Oracle® Cloud

Using the Oracle Database Cloud Service Adapter with Oracle Integration 3

F45576-14
May 2026

Oracle Cloud Using the Oracle Database Cloud Service Adapter with Oracle Integration 3,

F45576-14

Copyright © 2022, 2026, Oracle and/or its affiliates.

Primary Author: Oracle Corporation

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software, software documentation, data (as defined in the Federal Acquisition Regulation), or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software," "commercial computer software documentation," or "limited rights data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle®, Java, MySQL, and NetSuite are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

About This Content

1 Understand the Oracle Database Cloud Service Adapter

Oracle Database Cloud Service Adapter Capabilities 1
- Cloud Database Connectivity Support 3

Oracle Database Cloud Service Adapter Restrictions 3

What Application Version Is Supported? 4

Workflow to Create and Add an Oracle Database Cloud Service Adapter Connection to an Integration 4

2 Create an Oracle Database Cloud Service Adapter Connection

Prerequisites for Creating a Connection 1
- Know Oracle Database Classic Cloud Service Instance Details 1
- Complete Connectivity with SSL Prerequisites 1
- Complete Username Password Token Security Policy Prerequisites 2
- Complete Oracle Cloud Infrastructure Database version 18c Prerequisites 2
- Migrate from an Oracle Database Classic Cloud Service Database Instance to an Oracle Autonomous AI Transaction Processing or Oracle Autonomous Data Warehouse Database Instance 3

Create a Connection 3
- Configure Connection Properties 5
- Configure Connection Security 6
- Configure the Endpoint Access Type 7
- Test the Connection 7

3 Add the Oracle Database Cloud Service Adapter Connection to an Integration

Basic Information Page 2

Trigger Polling Page 2
- Polling Page 3
- Search and Import Tables Page 3

Copyright © 2022, 2026, Oracle and/or its affiliates.

Primary Keys Page 4
Manage Table Relationships Page 4
Attribute Filtering Page 4
Polling Strategy and Options Page 5
Invoke Stored Procedure Page 5
Invoke SQL Statement Page 6
Table Operation Page 6
Import Tables Page 7
Relationships Page 7
Create Relationship Page 7
Attribute Filtering Page 8
Advanced Options Page 8
Operations on Table Page 9
Summary Page 10

4 Implement Common Patterns Using the Oracle Database Cloud Service Adapter

Perform Inbound Polling Without the Connectivity Agent 1
Methods for Connecting Oracle Integration to an Oracle Database Classic Cloud Service Instance with the Oracle Database Cloud Service Adapter 2
Define a Select Operation on Database Tables 2
Define Fault Mapping in Integrations 5

5 Troubleshoot the Oracle Database Cloud Service Adapter

Connectivity Agent Fails Frequently If Competing with Oracle Database Classic Cloud Service for Resources 1
Set Null to Collections 1
Wrappers Require Regeneration After Objects Change 1
Recover from a CLOUD-0005: Unable to Establish Connection Error 2
Special Characters are Not Supported in Schema Names 2
Resolve Message Time Out Errors 2

Copyright © 2022, 2026, Oracle and/or its affiliates.

About This Content

This guide describes how to configure this adapter as a connection in an integration in Oracle Integration.

Audience

This guide is intended for developers who want to use this adapter in integrations in Oracle Integration.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Resources

See these Oracle resources:

- Oracle Cloud at `http://cloud.oracle.com`
- *Using Integrations in Oracle Integration 3*
- *Using the Oracle Mapper with Oracle Integration 3*
- Oracle Integration documentation on the Oracle Help Center.

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.

Copyright © 2022, 2026, Oracle and/or its affiliates.

1

Understand the Oracle Database Cloud Service Adapter

Review the following conceptual topics to learn about the Oracle Database Cloud Service 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 Database Cloud Service Adapter Capabilities
- Oracle Database Cloud Service Adapter Restrictions
- What Application Version Is Supported?
- Workflow to Create and Add an Oracle Database Cloud Service Adapter Connection to an Integration

Oracle Database Cloud Service Adapter Capabilities

The Oracle Database Cloud Service Adapter enables you to integrate Oracle Database Classic Cloud Service with Oracle Integration through use of the connectivity agent. The Oracle Database Cloud Service Adapter provides support for integrating with one-node database systems on either bare metal or virtual machines, and two-node real application cluster (RAC) database systems on virtual machines offered by Oracle Cloud Infrastructure using the connectivity agent. Use the Oracle Database Cloud Service Adapter to poll for new and updated records for processing in Oracle Integration. For example, any new record added to the `Employee` table in your Oracle Database Classic Cloud Service can be synchronized with Oracle HCM Cloud using Oracle Integration. In addition, use the Oracle Database Cloud Service Adapter to execute SQL queries or stored procedures in Oracle Database Classic Cloud Service. For example, quotes in Oracle CPQ Cloud can be created as `Orders` in Oracle Database Classic Cloud Service by sending SQL statements or stored procedures using the Oracle Database Cloud Service Adapter.

> **Note**
>
> Apart from using the Oracle Database Cloud Service Adapter to integrate with Oracle Database Classic Cloud Service, it can only be used for *existing* Oracle Database Classic Cloud Service integrations to work with Oracle Autonomous AI Transaction Processing Cloud Service. Use the Oracle Autonomous Transaction Processing Adapter for any *new* integrations built to connect with an Oracle Autonomous AI Transaction Processing instance database. Oracle Autonomous AI Transaction Processing integration-related capabilities/enhancements are only introduced in the Oracle Autonomous Transaction Processing Adapter.

The Oracle Database Cloud Service Adapter provides the following capabilities:

Copyright © 2022, 2026, Oracle and/or its affiliates.

- Support for integrating an Oracle Database Classic Cloud Service database with an Oracle Cloud Infrastructure private endpoint. Integration is achieved with a wallet-based connection that uses the connectivity agent. See Configure Connection Security.
- Support for polling new and updated records for processing in the Oracle Autonomous Transaction Processing Adapter with or without use of the connectivity agent. See Perform Inbound Polling Without the Connectivity Agent.
- Support for connecting to private resources that are in your virtual cloud network (VCN) with a private endpoint. SCAN Domain Name System (DNS) is supported with private endpoints. See Configure a Private Endpoint for Your Instance in *Provisioning and Administering Oracle Integration 3* and Configure the Endpoint Access Type. This type of connection does not use the connectivity agent.
- 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 a comprehensive database workbench for configuring SQL statements to perform `SELECT`, `INSERT`, and `UPDATE` operations on up to four tables.
- Support for non-JDBC (PL/SQL) datatypes in outbound invocations of stored procedures.
- Support for invocation of stored procedures in the Oracle database.
- Support for automatically generating and presenting the request and response data definitions in the mapper based on the SQL Query/DML statements/stored procedure configured through the adapter. This feature generates an XSD from a PureSQL statement provided by dynamically querying the table.
- Support for polling new and updated records for processing in the Oracle database. The Oracle Database Cloud Service Adapter supports distributed polling and multithreading. Distributed polling helps eliminate duplicate polling of the same records while multithreading provides optimum performance.
- Support for a logical delete polling strategy. This strategy involves updating a special field on each row once it is processed.
- Support for updating or inserting multiple records in a single request.
- Support for database fault mapping.
- Support for processing message payloads up to 10 MB in size. In the case of polling, you must set the **Rejected Value** property to **REJECTED** on the Polling Strategy and Options page. If the incoming message is greater than the 10 MB threshold size, that particular record is updated to **REJECTED** instead of **READ**. If the outbound operation returns a response greater than the 10 MB threshold size, the response message is ignored and a fault response is sent to the calling client.

