMS Adapter to an integration in Oracle Integration Cloud Service.

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Oracle Cloud Using the JMS Adapter, Release 16.2

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Contents

Preface

Using the JMS Adapter describes how to configure the JMS Adapter as a connection in an integration in Oracle Integration Cloud Service.

Topics:

Audience

Using the JMS Adapter is intended for developers who want to use the JMS Adapter in integrations in Oracle Integration Cloud Service.

Related Resources

For more information, see these Oracle resources:

- Oracle Cloud

  `http://cloud.oracle.com`
- *Using Oracle Integration Cloud Service*
- *Using the Oracle Mapper*
- *Getting Started with Oracle Cloud*
- *Managing and Monitoring Oracle Cloud*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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Getting Started with the JMS Adapter

Review the following conceptual topics to learn about the JMS Adapter and how to use it as a connection in integrations in Oracle Integration Cloud Service. A typical workflow of adapter and integration tasks is also provided.

Topics

About the JMS Adapter

To exchange messages between applications, add the JMS Adapter to an integration in Oracle Integration Cloud Service.

The JMS Adapter provides the following benefits:

- Increased scalability.
- Improved message delivery performance and reliability.
- Simplified JMS messaging administration tasks.

The JMS Adapter is one of many predefined adapters included with Oracle Integration Cloud Service. You can configure theJMS Adapter as an invoke connection in an integration in Oracle Integration Cloud Service. For information about Oracle Integration Cloud Service, connections, and integrations, see the following sections:

- About Oracle Integration Cloud Service
- About Oracle Integration Cloud Service Connections
- About Oracle Integration Cloud Service Integrations

About Oracle Integration Cloud Service

Oracle Integration Cloud Service is a complete, secure, but lightweight integration solution that enables you to connect your applications in the cloud. It simplifies connectivity between your applications, and can connect both your applications that live in the cloud and your applications that still live on premises. Oracle Integration

Cloud Service provides secure, enterprise-grade connectivity regardless of the applications you are connecting or where they reside.

Oracle Integration Cloud Service provides native connectivity to Oracle Software as a Service (SaaS) applications, such as Oracle Sales Cloud, Oracle RightNow Cloud, and so on. Oracle Integration Cloud Service *adapters* simplify connectivity by handling the underlying complexities of connecting to applications using industry-wide best practices. You only need to create a *connection* that provides minimal connectivity information for each system. Oracle Integration Cloud Service *lookups* map the different codes or terms used by the applications you are integrating to describe similar items (such as country or gender codes). Finally, the visual data mapper enables you to quickly create direct mappings between the trigger and invoke data structures. From the mapper, you can also access lookup tables and use standard XPath functions to map data between your applications.

Once you integrate your applications and activate the integrations to the runtime environment, the dashboard displays information about the running integrations so you can monitor the status and processing statistics for each integration. The dashboard measures and tracks the performance of your transactions by capturing and reporting key information, such as throughput, the number of messages processed successfully, and the number of messages that failed processing. You can also manage business identifiers that track fields in messages and manage errors by integrations, connections, or specific integration instances.

About Oracle Integration Cloud Service Connections

Connections define information about the instances of each predefined configuration you are integrating. Oracle Integration Cloud Service includes a set of predefined *adapters*, which are the types of applications on which you can base your connections, such as Oracle Sales Cloud, Oracle Eloqua Cloud, Oracle RightNow Cloud, and others. A connection is based on an adapter. A connection includes the additional information required by the adapter to communicate with a specific instance of an application (this can be referred to as metadata or as connection details). For example, to create a connection to a specific RightNow Cloud application instance, you must select the Oracle RightNow adapter and then specify the WSDL URL, security policy, and security credentials to connect to it.

Video

About Oracle Integration Cloud Service Integrations

Integrations are the main ingredient of Oracle Integration Cloud Service. An integration includes at the least a trigger (source) connection (for requests sent to Oracle Integration Cloud Service) and invoke (target) connection (for requests sent from Oracle Integration Cloud Service to the target) and the field mapping between those two connections.

