Oracle® Cloud

Using the Oracle Autonomous Transaction Processing Adapter with Oracle Integration

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Contents

Preface

This guide describes how to configure the Oracle Autonomous Transaction Processing Adapter as a connection in an integration in Oracle Integration.

> **Note:**
>
> The information in this guide applies to all of your Oracle Integration instances. It doesn't matter which edition you're using, what features you have, or who manages your cloud environment. You'll find what you need here, including notes about any differences between the various flavors of Oracle Integration when necessary.

Topics

Audience

This guide is intended for developers who want to use the Oracle Autonomous Transaction Processing Adapter in integrations in Oracle Integration.

Documentation Accessibility

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Related Resources

See these Oracle resources:

- Oracle Cloud

  `http://cloud.oracle.com`
- *Using Integrations in Oracle Integration*
- *Using the Oracle Mapper with Oracle Integration*

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.
`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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Understand the Oracle Autonomous Transaction Processing Adapter

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

Topics:

Oracle Autonomous Transaction Processing Adapter Capabilities

The Oracle Autonomous Transaction Processing Adapter enables you to integrate the Oracle Autonomous Transaction Processing database with Oracle Integration through use of a wallet for direct connectivity. Use the Oracle Autonomous Transaction Processing Adapter to execute SQL queries or stored procedures in the Oracle Autonomous Transaction Processing database. For example, quotes in Oracle CPQ Cloud can be created as `Orders` in the Oracle Autonomous Transaction Processing database by executing SQL statements or stored procedures using the Oracle Autonomous Transaction Processing Adapter.

The Oracle Autonomous Transaction Processing Adapter provides the following capabilities:

- Support for using a wallet for direct connectivity to connect to the Oracle Autonomous Transaction Processing - Serverless (ATP-S) database in place of using the on-premises connectivity agent.

> **WARNING:**
>
> For direct connections (configured without using the connectivity agent), the Oracle Autonomous Transaction Processing Adapter can only be used for making outbound invocations as an invoke connection. This type of Oracle Autonomous Transaction Processing Adapter-specific connection cannot be configured as a trigger connection in an integration. Use cases related to inbound polling must be implemented using the scheduled orchestration integration pattern.

- Support for accessing an Oracle Autonomous Transaction Processing – Dedicated (ATP-D) database with a wallet-based connection that uses the connectivity agent.
- Support for integrating an Autonomous Transaction Processing - Serverless (ATP-S) database with a private endpoint. Integration is achieved with a wallet-based connection that uses the connectivity agent. See Configure Connection Security.
- Support for creating integrations with Oracle Autonomous Data Warehouse.
- Support for invocation of stored procedures in the Oracle Autonomous Database.
- Support for non-JDBC (PL/SQL record and PL/SQL table) datatypes in outbound invocations of stored procedures.
- Support for execution of DML statements and SQL queries: `Select`, `Insert`, `Update`, and `Delete`.

  Select the **Run a SQL Statement** option on the Basic Info page of the Adapter Endpoint Configuration Wizard to execute simple SQL queries. For complex SQL queries, use stored procedures by selecting the **Invoke a Stored Procedure** option on the Basic Info page of the Adapter Endpoint Configuration Wizard. Stored procedures can reduce the complexity of a SQL query.
- Support for updating or inserting multiple records in a single request.
- Support for performing a `SELECT` operation against database tables.
- Support for the operations on a table feature, which enables you to model SQL statements with the Adapter Endpoint Configuration Wizard. The operation on a table feature also supports multiple records in a single request.

> **Note:**
>
> In Java, Unicode characters are represented as 2 bytes.

Oracle Autonomous Transaction Processing delivers a self-driving, self-securing, self-repairing database service that can instantly scale to meet demands of mission critical transaction processing and mixed workload applications. See Autonomous Transaction Processing.

The Oracle Autonomous Transaction Processing Adapter is one of many predefined adapters included with Oracle Integration. You can configure the Oracle Autonomous Transaction Processing Adapter as a connection in an integration in Oracle Integration.

Cloud Database Connectivity Support

This table describes cloud database connectivity support in Oracle Integration. Review these capabilities and use the adapter (Oracle Autonomous Transaction Processing Adapter, Oracle Autonomous Data Warehouse Adapter, or Oracle Database Cloud Service Adapter) appropriate to your environment.