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

- Support for connecting to the Oracle Database Classic Cloud Service instance with SSL, thus avoiding the need to install and configure the connectivity agent. You select and

Copyright © 2022, 2026, Oracle and/or its affiliates.

configure Oracle Wallet as the security policy on the Connections page. See Prerequisites for Creating a Connection.

> **Note**
>
> The Oracle Wallet security policy can only be used when the database is SSL-enabled.

> **Note**
>
> The Oracle Database Cloud Service is sometimes referred to by other names. You can configure the Oracle Database Cloud Service Adapter to connect to any of the following:
>
> - Oracle Base Database Cloud Service (BDCS)
> - Oracle Base Database Service (BDS)
> - Oracle Database Cloud Service (DBCS)
> - Oracle Cloud : Database as a Service (DBaaS)

The Oracle Database Cloud Service Adapter is one of many predefined adapters included with Oracle Integration. You can configure the Oracle Database Cloud Service Adapter as a target or invoke connection in an integration in Oracle Integration.

Cloud Database Connectivity Support

This table describes cloud database connectivity support for the Oracle Database Cloud Service Adapter.

Database	Public Gateway	Private Gateway	Connectivity Agent
Base Database Service with user name and password in public network	Supported (If access not restricted)	Supported	Supported
Base Database Service with wallet in public network	Supported (If access not restricted)	Supported	Supported
Base Database Service with user name and password in private network	Not supported	Supported	Supported
Base Database Service with wallet in private network	Not supported	Supported	Supported
ExaData Database Service	Not supported	Not supported	Supported

Oracle Database Cloud Service Adapter Restrictions

Note the following Oracle Database Cloud Service Adapter restrictions in Oracle Integration.

Copyright © 2022, 2026, Oracle and/or its affiliates.

- The database password length cannot exceed 20 characters.
- The NCHAR field type is not supported as the primary key on merge (update/insert) operations.
- Database schema names with hyphens (`-`) are not supported.
- All integrations that include stored procedure, PureSQL, or operation on table database operations must finish within 240 seconds. Otherwise, the query times out and a `Limit Exceeded` error occurs.
- Overloaded procedures are not supported.
- Wrappers are not generated for releases 18*c* and later of the database. Any integrations created on prior releases of the database that contain wrappers require a manual migration of the wrapper procedures. A re-edit of the invoke connection is not supported and goes through the non-wrapper route by selecting the original procedure.
- Automatic metadata refresh is not supported. Any modifications to stored procedures or tables used in the invoke or trigger connection require a re-import or redo in the Adapter Endpoint Configuration Wizard for the changes to be reflected.
- The PL/SQL boolean type is not supported as an IN/OUT parameter in a stored procedure if the target database is version 18*c* or higher. However, you can create a wrapper stored procedure that converts a PL/SQL boolean type to an integer and uses that wrapper stored procedure in Oracle Integration.
- The Oracle Database Cloud Service Adapter uses JDBC drivers to interact with the database and is restricted by JDBC driver constraints. Therefore, the nested PL/SQL type (for example, a `RECORD` type inside a `TABLE` type) is not supported as an IN/OUT parameter in a stored procedure if the target database is version 18*c* or higher. However, you can define `OBJECT` types inside `TABLE` types.

> **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.

Workflow to Create and Add an Oracle Database Cloud Service 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 in Oracle Integration.

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

Copyright © 2022, 2026, Oracle and/or its affiliates.

Step	Description	More Information
1	Decide where to work	• Work in a project (see why working with projects is preferred in *Using Integrations in Oracle Integration 3*). • Work outside a project.
2	Perform prerequisites for creating an adapter connection.	Prerequisites for Creating a Connection
3	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 Database Cloud Service Adapter Connection **Note**: The adapter name to select in the Create Connection -Select Adapter dialog is **Oracle DBaaS**.
4	Create the integration. When you do this, you add trigger (source) and invoke (target) connections to the integration.	Best Practices in *Using Integrations in Oracle Integration 3* and Add the Oracle Database Cloud Service Adapter Connection to an Integration
5	Map data between the trigger connection data structure and the invoke connection data structure.	Map Data in *Using Integrations in Oracle Integration 3*
6	(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 in *Using Integrations in Oracle Integration 3*
7	Activate the integration.	Activate Integrations in *Using Integrations in Oracle Integration 3*
8	Monitor the integration on the dashboard.	Monitor Integrations During Runtime in *Using Integrations in Oracle Integration 3*
9	Track payload fields in messages during runtime.	Assign Business Identifiers for Tracking Fields in Messages and Track Integration Instances in *Using Integrations in Oracle Integration 3*
10	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in *Using Integrations in Oracle Integration 3*

Copyright © 2022, 2026, Oracle and/or its affiliates.

2

Create an Oracle Database Cloud Service 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
- Create a Connection

Prerequisites for Creating a Connection

Satisfy the following prerequisites specific to your environment to create a connection with the Oracle Database Cloud Service Adapter.

- Know Oracle Database Classic Cloud Service Instance Details
- Complete Connectivity with SSL Prerequisites
- Complete Username Password Token Security Policy Prerequisites
- Complete Oracle Cloud Infrastructure Database version 18*c* Prerequisites
- Migrate from an Oracle Database Classic Cloud Service Database Instance to an Oracle Autonomous AI Transaction Processing or Oracle Autonomous Data Warehouse Database Instance

Know Oracle Database Classic Cloud Service Instance Details

Note details such as **Public IP**, **SID**, **SQL*Net Port**, **PDB Name**, and **Connect String** from the instance details page for the Oracle Database Classic Cloud Service instance in the Oracle Cloud Console. This information is required when configuring an Oracle Database Cloud Service Adapter connection on the Connections page.