When you create your integrations, you build on the connections you already created by defining how to process the data for the trigger (source) and invoke (target) connections. This can include defining the type of operations to perform on the data, the business objects and fields against which to perform those operations, required schemas, and so on. To make this easier, the most complex configuration tasks are handled by Oracle Integration Cloud Service. Once your trigger (source) and invoke (target) connections are configured, the mappers between the two are enabled so you can define how the information is transferred between the trigger (source) and invoke (target) data structures for both the request and response messages.

Video

About JMS Adapter Use Cases

The JMS Adapter can be used in scenarios such as the following.

- The JMS Adapter can allow an Internet order processing application to communicate with a business process management application such as SAP. The Internet order processing application uses the JMS Adapter to deliver business data about new orders to a topic. The business process management gateway application, which accesses the SAP application using its native API, subscribes to the order topic. As new orders are broadcast to the topic, the gateway receives the orders and enters them into the SAP application.
- An automobile manufacturer can use the JMS Adapter to monitor inventory levels, order parts, and update budget information. The inventory application uses the JMS Adapter to send a message to the factory application when the inventory level for a specific part falls below a critical level. The factory application uses the JMS Adapter to send a message to the parts application so the factory can assemble the parts necessary to build a car. The parts applications use the JMS Adapter to send messages to their own inventory and order the applications to update their inventories and order new parts from suppliers. Both the factory and parts applications can use the JMS Adapter to send messages to the accounting application to update budgetary figures.

Typical Workflow for Creating and Including an Adapter Connection in an Integration

You follow a very simple workflow to create a connection with an adapter and include the connection in an integration in Oracle Integration Cloud Service.

This table lists the workflow steps for both adapter tasks and overall integration tasks, and provides links to instructions for each step.

Step	Description	More Information
1	Create the adapter connections for the applications you want to integrate. The connections can be reused in multiple integrations and are typically created by the administrator.	Creating a JMS Adapter Connection
2	Create the integration. When you do this, you add trigger and invoke connections to the integration.	Creating an Integration and Adding the JMS Adapter Connection to an Integration
3	Map data between the trigger connection data structure and the invoke connection data structure.	Mapping Integration Cloud Service Data of *Using Oracle Integration Cloud Service*
4	(Optional) Create lookups that map the different values used by those applications to identify the same type of object (such as gender codes or country codes).	Creating Lookups of *Using Oracle Integration Cloud Service*

Step	Description	More Information
5	Activate the integration.	Managing Integrations of *Using Oracle Integration Cloud Service*
6	Monitor the integration on the dashboard.	Monitoring Integration Cloud Services of *Using Oracle Integration Cloud Service*
7	Track payload fields in messages during runtime.	Assigning Business Identifiers for Tracking Fields in Messages and Managing Business Identifiers for Tracking Fields in Messages of *Using Oracle Integration Cloud Service*
8	Manage errors at the integration level, connection level, or specific integration instance level.	Managing Errors of *Using Oracle Integration Cloud Service*

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Creating a JMS Adapter Connection

A connection is based on an adapter. You define connections to the specific cloud applications that you want to integrate. The following topics describe how to define connections.

Topics

Prerequisites for Creating a Connection

You must satisfy the following prerequisites to create a JMS Adapter connection:

- To allow the transfer of information between a WebLogic JMS agent and the on-premises WebLogic JMS instance hosting the JMS server, cross domain security is required. The agent must use the JMS server access credentials. To enable cross domain security, see *Configuring Security for a WebLogic Domain* in *Fusion Middleware Securing Oracle WebLogic Server*.

Uploading an SSL Certificate

Certificates are used to validate outbound SSL connections. If you make an SSL connection in which the root certificate does not exist in Oracle Integration Cloud Service, an exception is thrown. In that case, you must upload the appropriate certificate. A certificate enables Oracle Integration Cloud Service to connect with external services. If the external endpoint requires a specific certificate, request the certificate and then upload it into Oracle Integration Cloud Service.

To upload a certificate:

1. From the Oracle Integration Cloud Service home page, click the **Administration** tab in the upper right corner.

   All certificates currently uploaded to the trust store are displayed in the Certificates dialog. A navigation panel on the left side of the dialog displays the following details:

   - **All**: Displays all certificates in Oracle Integration Cloud Service.