Database	Direct Connectivity with Wallet	Connectivity Agent with Username Token Policy	Connectivity Agent with Wallet
Autonomous Database - Serverless (Oracle Autonomous Transaction Processing - Serverless, Oracle Autonomous Data Warehouse - Serverless)	Supported	Not supported	Supported
Private Endpoint for Autonomous Database - Serverless (Oracle Autonomous Transaction Processing - Serverless Private Endpoint, Oracle Autonomous Data Warehouse - Serverless Private Endpoint)	Not supported	Not supported because Oracle Autonomous Transaction Processing - Serverless supports only wallets	Supported
Autonomous Database - Dedicated (Oracle Autonomous Transaction Processing - Dedicated, Oracle Autonomous Data Warehouse - Dedicated)	Not supported	Supported	Supported
Autonomous Database - Dedicated (Oracle Autonomous Transaction Processing - Dedicated Private Endpoint, Oracle Autonomous Data Warehouse - Dedicated Private Endpoint)	Not supported	Supported	Supported
Oracle Database Cloud Service	Supported	Supported	Supported
Oracle Cloud Infrastructure - Bare Metal and Virtual Machine Database Systems (Oracle Database Cloud Service Private Endpoint)	Not supported	Supported	Supported

See Overview of Autonomous Databases and Bare Metal and Virtual Machine DB Systems.

Oracle Autonomous Transaction Processing Adapter Restrictions

Note the following Oracle Autonomous Transaction Processing Adapter restrictions in Oracle Integration.

- For direct connections (configured without using the connectivity agent), the Oracle Autonomous Transaction Processing Adapter can only be used for making outbound invocations as an invoke connection. This type of Oracle Autonomous Transaction Processing Adapter-specific connection cannot be configured as a trigger connection in an integration. Use cases related to inbound polling must be implemented using the scheduled orchestration integration pattern.
- The PL/SQL boolean type is not supported as an IN/OUT parameter in a stored procedure. However, you can create a wrapper stored procedure that converts PL/SQL boolean to an integer and use those wrapper stored procedures in Oracle Integration.
- Nested PL/SQL types (for example, `RECORD` types inside a `TABLE` type) are not supported as IN/OUT parameters in a stored procedure. However, you can define `OBJECT` types inside the `TABLE` type.
- Cross schema stored procedures are not allowed in cases where Oracle Integration must generate the wrappers.

> **Note:**
>
> There are overall service limits with Oracle Integration. A service limit is the quota or allowance set on a resource. See Service Limits.

What Application Version Is Supported?

For information about which application version is supported by this adapter, see the Connectivity Certification Matrix:

See Connectivity Certification Matrix.

Workflow to Create and Add an Oracle Autonomous Transaction Processing Adapter Connection to an Integration

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

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.	Create an Oracle Autonomous Transaction Processing Adapter Connection
2	Create the integration. When you do this, you add trigger and invoke connections to the integration.	Create Integrations and Add the Oracle Autonomous Transaction Processing Adapter Connection to an Integration
3	Map data between the trigger connection data structure and the invoke connection data structure.	Map Data of *Using Integrations in Oracle Integration*
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).	Manage Lookups of *Using Integrations in Oracle Integration*
5	Activate the integration.	Manage Integrations of *Using Integrations in Oracle Integration*
6	Monitor the integration on the dashboard.	Monitor Integrations of *Using Integrations in Oracle Integration*
7	Track payload fields in messages during runtime.	Assign Business Identifiers for Tracking Fields in Messages and Manage Business Identifiers for Tracking Fields in Messages of *Using Integrations in Oracle Integration*
8	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors of *Using Integrations in Oracle Integration*

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Create an Oracle Autonomous Transaction Processing Adapter Connection

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

Topics:

Prerequisites for Creating a Connection

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

1. Download the client credentials wallet from the Oracle Autonomous Transaction Processing instance. See Download Client Credentials (Wallets) of *Using Oracle Autonomous Transaction Processing*.
2. Ensure that the target database is accessible.
3. Ensure that you have write permissions to the database.
4. Ensure that you have the required permissions to run stored procedures and SQL statements.
5. Know the database service name.
6. Know the database service username and password for connecting to the database.

Migrate from an Oracle Database Cloud Service Database Instance to an Oracle Autonomous Transaction Processing or Oracle Autonomous Data Warehouse Database Instance

Perform the following steps if you want to migrate from an Oracle Database Cloud Service database instance to an Oracle Autonomous Transaction Processing or Oracle Autonomous Data Warehouse database instance.

1. Migrate all the required database objects, stored procedures, wrapper procedures, and tables to the destination Oracle Autonomous Transaction Processing or Oracle Autonomous Data Warehouse database instance.
2. Change the Oracle Database Cloud Service Adapter connection details to point to an Oracle Autonomous Transaction Processing or Oracle Autonomous Data Warehouse database instance.
    a. Go to the Connection page for the Oracle Database Cloud Service Adapter.

b. Click **Configure Connectivity**.
c. Specify the new host name.
d. Specify the new service name and click **OK**.
e. Click **Configure Security**.
f. Select the **Oracle Wallet** security policy.
g. Upload the wallet.
h. Specify the wallet password and reconfirm it.
i. Specify the database service username.
j. Specify the database service password, reconfirm it, and click **OK**.
k. Delete the agent from the connection.