Complete Connectivity with SSL Prerequisites

If using connectivity with SSL with the Oracle Database Cloud Service Adapter, note the following requirements.

> **Note**
>
> Connectivity agent installation and agent group creation are not required when using direct connectivity.

- The Oracle Database Classic Cloud Service instance is accessible through a public IP address.

Copyright © 2022, 2026, Oracle and/or its affiliates.

- Oracle Database Classic Cloud Service should be SSL-enabled along with the necessary wallet configuration. See the Oracle Database documentation for configuring secure sockets layer authentication for your respective database version. For example, for Release 18, see Configuring Secure Sockets Layer Authentication of the *Security Guide*.
- Once SSL is configured, the following files are available under the `wallet` directory:
  - `cwallet.sso`
  - `ewallet.p12`

  Follow these steps to create a wallet archive file:

  1. Generate the truststore and keystore using `orapki`:

     ```
     orapki wallet pkcs12_to_jks -wallet wallet_directory/ewallet.p12
     -pwd password_provided_during_wallet_creation
     -jksKeyStoreLoc wallet_directory/keystore.jks
     -jksKeyStorepwd password
     -jksTrustStoreLoc wallet_directory/truststore.jks
     -jksTrustStorepwd password
     ```

  2. Create a ZIP file containing `cwallet.sso`, `ewallet.p12`, `keystore.jks`, and `truststore.jks`, including the `tnsnames.ora` file found in the `$ORACLE_HOME/network/admin/` directory.

Complete Username Password Token Security Policy Prerequisites

If using the Username Password Token security policy with the Oracle Database Cloud Service Adapter, note the following requirements.

- Create an agent group. See Creating an Agent Group of *Using Integrations in Oracle Integration 3*. Note the agent group name and agent group identifier that you specify. The agent group name is required when creating an Oracle Database Cloud Service Adapter connection. The agent group identifier is required when installing the connectivity agent.
- Download and install the connectivity agent on the same host as the Oracle Database Classic Cloud Service or a compute node from which the database is accessible. Understand the implications of installing on the same host. See Connectivity Agent Fails Frequently If Competing with Oracle Database Classic Cloud Service for Resources.

  See Install the Connectivity Agent of *Using Integrations in Oracle Integration 3*.

Complete Oracle Cloud Infrastructure Database version 18*c* Prerequisites

If using Oracle Cloud Infrastructure Database version 18*c*, you must perform the following steps before using stored procedures in Oracle Cloud Infrastructure (that is, before generating wrapper packages). Some changes to the 18*c* database must be bypassed to get table/record type metadata information.

1. Run the first command to enable events to capture metadata:

   ```
   alter session set events '10946 trace name context forever, level 65536';
   ```

2. Run the second command to recompile and populate that metadata:

   ```
   alter package package_name compile;
   ```


Copyright © 2022, 2026, Oracle and/or its affiliates.

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

Perform the following steps if you want to migrate from an Oracle Database Classic Cloud Service database instance to an Oracle Autonomous AI 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 AI 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 AI 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 must create the connections to the applications with which you want to share data.

> **Note**
>
> You can also create a connection in the integration canvas. See Define Inbound Triggers, Outbound Invokes, and Actions.

To create a connection in Oracle Integration:

1. Decide where to start:
    - Work in a project (see why working with projects is preferred).

Copyright © 2022, 2026, Oracle and/or its affiliates.

a. In the navigation pane, click **Projects**.

b. Select the project name.

c. Click **Integrations**.

d. In the **Connections** section, click **Add** if no connections currently exist or **+** if connections already exist. The Create connection panel opens.

- Work outside a project.

  a. In the navigation pane, click **Design**, then **Connections**.

  b. Click **Create**. The Create connection panel opens.

2. 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.

3. Enter the information that describes this connection.

Element	Description
Name	Enter a meaningful name to help others find your connection when they begin to create their own integrations.
Identifier	Automatically displays the name in capital letters that you entered in the **Name** field. If you modify the identifier name, don't include blank spaces (for example, `SALES OPPORTUNITY`).
Role	Select the role (direction) in which to use this connection. **Note**: *Only* the roles supported by the adapter you selected are displayed for selection. Some adapters support all role combinations (trigger, invoke, or trigger and invoke). Other adapters support fewer role combinations. 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, assume 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.
Keywords	Enter optional keywords (tags). You can search on the connection keywords on the Connections page.
Description	Enter an optional description of the connection.

Copyright © 2022, 2026, Oracle and/or its affiliates.

Element	Description
Share with other projects	**Note**: This field only appears if you are creating a connection in a project. Select to make this connection publicly available in other projects. Connection sharing eliminates the need to create and maintain separate connections in different projects. When you configure an adapter connection in a different project, the **Use a shared connection** field is displayed at the top of the Connections page. If the connection you are configuring matches the same type and role as the publicly available connection, you can select that connection to reference (inherit) its resources. See Add and Share a Connection Across a Project.

4. Click **Create**.

   Your connection is created. You're now ready to configure the connection properties, security policies, and (for some connections) access type.

5. Follow the steps to configure a connection.
   The connection property and connection security values are specific to each adapter. Your connection may also require configuration with an access type such as a private endpoint or an agent group.

6. Test the connection.

Configure Connection Properties

Enter connection information so your application can process requests.

1. Go to the **Properties** section.

   The Connection Properties dialog is displayed. Specify the following Oracle Database Classic Cloud Service instance details that you obtained in Prerequisites for Creating a Connection.

2. In the **Host** field, specify the host.
3. In the **Port** field, specify the SQL*Net port.
4. In the **SID** field, specify the database SID.
5. In the **Service Name** field, specify the database service name.

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

Copyright © 2022, 2026, Oracle and/or its affiliates.

Configure Connection Security

Configure security for your Oracle Database Cloud Service Adapter connection by selecting the security policy.

> **Note**
>
> When a wallet is rotated and you download a new wallet or when credentials are updated in the connection, you must first deactivate the integrations using that connection. Update the connection with the new wallet or credentials and reactivate the integrations for these changes to take effect.

1. Go to the **Security** section.
2. Select the security policy.
3. If you select **Username Password Token**:

   > **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 username and password to connect to Oracle Database Classic Cloud Service.
   b. Reenter the password a second time.
4. If you select **Oracle Wallet**:

   > **Note**
   >
   > The Oracle Database Cloud Service 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 username and password to connect to Oracle Database Classic Cloud Service.
   d. Enter the database password a second time to confirm.

Copyright © 2022, 2026, Oracle and/or its affiliates.

Configure the Endpoint Access Type

Configure access to your endpoint. Depending on the capabilities of the adapter you are configuring, options may appear to configure access to the public internet, to a private endpoint, or to an on-premises service hosted behind a fire wall.

