

Oracle® Public Cloud Machine

Using the Oracle Database Adapter

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

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Preface

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

Topics:

- [Audience](#)
- [Related Resources](#)
- [Conventions](#)

Audience

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

Related Resources

For more information, see these Oracle resources:

- *Using Oracle Integration Cloud Service*
- *Using the Oracle Mapper*
- Oracle Public Cloud Machine documentation in the Oracle Help Center:
<http://docs.oracle.com>

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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Getting Started with the Oracle Database Adapter

Review the following conceptual topics to learn about the Oracle Database 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 Oracle Database Adapter](#)
- [About Oracle Integration Cloud Service](#)
- [About Oracle Integration Cloud Service Connections](#)
- [About Oracle Integration Cloud Service Integrations](#)
- [Typical Workflow for Creating and Including an Adapter Connection in an Integration](#)

About the Oracle Database Adapter

The Oracle Database Adapter enables you to run stored procedures or SQL statements on a database as part of an integration in Oracle Integration Cloud Service.

The Oracle Database Adapter provides the following benefits:

- You can run stored procedures. Support is provided for non-JDBC (PL/SQL) datatypes in outbound invocations of stored procedures.
- You can run SQL statements.

The Oracle Database Adapter is one of many predefined adapters included with Oracle Integration Cloud Service. You can configure the Oracle Database Adapter as a 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.



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.

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 an Oracle Database 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 Oracle Database Adapter Connection to an Integration
3	Map data between the trigger connection data structure and the invoke connection data structure.	<i>Mapping Integration Cloud Service Data of Using Oracle Integration Cloud Service</i>
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).	<i>Creating Lookups of Using Oracle Integration Cloud Service</i>
5	Activate the integration.	<i>Managing Integrations of Using Oracle Integration Cloud Service</i>
6	Monitor the integration on the dashboard.	<i>Monitoring Integration Cloud Services of Using Oracle Integration Cloud Service</i>
7	Track payload fields in messages during runtime.	<i>Assigning Business Identifiers for Tracking Fields in Messages and Managing Business Identifiers for Tracking Fields in Messages of Using Oracle Integration Cloud Service</i>
8	Manage errors at the integration level, connection level, or specific integration instance level.	<i>Managing Errors of Using Oracle Integration Cloud Service</i>

Creating an Oracle Database 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](#)
- [Uploading an SSL Certificate](#)
- [Creating a Connection](#)
- [Editing a Connection](#)
- [Cloning a Connection](#)
- [Deleting a Connection](#)

Prerequisites for Creating a Connection

You must satisfy the following prerequisites for creating a connection with the Oracle Integration Cloud Service.

1. Ensure that the target database is publicly accessible.
2. Ensure that you have write permissions to the database.
3. Ensure that you have the required permissions to run stored procedures and SQL statements.
4. Know the database URL, including the hostname or IP address and the port number.
5. Know the database system ID and service name.
6. Know the username and password for connecting to the database.
7. Know the agent group if you are connecting to an on-premises application.

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.

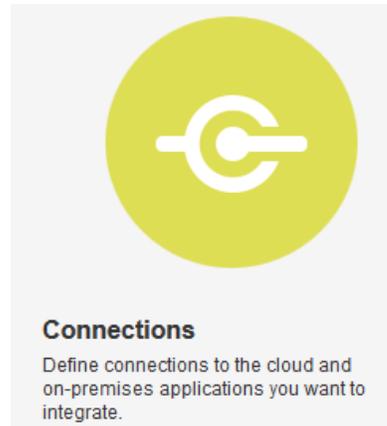
Creating a Connection

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

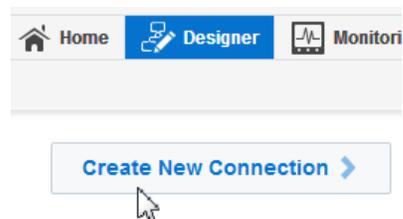
1. In the Integration Cloud Service toolbar, click **Designer**.



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. Use a meaningful name to help others find your connection when they begin to create their own integrations.

The dialog box is titled 'New Connection - Information'. It contains the following fields and controls:

- A text area for a description with the placeholder text 'Enter a brief description...'.
- A text input field for 'Connection Name' containing the value 'My_Connection'.
- A text input field for 'Identifier' containing the value 'MY_CONNECTION'.
- 'Create' and 'Cancel' buttons at the bottom right.

Instructions at the top of the dialog state: 'Enter information that describes the connection. Use a meaningful name and description to help others find your connection when they create their own integrations. The Identifier must be unique and can be set only when the connection is created.'

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 host name or IP address of the database server.
3. Enter the database server port number.
4. Enter the system or site ID.
5. Enter the database service name.
6. Click **OK**.

You are now ready to configure connection security.

Configuring Connection Security

Configure security for your database connection by selecting the security policy and setting login credentials. A database connection is only allowed for publicly accessible databases.

1. Click **Configure Credentials**.
2. Enter your login credentials.
 - a. Select the security policy. Only the Username Password Token policy is supported. It cannot be deselected.
 - b. Enter a username and password to connect to the database.
 - c. Reenter the password a second time.
3. Click **OK**.