3. Test the connection.
4. Once the test is successful, click **Save** to save the connection details.
5. Reactivate the integrations.

Create a Connection

Before you can build an integration, you have to create the connections to the applications with which you want to share data.

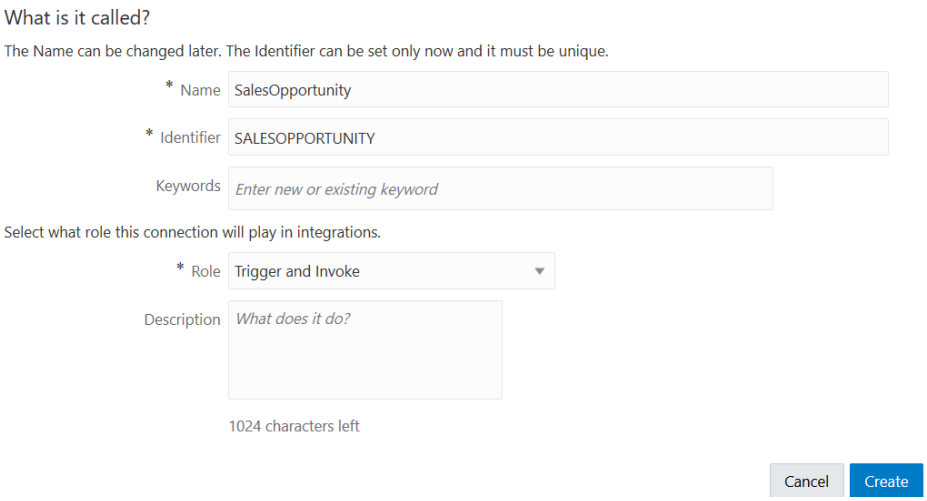
To create a connection in Oracle Integration:

1. In the left navigation pane, click **Home** > **Integrations** > **Connections**.
2. Click **Create**.

> **Note:**
>
> You can also create a connection in the integration canvas of:
>
> - An orchestrated integration (See Define Inbound Triggers and Outbound Invokes.)
> - A basic routing integration (See Add a Trigger (Source) Connection.)

3. In the Create Connection — Select Adapter dialog, select the adapter to use for this connection. To find the adapter, scroll through the list, or enter a partial or full name in the **Search** field and click

Search.
4. In the Create Connection dialog, enter the information that describes this connection.



a. 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. If you modify the identifier name, don't include blank spaces (for example, `SALES OPPORTUNITY`).

b. Enter optional keywords (tags). You can search on the connection keywords on the Connections page.

c. Select the role (direction) in which to use this connection (trigger, invoke, or both). Only the roles supported by the 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, you'll get an error when you try to drag the adapter into the section you didn't select. For example, let's say you configure a connection for the Oracle Service Cloud (RightNow) Adapter as only an **invoke**. Dragging the adapter to a **trigger** section in the integration produces an error.

d. Enter an optional description of the connection.

5. Click **Create**.

   Your connection is created. You're now ready to configure the connection details, such as connection properties, security policies, connection login credentials, and (for certain connections) agent group.

Configure Connection Properties

Enter connection information so your application can process requests.

1. Go to the **Connection Properties** section.
2. If configuring the connection to use direct connectivity (that is, you are *not* using the connectivity agent):
   a. In the **Host** field, specify the host.
   b. In the **Service Name** field, specify the database service name. It is recommended that you use the `low` profile as the database service name.

> **Note:**
>
> The service name must be the same as the one in the `tnsnames.ora` file in the wallet. However, if you receive an error when testing the connection, it may be because the name is too long. See Service Name Specified on the Connections Page is Too Long.

3. If configuring the connection to use the connectivity agent:
   a. In the **Host** field, specify the host.
   b. In the **Port** field, specify the SQL*Net port.
   c. In the **SID** field, specify the database SID.
   d. In the **Service Name** field, specify the database service name. It is recommended that you use the `low` profile as the database service name.

> **Note:**
>
> You must specify either a SID or service name value. Do *not* specify values for both fields.

Configure 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. Go to the **Security** section.
2. Select the security policy.
3. If you select **JDBC Basic Authentication**:

> **Note:**
>
> Using the Username Password Token security policy, you can create and successfully test the connection to the database without the connectivity agent if the database is present in the same private network as the Oracle Integration instance. If the database is not in the same private network, it is not recommended that you connect without the connectivity agent because the connection won't be secure.

   a. Enter the database service username and password to connect to the Oracle Autonomous Transaction Processing database.
   b. Re-enter the password a second time.
4. If you select **JDBC Over SSL**:

> **Note:**
>
> The Oracle Autonomous Transaction Processing Adapter can connect through the connectivity agent when using the wallet. It can be used as a trigger connection only if the connectivity agent is used in the connection. However, all operations that you select on the Basic Info page such as **Run a SQL Statement**, **Invoke a Stored Procedure**, and **Perform an Operation On a table** are supported when configuring the adapter to use direct connectivity (without the connectivity agent).

a. In the **Wallet** field, select the check box, then click **Upload** to upload the wallet file.

b. Enter the wallet password, then re-enter it a second time to confirm.

c. Enter the database service username and password to connect to the Oracle Autonomous Transaction Processing database.

d. Enter the database password a second time to confirm.