- Select the Endpoint Access Type
- Ensure Private Endpoint Configuration is Successful

Select the Endpoint Access Type

1. Go to the **Access type** section.
2. Select the option for accessing your endpoint.

Option	This Option Appears If Your Adapter Supports ...
Public gateway	Connections to endpoints using the public internet.
Private endpoint	Connections to endpoints using a private virtual cloud network (VCN). **Note**: To connect to private endpoints, you must complete prerequisite tasks in the Oracle Cloud Console. Failure to do so results in errors when testing the connection. See Connect to Private Resources in *Provisioning and Administering Oracle Integration 3* and Troubleshoot Private Endpoints in *Using Integrations in Oracle Integration 3*.
Connectivity agent	Connections to on-premises endpoints through the connectivity agent. a. Click **Associate agent group**. The Associate agent group panel appears. b. Select the agent group, and 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 Creating Hybrid Integrations Using Oracle Integration in *Using Integrations in Oracle Integration 3*.

Ensure Private Endpoint Configuration is Successful

- To connect to private endpoints, you must complete prerequisite tasks in the Oracle Cloud Console. Failure to do so results in errors when testing the connection. See Connect to Private Resources in *Provisioning and Administering Oracle Integration 3*.
- When configuring an adapter on the Connections page to connect to endpoints using a private network, specify the fully-qualified domain name (FQDN) and *not* the IP address. If you enter an IP address, validation fails when you click **Test**.

Test the Connection

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

Copyright © 2022, 2026, Oracle and/or its affiliates.

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

If Your Connection...	Then...
Doesn't use a WSDL	The test starts automatically and validates the inputs you provided for the connection.
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 and verify URLs and credentials. Continue to test until the connection is successful.
3. When complete, click **Save**.

Copyright © 2022, 2026, Oracle and/or its affiliates.

3

Add the Oracle Database Cloud Service Adapter Connection to an Integration

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

These topics describe the wizard pages that guide you through configuration of the Oracle Database Cloud Service Adapter as a trigger or invoke in an integration.

Topics:

> **Note**
>
> Apart from using the Oracle Database Cloud Service Adapter to integrate with Oracle Database Classic Cloud Service, it can only be used for *existing* Oracle Database Classic Cloud Service integrations to work with Oracle Autonomous AI Transaction Processing Cloud Service. Use the Oracle Autonomous Transaction Processing Adapter for any *new* integrations built to connect with an Oracle Autonomous AI Transaction Processing instance database. Oracle Autonomous AI Transaction Processing integration-related capabilities/enhancements are only introduced in the Oracle Autonomous Transaction Processing Adapter.

- Basic Information Page
- Trigger Polling Page
- Invoke Stored Procedure Page
- Invoke SQL Statement Page
- Table Operation Page
- Summary Page

Copyright © 2022, 2026, Oracle and/or its affiliates.

Basic Information Page

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

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
What does this endpoint do?	Provide a description of what this connection does.

What operation do you want to perform?	If configuring the connection in the invoke direction, select the operation 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)**
	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.

Trigger Polling Page

You can poll for new or changed records.

Copyright © 2022, 2026, Oracle and/or its affiliates.

> **Note**
>
> No order is maintained while polling records.

- Polling Page
- Search and Import Tables Page
- Primary Keys Page
- Manage Table Relationships Page
- Attribute Filtering Page
- Polling Strategy and Options Page

Polling Page

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

Element	Description
Import Tables	Import the tables and select the root database table for the service query.
Remove Tables	Remove the selected table from the service query tables list.
Review and manage root database table relationships	Appears after importing tables. Select **Edit** to open the Manage Table Relationships page where you can view, create, and remove relationships between tables.
Review and verify table and relationship attributes	Appears after importing tables. Select **Edit** to open the Attributes Filtering page where you can review, verify, select or deselect the attributes in the object model created from the imported tables and the defined relationships.
Review the polling strategy and specify polling options	Appears after importing tables. Select **Edit** to open the Polling Strategy and Options page where you can define the polling strategy and specify polling options.

Search and Import Tables Page

The following table describes the key information on the Search and Import Tables page. The Search and Import Tables page appears when you select **Import Tables** on the Polling page.

Element	Description
Schema	Select the schema for the tables and views you are importing. Special characters (for example, #) are not supported in schema names.
Table Name	The name of the table to which the schema or view is applied. The **Table Type** list next to the **Table Name** field allows these selections: • **All** — Select all available tables and views. • **Materialized View** — Select materialized views. • **Materialized View Log** — Select materialized view logs. • **Synonym** — Select the alias for the schema object. • **Table** — Select tables. • **View** — Select views.

Copyright © 2022, 2026, Oracle and/or its affiliates.

Element	Description
Search	Click to search for the specified table type.
Available	Lists the elements of the table type available for selection.
Selected	Lists the selected table type.

Primary Keys Page

The following table describes the key information on the Define Primary Keys page.

Element	Description
Primary Keys	This page appears when you select tables without a primary key defined. Select the virtual primary keys for the table type. **Note**: Having the primary key at the database level is the best practice.

Manage Table Relationships Page

The following table describes the key information on the Manage Table Relationships page. The Manage Table Relationships page appears when you select **Edit** for the **Review and manage root database table relationships** option on the Polling page.

Element	Description
Create New	Opens the Create Relation page with these options: • **Parent Table** — Select the parent table for the relationship between tables. • **Child Table** — Select the child table for the relationship between tables. • **Relationship** — Defines the relationship between the parent and child tables. • **Attribute Name** — Apply attributes to the table relationship. • **Mapping** — Provide the mapping for the table relationship.
Detach	Opens the Relationships list in a new window.

Attribute Filtering Page

The following table describes the key information on the Attribute Filtering page. This page appears when you click **Edit** for the **Review and verify table and relationship attributes** option on the Polling page.

Element	Description
Attributes View	Review the attributes in the object model created from the imported tables and the defined relationships and uncheck any attributes to exclude from the database queries. Primary key attributes cannot be excluded.

Copyright © 2022, 2026, Oracle and/or its affiliates.

Polling Strategy and Options Page

The following table describes the key information on the Polling Strategy and Options page. The Polling Strategy and Options page appears when you select **Edit** for **Review the polling strategy and specify polling options** on the Polling page.

Element	Description
Logical Delete Field	Selects a field in the root database table. To allow the selection, polling must be enabled in the Status column.
Read Value	Identifies the value that is used to indicate a row has been read. For example, PROCESSED. Surrounding quotes are not required.
Unread Value	Indicates the rows to process. Only rows with Logical Delete Field and column values that match the Unread Value are read.
Rejected Value	Set to **REJECTED**. If the incoming message is greater than the threshold size, that particular record is updated to **REJECTED** instead of **READ**. If the outbound operation returns a response greater than the size allowed, the response message is ignored and a fault response is sent to the calling client. For details about supported sizes, see Service Limits in *Provisioning and Administering Oracle Integration 3*.
Polling Frequency (Sec)	Specifies the polling frequency (in seconds) for new records or events.