- **System**: Displays the certificates automatically included in Oracle Integration Cloud Service. These certificates cannot be deleted.
- **Uploaded**: Displays the certificates uploaded by individual users. These certificates can be deleted and updated.

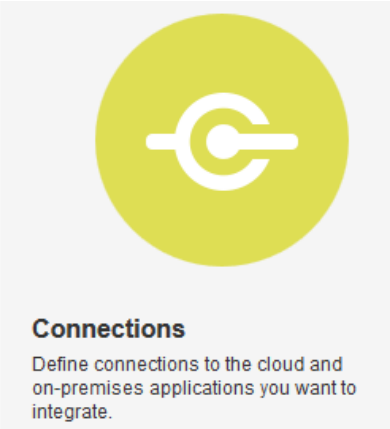
2. Click **Upload Certificate** at the top of the page.
3. In the Upload Certificate dialog box, enter a unique identifier for the certificate.

   This is a name you can use to identify the certificate.
4. Click **Browse** to locate the certificate file (`.cer`).
5. Click **Upload**.
6. Click the certificate name to view details such as the subject of the certificate, the issuer of the certificate, the date the certificate was issued, and the date the certificate expires.

Creating a Connection

The first step in creating an integration is to create the connections to the applications with which you want to share data.

1. In the Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.



3. Click **Create New Connection**.

   The Create Connection — Select Adapter dialog is displayed.
4. Select an adapter from the dialog. You can also search for the type of adapter to use by entering a partial or full name in the Search field, and clicking **Search**.

   The New Connection — Information dialog is displayed.
5. Enter the information to describe the connection.
   - Enter a meaningful name to help others find your connection when they begin to create their own integrations. The name you enter is automatically added in capital letters to the **Identifier** field.

- Select the role (direction) in which to use this connection (trigger, invoke, or both). Only the roles supported by this adapter are displayed for selection. When you select a role, only the connection properties and security policies appropriate to that role are displayed on the Connections page. If you select an adapter that supports both invoke and trigger, but select only one of those roles, then try to drag the adapter into the section you did not select, you receive an error (for example, configure an Oracle RightNow Cloud Adapter as only an invoke, but drag the adapter to the trigger section).
- Enter an optional description of the connection.

6. Click **Create**.

   Your connection is created and you are now ready to configure connection details, such as email contact, connection properties, security policies, and connection login credentials.

Adding a Contact Email

From the Connection Administrator section of the connection, you can add a contact email address for notifications.

1. In the **Email Address** field, enter an email address to receive email notifications when problems occur.
2. In the upper right corner, click **Save**.

Configuring Connection Properties

Enter connection information so your application can process requests.

1. Click **Configure Connectivity**.

   The Connection Properties dialog is displayed.

2. Enter the path for the host server.

3. Enter the port number for the host server.
4. Click **OK**.
5. Configure connection security. See Configuring Connection Security.

Configuring Connection Security

Configure security for your JMS Adapter connection by selecting the security policy and security token.

1. Click **Configure Credentials**.

   Username Password Token displays in the **Security Policy** field by default. This value cannot be changed.

2. Complete these fields:
   a. In the **Username** field, enter the JMS user name.
   b. In the **Password** field, enter the JMS password.
   c. In the **Confirm Password** field, enter the JMS password.
3. Click **OK**.
4. Select the agent group with which to associate the application. See Configuring an Agent Group.

Configuring an Agent Group

Configure an agent group for accessing your on-premises application.

1. Click **Configure Agents**.

   The Select an Agent Group window appears.

2. Click the name of the agent group.
3. Click **Use**.
4. Test the connection. See Testing the Connection.

   About Agents and Integrations Between On-Premises Applications and Oracle Integration Cloud Service

   Managing Agent Groups and the On-Premises Agent

   Monitoring Agents

Testing the Connection

Test your connection to ensure that it is successfully configured.

1. In the upper right corner of the page, click **Test**.

   If successful, the following message is displayed and the progress indicator shows 100%.