You are now ready to configure 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](#).

Related Topics:

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.



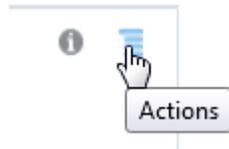
The Connection page is displayed.

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.

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 invoke endpoints in integrations. Click the following topics for more information.

Topic

- [Creating Integrations \(Using Oracle Integration Cloud Service\)](#)



Adding the Oracle Database Adapter Connection to an Integration

When you drag the Oracle Database Adapter into an integration, the Adapter Endpoint Configuration Wizard appears. This wizard guides you through configuration of Oracle Database Adapter endpoint properties.

The following sections describe the wizard pages that guide you through configuration of the Oracle Database Adapter as an invoke in an integration.

Topics

- [Configuring Basic Information Properties](#)
- [Configuring Oracle Database Adapter Invoke Stored Procedure Operation Properties](#)
- [Configuring Oracle Database Adapter Invoke SQL Statement Operation Properties](#)
- [Reviewing Configuration Values on the Summary Page](#)

For general information about the Oracle Database Adapter, see [About the Oracle Database Adapter](#).

Note:

- The Oracle Database Adapter does not support the regeneration of WSDL artifacts. For more information about regeneration, see [Regenerating a WSDL File for Integrations](#) (in *Using Oracle Integration Cloud Service*).
-

Configuring Basic Information Properties

You can enter a name and description on the Basic Info page of each trigger and invoke adapter in your integration.

Topics

- [What You Can Do from the Basic Info Page](#)
- [What You See on the Basic Info Page](#)

What You Can Do from the Basic Info Page

You can specify the following values on the Basic Info page. The Basic Info page is the initial wizard page that is displayed whenever you drag the Oracle Database Adapter into an integration.

- Specify a meaningful name.
- Specify the operation type in outbound connections:
 - Stored Procedures takes you to the Stored Procedure Operations page when you click **Next**.
 - SQL Statements takes you to the SQL Statement Operations page when you click **Next**.

What You See on the Basic Info Page

The following table describes the key information on the Basic Info page.

Element	Description
What do you want to call your endpoint?	Provide 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 <code>CreateEmployeeInDB</code> . You can include English alphabetic characters, numbers, underscores, and dashes in the name. You cannot include the following: <ul style="list-style-type: none">• Blank spaces (for example, <code>My DB Connection</code>)• Special characters (for example, <code>#;83&</code> or <code>right)now4</code>)• Multibyte characters
Select an Operation Type	Select the type operation this connection will perform: <ul style="list-style-type: none">• Stored Procedures lets you select a stored procedure to run on the database.• SQL Statements lets you specify an SQL query to run on the database.

Configuring Oracle Database Adapter Invoke Stored Procedure Operation Properties

Enter the Oracle Database Adapter stored procedure operation parameters.

Topics

- [What You Can Do from the Stored Procedure Operations Page](#)
- [What You See on the Stored Procedure Operations Page](#)

What You Can Do from the Stored Procedure Operations Page

You can specify the following values on the Stored Procedure Operations page. The Stored Procedure Operations page is the wizard page that is displayed if you selected Stored Procedures as the operation type on the Basic Info page.

- Select a stored procedure from the list. To filter the list, type a search pattern.
- If the stored procedure has arguments, specify values for them.

What You See on the Stored Procedure Operations Page

The following table describes the key information on the Stored Procedure Operations page.

Element	Description
Select Procedure	Select a stored procedure from the list. To filter the list, type text in the Search Pattern field.
Arguments	If the selected stored procedure has arguments, specify values for them.

Configuring Oracle Database Adapter Invoke SQL Statement Operation Properties

Enter the Oracle Database Adapter SQL statement operation parameters.

Topics

- [What You Can Do from the SQL Statement Operations Page](#)
- [What You See on the SQL Statement Operations Page](#)

What You Can Do from the SQL Statement Operations Page

You can specify the following values on the SQL Statement Operations page. The SQL Statement Operations page is the wizard page that is displayed if you selected SQL Statements as the operation type on the Basic Info page.

- Type an SQL query.
- Click Validate SQL Query to ensure that your query has correct syntax and specifies tables, fields, and values that exist.
- Make sure that after you click Validate SQL Query, the Status field displays Success!

Some syntax errors are subtle. For example, this statement results in an error:

```
insert into AddressTable values(#NAME)
```

This statement, with a space added after `values`, is correct:

```
insert into AddressTable values (#NAME)
```

What You See on the SQL Statement Operations Page

The following table describes the key information on the SQL Statement Operations page.

Element	Description
SQL Query	Type an SQL query.

Element	Description
Status	After you click Validate SQL Query, make sure the Status field displays Success!

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](#)
- [What You See on the Summary Page](#)

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	<p>Displays a summary of the trigger (source) or invoke (target) configuration values you defined on previous pages of the wizard.</p> <p>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.</p> <p>To return to a previous page to update any values, click the appropriate tab in the left panel or click Back.</p>

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 (Using Oracle Integration Cloud Service)
- Creating Lookups (Using Oracle Integration Cloud Service)



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*)