Configure an Agent Group

Configure an agent group for accessing the service hosted on your premises behind the fire wall.

1. Click **Configure Agents**.

   The Select an Agent Group page appears.

2. Click the name of the agent group.

3. Click **Use**.

To configure an agent group, you must download and install the on-premises connectivity agent. See Download and Run the Connectivity Agent Installer and About Connectivity Agents and Integrations Between On-Premises Applications and Oracle Integration in *Using Integrations in Oracle Integration*.

Test the Connection

Test your connection to ensure that it's configured successfully.

1. In the page title bar, click **Test**. What happens next depends on whether your connection uses a Web Services Description Language (WSDL) file.

If Your Connection...	Then...
Doesn't use a WSDL	The test starts automatically

If Your Connection...	Then...
Uses a WSDL	A dialog prompts you to select the type of connection testing to perform: • **Validate and Test**: Performs a full validation of the WSDL, including processing of the imported schemas and WSDLs. Complete validation can take several minutes depending on the number of imported schemas and WSDLs. No requests are sent to the operations exposed in the WSDL. • **Test**: Connects to the WSDL URL and performs a syntax check on the WSDL. No requests are sent to the operations exposed in the WSDL.

2. Wait for a message about the results of the connection test.
   - If the test was successful, then the connection is configured properly.
   - If the test failed, then edit the configuration details you entered. Check for typos, verify URLs and credentials, and download the diagnostic logs for additional details. Continue to test until the connection is successful.
3. When complete, click **Save**, then click 
   .

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Add the Oracle Autonomous Transaction Processing Adapter Connection to an Integration

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

The following sections describe the wizard pages that guide you through configuration of the Oracle Autonomous Transaction Processing Adapter as an invoke in an integration. The Oracle Autonomous Transaction Processing Adapter cannot be configured as a trigger connection in an integration.

Topics:

Basic Information Page

Specify a name, description, and operation type on the Basic Info page of each trigger and invoke connection in your integration.

Element	Description
What do you want to call your endpoint?	Identifies the connection with a meaningful name that defines the purpose of connection. For example, `CreateEmployeeInDB` for a database connection that adds new employee data. The name can include English alphabetic characters, numbers, underscores, and dashes. The name cannot include: • Blank spaces (for example, `My DB Connection`) • Special characters (for example, `#;83&` or `righ(t)now4`) • Multibyte characters

Element	Description

What operation do you want to perform?	• **Invoke a Stored Procedure** — Select to run a stored procedure on the database.
	• **Run a SQL Statement** — Select to run a SQL query on the database.
	• **Perform an Operation On a Table** — Select to perform one of the following operations on a table. You can update or insert multiple records in a single request.
	– **Insert**
	– **Update**
	– **Insert or Update (Merge)**
	– **Select**
	Notes
	• When operations in a SQL statement such as Update, Concat, and Merge accept values for the inbound invocation of an integration, they do not work. For example, the following query does not work:
	`select concat(empname, 'ss') from DB_AQ where empno=#empno`
	`select empno from DB_AQ where empname=concat(#empname, 'YY')`
	As a workaround, handle these scenarios during payload mapping. For example, perform a concatenation during mapping of the payload. The final output can then be passed as input to the SQL query.
	• `IN`/`BETWEEN` operators are not supported with bind parameters. Use greater than (>) and less than (<) operators instead.

Invoke Stored Procedure Page

Enter the invoke stored procedure values. The Invoke a Stored Procedure page appears when you select **Invoke a Stored Procedure** as the operation to perform on the Basic Info page.

You can specify the following values on the Invoke a Stored Procedure page.

- Select the database schema that includes the data you want to query (for example, you want to query details about an employee based on their employee ID).
- Select a stored procedure or package from the list that is displayed after you select the database schema.

Note:

- Stored procedures return binary large objects (for example, BLOB database data types) as base64Binary types in XML. Depending upon the use cases, these can be decoded during transformation using inbuilt functions such as decodeBase64 or can be passed as-is for downstream processing.
- Adapter input/output parameters are defined based on the stored procedure IN/OUT parameters. The IN parameter corresponds to the request and the OUT parameter is translated as the response.