   ```
   The connection test was successful!
   ```

2. If your connection was unsuccessful, an error message is displayed with details. Verify that the configuration details you entered are correct.
3. When complete, click **Save**.

Editing a Connection

You can edit connection settings after creating a new connection.

1. In the Oracle Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.
3. On the Connections page, select **Edit** from the connection **Actions** menu or click the connection name.

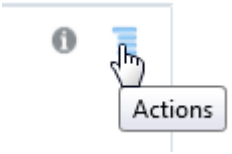
The Connection page is displayed.

4. To edit the notification email contact, change the email address in the **Email Address** field.
5. To edit the connection properties, click **Configure Connectivity**. Note that some connections do not include this button. If your connector does not include a **Configure Connectivity** button, then click the **Configure Credentials** button.

Cloning a Connection

You can clone a copy of an existing connection. It is a quick way to create a new connection.

1. In the Oracle Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.
3. On the Connections page, select **Clone** from the connection **Actions** menu.



The Clone Connection dialog is displayed.

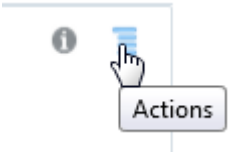
4. Enter the connection information.
5. Click **Clone**.
6. Click **Edit** to configure the credentials of your cloned connection. Cloning a connection does not copy the credentials.

See Editing a Connection for instructions.

Deleting a Connection

You can delete a connection from the connection menu.

1. In the Oracle Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.
3. On the Connections page, click **Delete** from the connection **Actions** menu.



The Delete Connection dialog is displayed if the connection is not used in an integration.

4. Click **Yes** to confirm deletion.

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Creating an Integration

Integrations use the adapter connections you created to your applications, and define how information is shared between those applications. You can create, import, modify, or delete integrations; create integrations to publish or subscribe to messages; add and remove request and response enrichment triggers; and create routing paths for different target endpoints in integrations. Click the following topics for more information.

Topic

- Creating Integrations (in *Using Oracle Integration Cloud Service*)

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Adding the JMS Adapter Connection to an Integration

When you drag the JMS Adapter into the invoke area of an integration, the Cloud Endpoint Configuration Wizard appears. This wizard guides you through configuration of JMS Adapter endpoint properties.

The following sections describe the wizard pages that guide you through configuration of the JMS Adapter as an invoke in an integration. The JMS Adapter cannot be used as a trigger in an integration.

Topics

For more information about JMS Adapter, see About the JMS Adapter.

Configuring Basic Information Properties

The Basic Info page appears when you drag an adapter to the invoke area. Review these topics to learn more about JMS Adapter basic information settings.

Topics

What You Can Do from the Basic Info Page

The Basic Info page is the first wizard page to appear when you drag an adapter to the invoke area. You can modify these values:

- Specify a meaningful name for the adapter.
- Specify a description for the adapter endpoint.
- Specify the JMS provider.
- Specify the JMS component type.
- Identify the acknowledge mode type.

What You See on the Basic Info Page

The following table describes the Basic Info page fields.

Element	Description
What do you want to call your endpoint?	Specifies a meaningful name so that others can understand the connection. For example, if you are creating a database connection for adding new employee data, you may want to name it `CreateEmployeeInDB`. You can include English alphabetic characters, numbers, underscores, and dashes in the name. You cannot include the following: • Blank spaces (for example, `My DB Connection`) • Special characters (for example, `#;83&` or `righ(t)now4`) • Multibyte characters
Description	Specifies an optional description so that others can quickly understand the purpose of the connection.
JMS Provider	Identifies the messaging system that implements the JMS interfaces and provides administrative and control features.
JMS Component	Sends messages to a JMS queue.