Invoke Stored Procedure Page

Enter the stored procedure properties.

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. Procedures without parameters are not listed in the Adapter Endpoint Configuration Wizard for database versions 18*c* and above. You can pass a dummy parameter or create a wrapper procedure with a dummy parameter to list it in the wizard.
- Stored procedures that contain Boolean or %rowtype as IN/OUT parameters are not supported in Oracle Database Cloud Service release 18*c* and above. You can create wrappers on top of these stored procedures to use them.

Copyright © 2022, 2026, Oracle and/or its affiliates.

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.
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 properties.

Element	Description
SQL Query	Enter a SQL query.
Status	After you click **Validate SQL Query**, ensure the **Status** field shows a `Success` message.

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
- Relationships Page
- Create Relationship Page
- Attribute Filtering Page

Copyright © 2022, 2026, Oracle and/or its affiliates.

- Advanced Options Page
- Operations on Table Page

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.

Copyright © 2022, 2026, Oracle and/or its affiliates.

Element	Description
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. Only the sequences of the user who owns the adapter on the Connections page are listed. The first sequence value is not the `START WITH` definition in a database sequence after another sequence is used. For example, you use the Insert option of the Perform an Operation on a Table operation and the database sequence for primary key generation. Note that the generated IDs then start with a value that is 50 less then the sequence start value. This is the expected behavior. You can create a sequence by adjusting the start value by 50 or running `select seq.nextval from dual` once to consume the first 50 after creation.

Copyright © 2022, 2026, Oracle and/or its affiliates.

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** • **MATERIALIZED VIEW** • **MATERIALIZED VIEW LOG** • **SYNONYM** • **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.
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.

Copyright © 2022, 2026, Oracle and/or its affiliates.

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. Use this field to add any necessary arguments or parameters.
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 **Go back**. To cancel your configuration details, click **Cancel**.

Copyright © 2022, 2026, Oracle and/or its affiliates.

4

Implement Common Patterns Using the Oracle Database Cloud Service Adapter

You can use the Oracle Database Cloud Service Adapter to implement the following common patterns.

Topics:

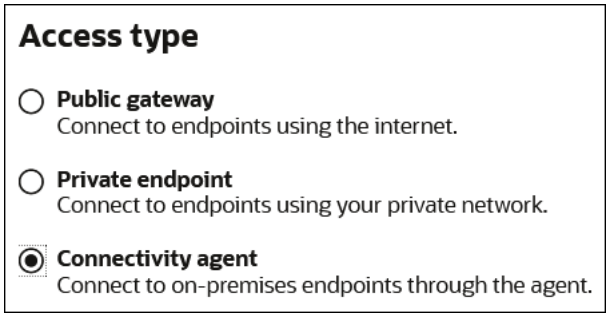
- Perform Inbound Polling Without the Connectivity Agent
- Methods for Connecting Oracle Integration to an Oracle Database Classic Cloud Service Instance with the Oracle Database Cloud Service Adapter
- Define a Select Operation on Database Tables
- Define Fault Mapping in Integrations

Perform Inbound Polling Without the Connectivity Agent

You can perform inbound polling without the connectivity agent. You can create new connections or update existing connections to bypass the connectivity agent. Depending on your database or messaging service location, you can use the public internet or a private endpoint for polling. If you want, you can continue to use the connectivity agent for inbound polling.

Perform the following steps to create a new connection or update an existing connection to bypass the connectivity agent.

1. Go to the **Access type** section of the Connections page.



2. Select an option based on the location of your database or messaging service.
   - If the database or messaging service to access is in a private network, select **Private endpoint** to poll without the connectivity agent. This selection requires that you first configure private endpoint support in the Oracle Cloud Console. See Connect to Private Resources in *Provisioning and Administering Oracle Integration 3*.
   - If the database or messaging service to access is public, select **Public gateway** to poll without the connectivity agent. Private endpoint configuration is not required in these scenarios and the adapter polls directly without the connectivity agent.

Copyright © 2022, 2026, Oracle and/or its affiliates.

3. Deactivate and then reactivate the integration.

> **Note**
>
> After completing these steps, the connectivity agent is no longer used for inbound polling. However, it still continues to run. If you no longer need to use the connectivity agent, you can manually stop it.

Several adapters support inbound polling without the connectivity agent. Watch a video to learn more about how to use this feature with one such adapter.

Video

Methods for Connecting Oracle Integration to an Oracle Database Classic Cloud Service Instance with the Oracle Database Cloud Service Adapter

Connectivity from Oracle Integration to an Oracle Database Classic Cloud Service instance using the Oracle Database Cloud Service Adapter can be accomplished through the following methods.

- Connectivity agent: Use this approach when the Oracle Database Classic Cloud Service instance is not publicly accessible and resides within a private subnet in your Virtual Cloud Network (VCN). With this topology, the Oracle Database Cloud Service Adapter cannot directly access the Oracle Database Classic Cloud Service instance. The connectivity agent must be deployed in your network to allow the connectivity agent access to Oracle Database Classic Cloud Service.
- Direct connectivity: Use this approach when the Oracle Database Classic Cloud Service 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 Oracle Database Classic Cloud Service 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 Database Cloud Service Adapter is configured as an invoke connection to retrieve table records from the Oracle Database.

To define a `SELECT` operation on database tables:

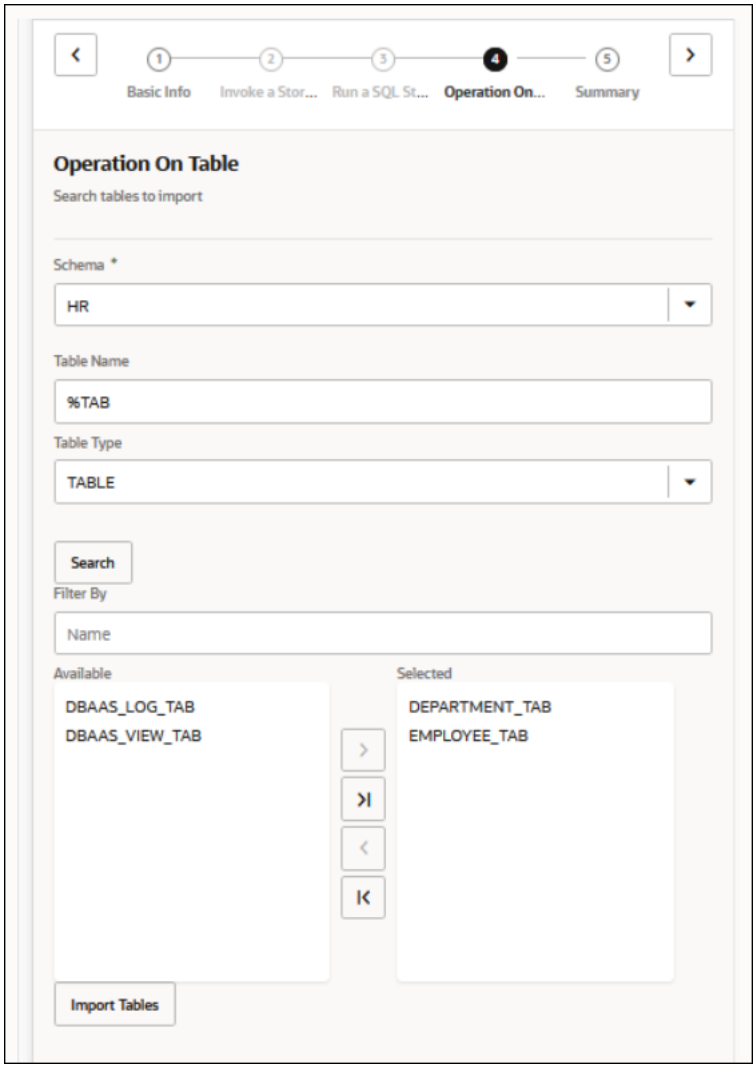
1. Configure SOAP Adapter and Oracle Database Cloud Service Adapter connections.
2. Select **Application** in the Create integration panel.
3. Add and configure the SOAP Adapter as a trigger connection in the integration.

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

Copyright © 2022, 2026, Oracle and/or its affiliates.

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 Database Cloud Service Adapter to recognize the relation between the tables.



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

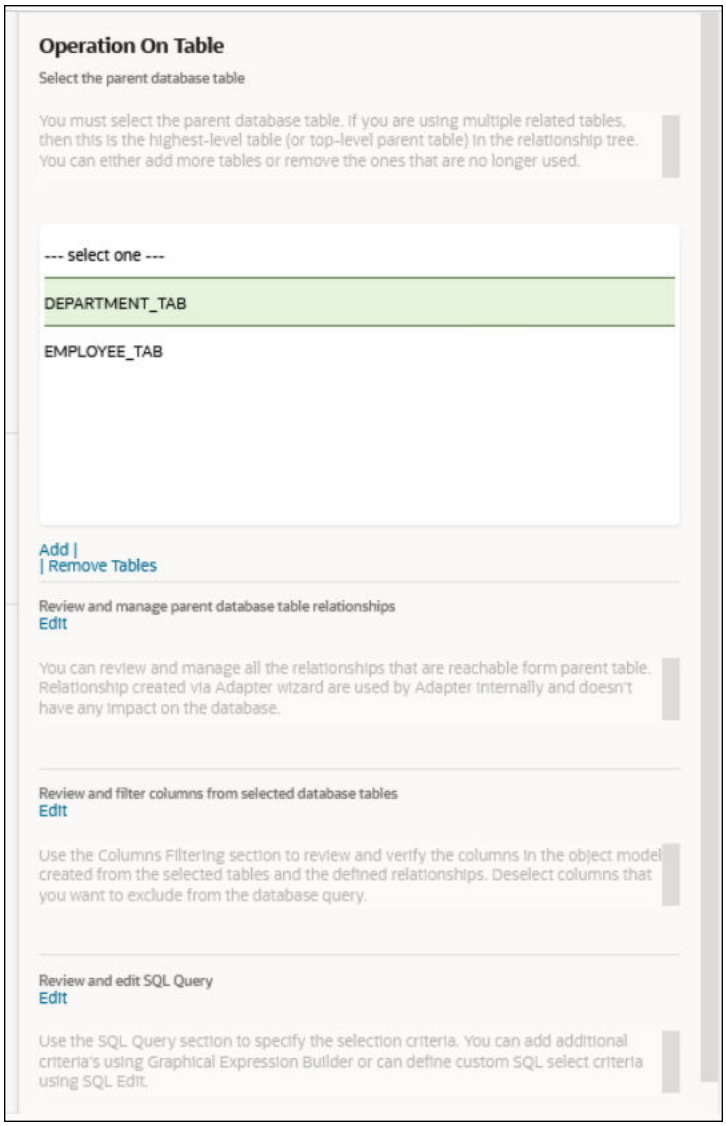
7. Select the parent table (for this example, **DEPARTMENT_TAB** is selected).

   This page enables you to:

   - View the automatically created table relationships and create new ones.

Copyright © 2022, 2026, Oracle and/or its affiliates.

- View and deselect attributes.
- View and edit the automatically created SQL query.



8. View your selections on the Summary page. Links to the tables you selected to import and SQL query you specified are provided.
9. Click **Done** to exit the Adapter Endpoint Configuration Wizard.
10. Complete the integration by performing mapping and tracking tasks.
11. Activate the integration.
12. Copy the link to invoke the integration from under the **How to Run** link.
13. Invoke the integration from a tool such as the SOAP UI.
14. Review the values returned by the Oracle Database Cloud Service Adapter.

Copyright © 2022, 2026, Oracle and/or its affiliates.

Define Fault Mapping in Integrations

You can define fault mappings in integrations. This mapping transforms a Database Adapter fault when used as a target into the source format defined in its WSDL. You add the Database Adapter to a scope action in an integration and select this fault in the **Fault Handler** part of the scope action.

A `serviceInvocationError` fault mapping is defined in the WSDL

In the mapper, the elements of `serviceInvocationError` provide details about the runtime fault:

- `type`: The type of fault.
- `title`: The title of the fault.
- `detail`: Information about the fault cause.
- `errorCode`: Information about the fault code.
- `remedialAction`: How to fix the fault.

This fault structure is populated during runtime when any exception occurs in an outbound invocation (for example, a primary key violation).

If using the adapter in a map data integration, only `reason`, `detail`, and `errorCode` are available in the mapper.