Element	Description
Select Schema	Select a database schema from the list. This action refreshes the page to display fields for selecting a package or procedure to invoke. Special characters (for example, #) are not supported in schema names. See Special Characters are Not Supported in Schema Names.
Select Package	Select the database package. This action refreshes the page to display the procedures available for the package. When importing a predefined integration package containing PLS or SQL stored procedures, the wrapper package is not recreated in the target database. To add the wrapper package, confirm JPublisher is installed on the target database and define the original stored procedure. After confirming JPublisher is installed and the stored procedure is defined, open the PL/SQL Wrapper utility and execute the add scripts command to add the scripts included in the exported inventory archives (IAR) file.
Select Procedure	Displays the in (inbound), out (outbound), and in/out (inbound/outbound) parameters for the selected package.
Arguments	Display the in, out, and in/out parameters that are passed with this procedure.

Invoke SQL Statement Page

Enter the SQL statement values. The Run a SQL Statement page appears when **Run a SQL Statement** is selected as the operation to perform on the Basic Info page. You can specify the following values on the Run a SQL Statement page.

Note:

- Do not use schema/database names in SQL queries. Configure the details in the connection. For example:

  ```
  Update HR.employee set HR.employee.first_name = 'Name'
  where HR.employee.employee_id='1'
  ```

  can be changed to a simple query, such as:

  ```
  Update employee set first_name = 'Name' where
  employee_id='1'
  ```

  where `HR` is used in the connection details. This restricts a user with specific privileges to a particular schema/database.
- When configuring the adapter as an invoke connection, ensure that proper spaces are provided between key words for a pure SQL statement. For example, the following statement fails during integration activation because there is no blank space between `VALUES` and `(#`.

  ```
  INSERT INTO table_name VALUES(#EMPNO, #EMPNAME)
  ```

  Add a blank space between VALUES and (#, and the statement is successfully processed.

  ```
  INSERT INTO table_name VALUES (#EMPNO, #EMPNAME)
  ```
- When configuring the adapter as an invoke connection, define all bind parameters in the same order and define the parameters that takes absolute values at the end.

  ```
  INSERT INTO table_name (EMPNO, EMPNAME, EMPUUID, EMPPHONE,
  EMPHIREDATE) VALUES (#EMPNO,
  #EMPNAME, Sys_guid(), NULL, SYSDATE)
  ```

Element	Description
SQL Query	Identifies the SQL query.
Validate SQL Query	Validates the SQL query syntax.

Element	Description
Status	Displays the SQL query syntax validation status. When syntax validation is successful, the message `Success!` appears.

Table Operation Page

You can update or insert multiple records in a single request.

> **Note:**
>
> When you change the structure of a table (for example, you add or delete a column), you must re-import the table by doing a re-edit in the Adapter Endpoint Configuration Wizard. Go to the Import Tables page and re-import the same table, then click **OK** > **Next** > **Done** to complete the wizard. Only then are the table changes reflected in the integration.

Topics:

Import Tables Page

Filter and select the tables to import based on the selected schema. These tables are used to generate a SQL statement based on the operation selected.

You can import the following number of tables:

- A maximum of three tables for insert, update, and insert or update actions
- A maximum of five tables for the select - operation on table feature
- A maximum of five tables for the polling feature

Element	Description
Schema	Select the schema to use. The page is refreshed to display the tables available for selection.
Name Filter	Filter the display of tables.
Available	Select the tables on which to insert or update records.
Selected	Displays the selected tables.

Relationships Page

Review the relationships between the selected tables and optionally create, remove, or rename relationships. These relationships are used in the insert or update SQL statements.

Element	Description
Relationships Table	Displays the relationships defined on the root database table and any related tables (one-to-one or one-to-many).
Create	Click to create new relationships.
Remove	Click to remove a selected relationship.
Rename	Click to rename a selected relationship.

Create Relationship Page

Specify the parent and child relationships to use in the SQL statement.

Element	Description
Parent Table	Select the parent table.
Child Table	Select the child table.
Mapping Type	Select the mapping type (one-to-many, one-to-one, or one-to-one with the foreign key on the child table). For example, if you selected **Employees** as the parent table and **Departments** as the child table, the following options are displayed: • **Employees has a 1:1 Relationship with Departments** • **Employees has a 1:1 Relationship with Departments (Foreign Key on Child table)** • **Employees has a 1:M Relationship with Departments**
Parent and Child Table	Associate the foreign key fields to the primary key fields.
Relationship Name	Optionally name the relationship (a default name is generated).

Attribute Filtering Page

Filter out the attributes to exclude.

Element	Description
Attributes Tree	Deselect any attributes to exclude from the database query. You cannot exclude primary key attributes.

Advanced Options Page

Provide additional advanced options such as sequencing. This is only valid for the insert and merge operations.

Element	Description
Table	Displays the selected table.
Sequence	Specify that the primary key is assigned from a sequence on any insert. Click **Search** and select a sequence from the list.