Element	Description
Acknowledge Mode	Identifies how your application should process the exchange of acknowledgment information when receiving messages from a broker. These are the available selections: • `AUTO_ACKNOWLEDGE` — a client acknowledgment for each message it delivers to the message consumer is immediately sent by the Message Queue client runtime; it then blocks waiting for a return broker acknowledgment confirming that the broker has received the client acknowledgment. The acknowledgment between the client and broker is handled automatically by the client runtime. • `DUPS_OK_ACKNOWLEDGE` — the session automatically sends a client acknowledgment each time it receives a fixed number of messages, or when a fixed time interval since the last acknowledgment was sent is reached. • `CLIENT_ACKNOWLEDGE` — the client application must explicitly acknowledge the receipt of all messages. To make sure that the broker does not delete messages from persistent storage before processing is complete, acknowledgment can be deferred until after the messages are processed. You can either acknowledge each message individually or batch multiple messages and acknowledge them all at once; the client acknowledgment you send to the broker applies to all messages received since the previous acknowledgment. In either case, the session thread blocks after sending the client acknowledgment, waiting for a broker acknowledgment in return to confirm that client acknowledgment has been received.

Configuring JMS Adapter Configuration Properties

The JMS Adapter Configuration page appears after the Basic Info page. Review these topics to learn more about JMS Adapter configuration settings.

Topics

What You Can Do from the JMS Adapter Configuration Page

You can modify these values on the JMS Adapter Configuration page:

- Upload the request payload file.
- Identify the Java Naming and Directory Interface (JNDI) destination name.

- Identify the JNDI connection factory.
- Specify the message type.
- Specify the delivery mode. Two values are available; `Persistent` and `Nonpersistent`.
- Specify the message priority from zero (lowest priority) to nine (highest priority).
- Specify the time to live (the amount of time before a message expires and is no longer available for consumption).
- Specify the unit of order (this option is only available when the JMS provider is a WebLogic server)

What You See on the JMS Adapter Configuration Page

The following table provides descriptions for the JMS Adapter Configuration page fields.

Element	Description
Schema Location	Identifies the location of the request payload schema file. If a location is not identified, an opaque schema is used.
Destination Name	Identifies the JNDI destination.
Connection Factory JNDI	Identifies the JNDI connection factory. A connection factory defines configuration parameters for client connections, and must be hosted on the same server or cluster as the client's destinations.
Message Type	Identifies the message type.
Delivery Mode	An optional field that identifies the delivery mode. Two values are available; `Persistent` and `Nonpersistent`.
Priority	An optional field that identifies the message priority from zero (lowest priority) to nine (highest priority).
Time to Live	An optional field that identifies the Store-and-Forward (SAF) service message delivery duration. When the duration expires, the sending agent removes the message from its storage and discontinues attempts to retransmit the message to the receiving side.
Unit of Order	An optional field that enables a stand-alone message producer, or a group of producers acting as one, to group messages into a single unit with respect to the processing order.

Reviewing Configuration Values on the Summary Page

You can review the specified adapter configuration values on the Summary page.

Topics

What You Can Do from the Summary Page

You can review trigger (source) or invoke (target) configuration details from the Summary page. The Summary page is the final wizard page for each adapter after you have completed your configuration.

- View the configuration details you defined for the trigger (source) or invoke (target) adapter. For example, if you have defined an inbound trigger (source) adapter with a request business object and immediate response business object, specific details about this configuration are displayed on the Summary page.
- Click **Done** if you want to save your configuration details.
- Click a specific tab in the left panel or click **Back** to access a specific page to update your configuration definitions.
- Click **Cancel** to cancel your configuration details.

What You See on the Summary Page

The following table describes the key information on the Summary page.

Element	Description
Summary	Displays a summary of the trigger (source) or invoke (target) configuration values you defined on previous pages of the wizard. The information that is displayed can vary by adapter. For some adapters, the selected business objects and operation name are displayed. For adapters for which a generated XSD file is provided, click the XSD link to view a read-only version of the file. To return to a previous page to update any values, click the appropriate tab in the left panel or click **Back**.

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Creating Mappings and Lookups in Integrations

You must map data between trigger connections and invoke connections in integrations. You can also optionally create lookups in integrations.

Topics

- Mapping Integration Cloud Service Data (in *Using Oracle Integration Cloud Service*)
- Creating Lookups (in *Using Oracle Integration Cloud Service*)

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Administering Integrations

Oracle Integration Cloud Service provides you with the information and tools required to activate, monitor, and manage your integrations in the runtime environment.

Topic

- Administering Integration Cloud Service (in *Using Oracle Integration Cloud Service*)