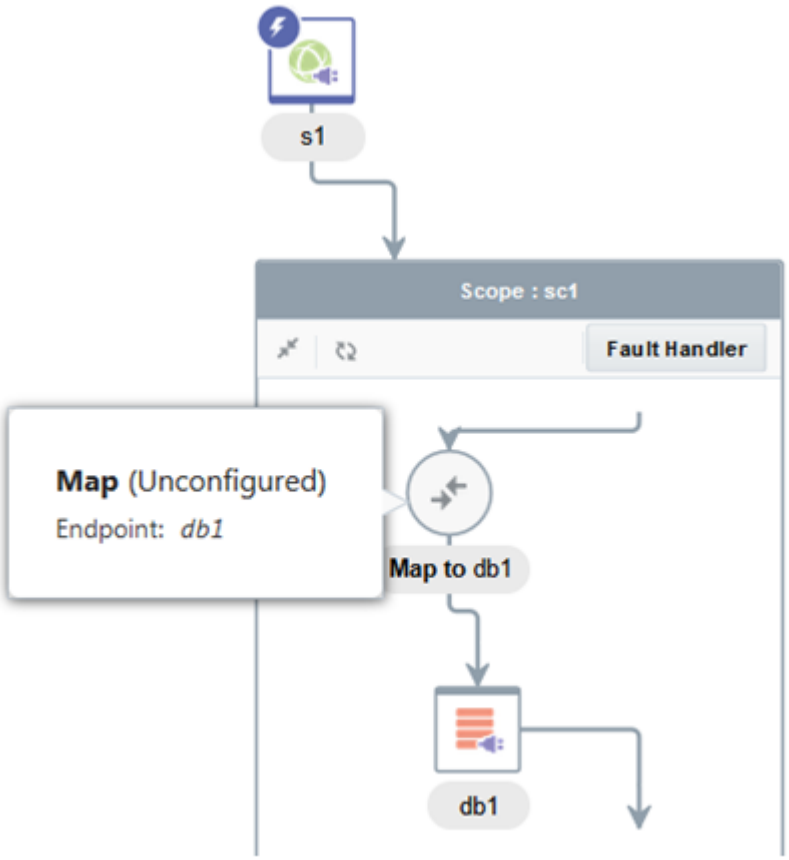
Assume an exception (for example, `NumberFormatException`) occurs in an invoke (outbound) adapter. Exceptions are mapped in fault mappings and returned to the source format as defined in its WSDL contract. In this use case, a stored procedure is used that accepts only an integer type. If you invoke the adapter by passing a noninteger value, Oracle Integration reports the fault back to you.

To define fault mapping:

1. Create connections for the SOAP Adapter and the Database adapter.
2. Create an integration.
3. Drag the SOAP Adapter into the integration canvas as a trigger.

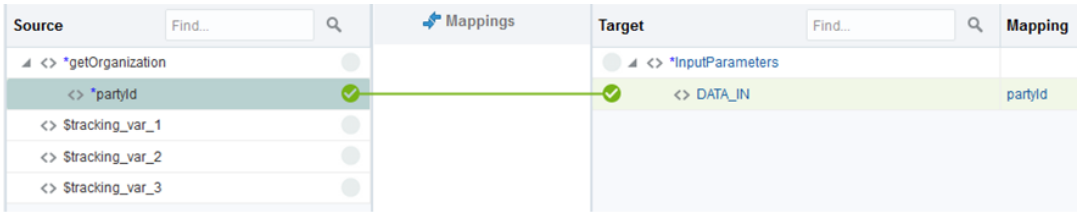
   The Adapter Endpoint Configuration wizard is displayed.
4. Configure the SOAP Adapter (for this example, named **s1**).
5. From the **Actions** palette, drag a **Scope** action below the SOAP Adapter.
6. From the **Invokes** palette, drag the Database Adapter inside the scope.

Copyright © 2022, 2026, Oracle and/or its affiliates.



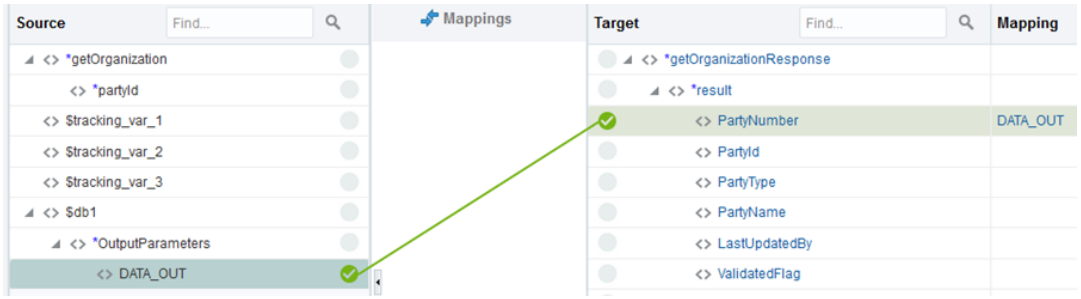
The Adapter Endpoint Configuration wizard is displayed.

7. Select an operation to invoke any stored procedure that accepts only an integer as the input parameter (for this example, the adapter is named **db1**).
8. Define mappings for the Database Adapter.

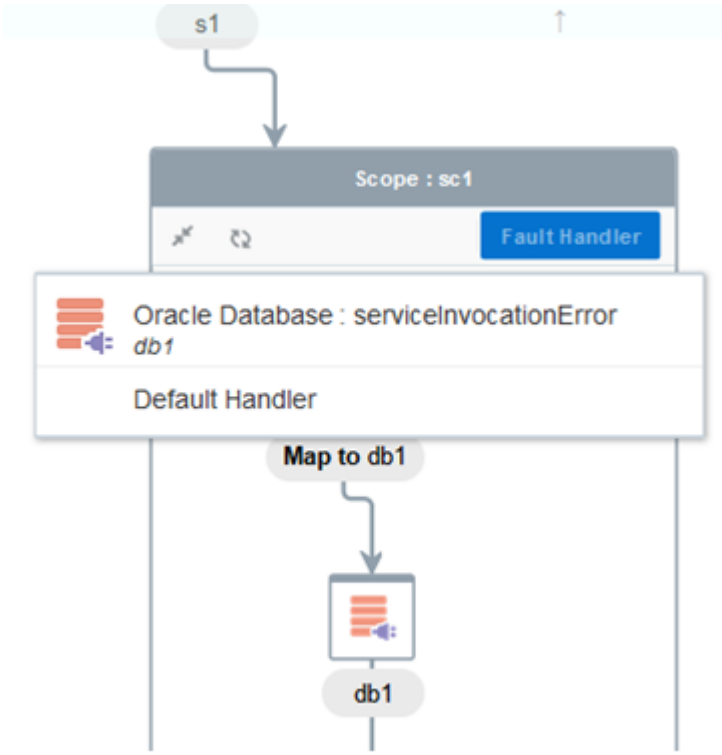


9. In the integration canvas, click **Reposition** and move the **s1** map inside the scope.
10. Define mappings for **s1**.