Operations on Table Page

Select the database tables. To use the bulk extract feature, you must choose the **SELECT** operation from the **Perform an Operation On a Table** list on the Basic Info page.

Operations on Table Page

Element	Description
Schema	Select the database schema that includes the tables to process.
Table Name	Enter a filter with which to search the schema (for example, %TAB to search for tables with TAB in the name).
Table Type	Specify the table type filter to get a subset of the appropriate database objects, then click **Search**. • **ALL** • **TABLE** • **VIEW**
Filter By	Enter the initial letters to filter the display of table names.
Table Names	Select the tables to import. **Note**: It is recommended that you to import the tables together for the adapter to automatically recognize the relationship. If you import the tables separately, you must explicitly create the table relationship.
Import Tables	Click to import the tables. The page is refreshed for you to select the parent database table.
Select the parent database table	Select the parent (root) table from the list. If using multiple related tables, this is the top-level parent table in the relationship. After making your selection, the page is refreshed for you to view and edit the table relationships.
Add || Remove Tables	Click to add more tables or remove tables no longer in use.
Review and manage parent database table relationships	Click **Edit** to view and edit the table relationships. The relationships automatically identified by the adapter are displayed. See Review and manage parent database table relationships Option.

Element	Description
Review and filter columns from selected database tables	Click **Edit** to view and edit the table attributes. You can deselect any attributes to exclude from the database queries. Primary key attributes cannot be excluded. See Review and filter columns from selected database tables Option.
Review and edit SQL query	Click **Edit** to view and edit the default SQL query. See Review and edit SQL query Option. **Note**: This field is available for a `Select` operation on the table.

Review and manage parent database table relationships Option

Table 3-1 - Review and manage parent database table relationships Option

Element	Description
Create New	Click to create a new relationship.
Relations	View the existing parent and child table relations automatically created by the adapter.

Review and filter columns from selected database tables Option

Table 3-2 - Review and filter columns from selected database tables Option

Element	Description
Attributes Tree	View and deselect attributes automatically created by the adapter.

Review and edit SQL query Option

> **Note:**
>
> This is only applicable for a `Select` operation on a table.

Table 3-3 - Review and edit SQL query Option

Element	Description
SQL Edit	Click to manually edit the query in the **SQL Query** field.

Table 3-3 (Cont.) - Review and edit SQL query Option

Element	Description
Edit using Expression Builder	Click to edit the query in the Expression Builder. • **Add New**: Click to add new criteria to the SQL query. 1. Click **Add New**. 2. In the **First Argument** field, click **Edit**, and select the argument to add (for example, **deptno**). 3. In the **Operator** field, select the operator to use for the comparison from the dropdown list (for example, **=**). 4. In the **Second Argument** field, select the option to use: – **Literal**: Click to specify a value. If selected, you are prompted to select the data type (for example, integer) and specify the value. – **Parameter**: Click to specify a bind parameter. – **Query Key**: Click to run the comparison against another column in the table. New criteria is appended to the SQL query with a **WHERE** clause. If you add subsequent SQL queries, they are appended to the SQL query with an **AND** clause • **Add Nested**: Click to add nested criteria to the SQL query. • **Edit**: Click the edit the SQL criteria you specified. • **Remove**: Click the edit the SQL criteria you specified. Click to edit the query with the Expression Builder.
Maximum Number of Records to be fetched	Select the number of records to fetch with this SQL query.

Summary Page

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

Element	Description
Summary	Displays a summary of the 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**. Click **Cancel** to cancel your configuration details.

4

Implement Common Patterns Using the Oracle Autonomous Transaction Processing Adapter

You can use the Oracle Autonomous Transaction Processing Adapter to implement the following common patterns.

Topics:

Methods for Connecting Oracle Integration to an Oracle Autonomous Transaction Processing - Dedicated Database Instance with the Oracle Autonomous Transaction Processing Adapter

Connectivity from Oracle Integration to an Oracle Autonomous Transaction Processing- Dedicated database instance using the Oracle Autonomous Transaction Processing Adapter can be accomplished through the following methods.

- Connectivity agent: Use this approach when the Oracle Autonomous Transaction Processing - Dedicated database instance is not publicly accessible and resides within a private subnet in your Virtual Cloud Network (VCN). With this topology, the Oracle Autonomous Transaction Processing Adapter cannot directly access the Oracle Autonomous Transaction Processing- Dedicated database instance. The connectivity agent must be deployed in your network to allow the connectivity agent access to the Oracle Autonomous Transaction Processing- Dedicated database instance.
- Direct connectivity: Use this approach when the Oracle Autonomous Transaction Processing - Dedicated database instance is directly accessible from Oracle Integration. In this case, the connectivity agent is not necessary. However, Oracle strongly recommends using Transport Level Security (TLS) for the communication between Oracle Integration and the Oracle Autonomous Transaction Processing- Dedicated database instance to ensure the data being transmitted is encrypted in motion.

Define a Select Operation on Database Tables

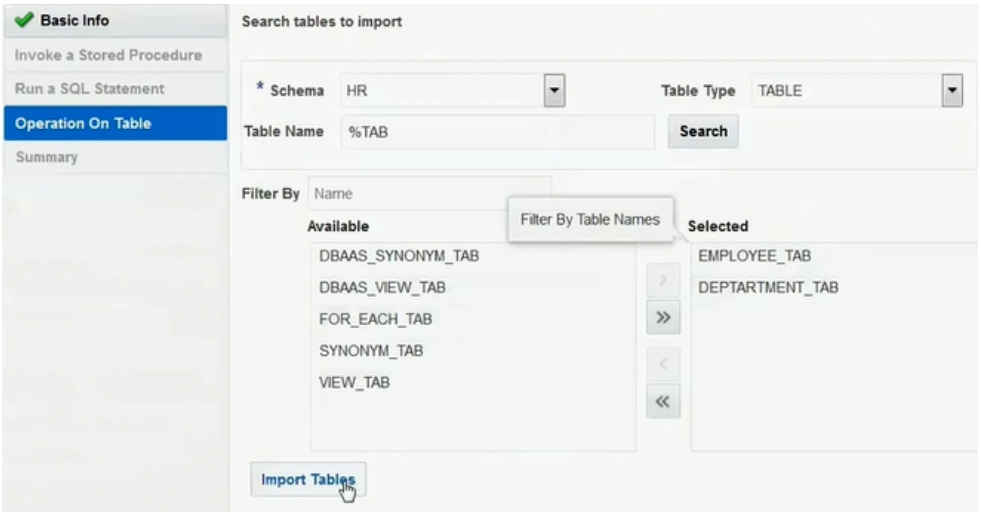
You can define a SELECT operation to perform against database tables. This section provides a high level overview of creating an integration in which an Oracle Autonomous Transaction Processing Adapter is configured as an invoke connection to retrieve table records from the Oracle Database.

To define a SELECT operation on database tables:

1. Configure SOAP Adapter and Oracle Autonomous Transaction Processing Adapter connections.
2. Select **App Driven Orchestration** in the Create Integration - Select a Style dialog.
3. Add and configure the SOAP Adapter as a trigger connection in the integration.

   The SOAP Adapter is configured to accept an input and return the response received from the invoke connection.
4. Add the Oracle Autonomous Transaction Processing Adapter as an invoke connection in the integration.

   This invokes the Adapter Endpoint Configuration Wizard.
5. On the Basic Info page, select **Perform an Operation On a Table** as the type of operation to perform and **Select** as the operation to perform on the table.
6. On the Operate On Table page, specify the schema and tables to import, and click **Import Tables**. For this example, the following values are specified.
   - **Schema**: **HR**
   - **Table Type**: **TABLE**
   - **Table Name**: %TAB
   - **Selected Tables**: **EMPLOYEE_TAB** and **DEPARTMENT_TAB**. The tables are imported together for the Oracle Autonomous Transaction Processing Adapter to recognize the relation between the tables.

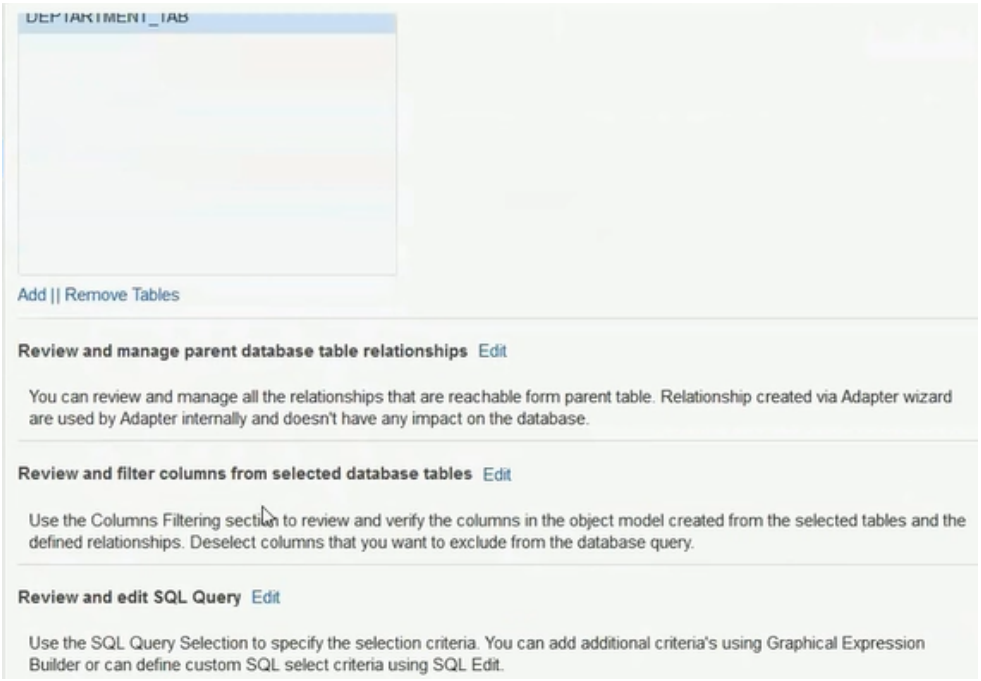


The page is refreshed for you to select the parent (root) database table.