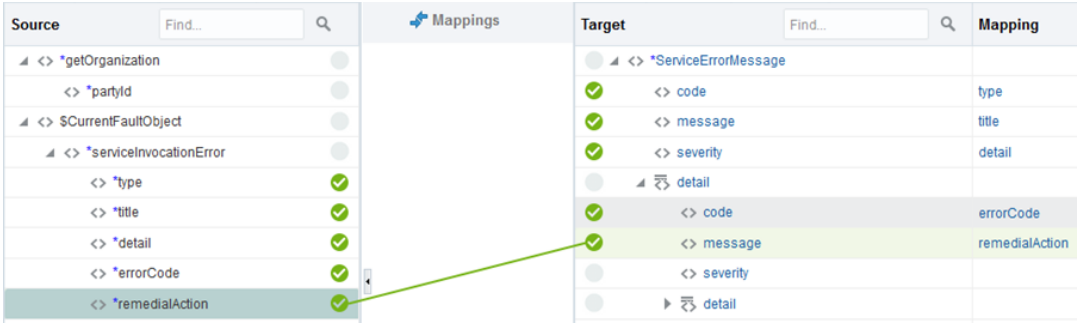
Copyright © 2022, 2026, Oracle and/or its affiliates.



11. Click the **Fault Handler** part and select **Oracle Database : serviceInvocationError db1**.



12. From the **Actions** palette, drag a **Fault Return** action inside the **Fault Handler** part.
13. Define fault mappings.



The root element for the fault is `serviceInvocationError`. The fault includes other elements that carry the fault details: `type`, `title`, `detail`, `errorCode`, and `remedialAction`.

Copyright © 2022, 2026, Oracle and/or its affiliates.

The `detail` element carries information about the fault cause. The `remedialAction` element suggests the action to fix the fault.

14. From the menu, select **Tracking** and define the tracking field.
15. Activate and invoke the integration by passing a string value (that is, a noninteger value) from the SOAP UI.

```
<typ:getOrganization>
   <typ:partyId>test</typ:partyId>
</typ:getOrganization>
```

The fault response returns information similar to the following:

```
<nstrgmpr:code>XSD object conversion error</nstrgmpr:code>
  <nstrgmpr:message>An error occurred while parsing XML representing a
Java object.</nstrgmpr:message>
<nstrgmpr:severity>Unable to convert the XSD element DATA_IN whose SQL
type is INTEGER and JDBC type is INTEGER. Cause:
java.lang.NumberFormatException: For input string: "test"</
nstrgmpr:severity>
<nstrgmpr:detail>
<nstrgmpr:code>serviceInvocationError</nstrgmpr:code>
<nstrgmpr:message>Check to ensure that the XML data describing the object
matches the definition of the element in the XSD.</nstrgmpr:message>
<nstrgmpr:detail>
<nstrgmpr:code/>
<nstrgmpr:message/>
<nstrgmpr:severity/>
<nstrgmpr:detail/>
</nstrgmpr:detail>
<nstrgmpr:detail xsi:type="nstrgmpr:ServiceErrorMessage" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance"/>
</nstrgmpr:detail>
</nstrgmpr:ServiceErrorMessage>
</detail>
```


Copyright © 2022, 2026, Oracle and/or its affiliates.

5

Troubleshoot the Oracle Database Cloud Service Adapter

Review the following topics to learn about troubleshooting issues with theOracle Database Cloud Service Adapter.

Topics:

- Connectivity Agent Fails Frequently If Competing with Oracle Database Classic Cloud Service for Resources
- Set Null to Collections
- Wrappers Require Regeneration After Objects Change
- Recover from a CLOUD-0005: Unable to Establish Connection Error
- Special Characters are Not Supported in Schema Names
- Resolve Message Time Out Errors

Connectivity Agent Fails Frequently If Competing with Oracle Database Classic Cloud Service for Resources

If the connectivity agent is installed on the same virtual host as Oracle Database Classic Cloud Service, the agent competes with the database for resources. If the host is undersized or physical resources are insufficient, the connectivity agent can fail due to a lack of physical memory. This scenario may require the connectivity agent to be restarted frequently.

The following approaches are recommended:

- Install the connectivity agent on its own compute node (recommended).
- Provide enough resources on the VM where the connectivity agent and database are running.

Set Null to Collections

You may sometimes want to pass null to the adapter while mapping collections. If you do not map those collections, an `ORA-06550 pl/sql statement ignored` error can occur. To avoid this error, map the collections using the mapping component `attribute name='xsi:nil'`. This action ensures that a null collection is propagated to the adapter.

Wrappers Require Regeneration After Objects Change

The adapter automatically generates the wrapper packages and objects for stored procedures used in an integration when PL/SQL boolean, table, and record types are involved. If the underlying objects (that is, the IN/OUT parameters) are changed, the wrappers must be regenerated after you delete the existing wrapper’s packages and objects. During design time

Copyright © 2022, 2026, Oracle and/or its affiliates.

or activation, the wrappers are regenerated automatically with the latest object definitions available in the database.

Recover from a CLOUD-0005: Unable to Establish Connection Error

If you receive the following error:

```
CLOUD-0005: Unable to establish connection.
Please check connection parameters ·  IO Error: Invalid connection string
format, a
valid format is: "host:port:sid" and the Service Name contains HYPHEN "-"
```

Perform the following steps:

1. Check if the service name can be modified to remove the hyphen (`-`).
2. If you cannot remove the hyphen, prefix the host name in the database connection with `//` (for example, `//host.test.com`).

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.

Resolve Message Time Out Errors

The following errors can occur during both design time (in both the inbound and outbound directions) and runtime.

- `Message not received within X seconds of wait interval`

  There can be multiple reasons for a time out occurring, such as connectivity issues between Oracle Integration and the connectivity agent or the connectivity agent being disabled. Ensure that the connectivity agent is up and running if you see this error. Check the status of the agent under **Dashboards** > **Agents** in Oracle Integration.

  > **Note**
  >
  > When using the Oracle Database Cloud Service Adapter to connect to an Oracle E-Business Suite Database instance, you may notice this error occurring continuously. It is recommended that you use the Oracle E-Business Suite Adapter instead of the Oracle Database Cloud Service Adapter to access the Oracle E-Business Suite Database instance.

- `SQLState: 08006 errorCode: 17002 message: IO Error: Connection timed out`

Copyright © 2022, 2026, Oracle and/or its affiliates.

This error can occur when database sessions are terminated by a network firewall or some other reason. The adapter automatically recovers during this state and new connections are created. However, a few requests using old connections may time out. Ensure that the firewall is not terminating idle connections.

- Timeouts can also occur due to design problems. Avoid certain antipatterns. For example, do not explicitly update the same table as an invoke operation when the same table is getting polled on the trigger side.

Copyright © 2022, 2026, Oracle and/or its affiliates.