7. Select the parent table (for this example, **DEPARTMENT_TAB** is selected).

   This page enables you to:

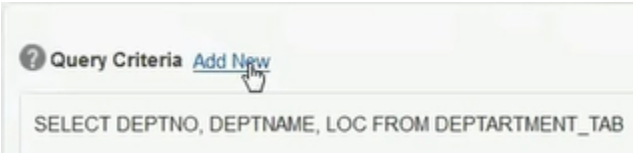
   - View the automatically created table relationships and create new ones.
   - View and deselect attributes.
   - View and edit the automatically created SQL query.



8. If you want to edit the automatically created SQL query, click **Edit** to the right of **Review and edit SQL Query**.

   a. Click **Edit using Expression Builder**. You can also manually edit the SQL query by clicking **SQL Edit**.

   b. Click **Add New** to add new criteria to the SQL query. The automatically created SQL query is displayed below the link.



   c. Specify values for the following fields, and click **OK**.

      - **First Argument**
      - **Operator**
      - **Second Argument**

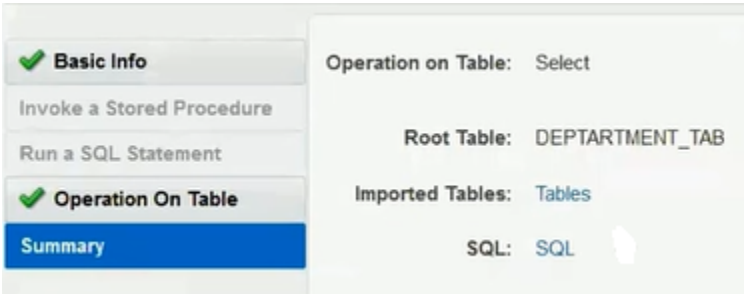
      For example:

The criteria you specify are appended to the existing SQL query as part of a **WHERE** clause. Any additional SQL query criteria you specify are appended as part of an **AND** clause. For example:

```
SELECT DISTINCT t0.DEPTNO, t0.DEPTNAME, t0.LOC FROM DEPTARTMENT_TAB t0, EMPLOYEE_TAB t1
WHERE (((t0.DEPTNO = #deptno) AND (t1.EMPID > 999)) AND (t1.DEPTNO = t0.DEPTNO))
```

d. Click **OK**.

9. Click **Next**.
10. View your selections on the Summary page. Links to the tables you selected to import and SQL query you specified are provided.



11. Click **Done** to exit the Adapter Endpoint Configuration Wizard.
12. Complete the integration by performing mapping and tracking tasks.
13. Activate the integration.
14. Copy the link to invoke the integration from under the **How to Run** link.
15. Invoke the integration from a tool such as the SOAP UI.
16. Review the values returned by the Oracle Autonomous Transaction Processing Adapter.

5

Troubleshoot the Oracle Autonomous Transaction Processing Adapter

Review the following topics to learn about troubleshooting issues with the Oracle Autonomous Transaction Processing Adapter.

Topics:

Additional integration troubleshooting information is provided. See Troubleshoot Oracle Integration in *Using Integrations in Oracle Integration*.

Service Name Specified on the Connections Page is Too Long

The service name that you specify in the **Service Name** field on the Connections page is provided in the `tnsnames.ora` file included in the wallet ZIP file downloaded from the Oracle Autonomous Transaction Processing database. If the service name is too long, you receive the following error when testing the connection:

```
Unable to test connection "MYATP". [Cause: CLOUD-0005]
CLOUD-0005 : Unable to establish connection. Please check connection
parameters
Network Adapter could not establish the connection. Please check the
wallet credentials
and ensure database is reachable.
```

Perform the following steps to resolve this error.

1. Ensure that the correct service name is provided.
2. Pick the name from the name-value pair. The `tnsnames.ora` file includes a list of service names.
3. Ensure that the database is reachable. Try connecting from any other SQL client to confirm.
4. Ensure that the correct wallet credentials are provided.

Special Characters are Not Supported in Schema Names

If you use schema names with special characters such as #, integration activation fails. For stored procedures, the schema derives the names of the types in the XSD. If the type name contains #, the XSD has problems with the name. Use a schema name that does not contain any special characters.