Oracle® Cloud

Using the RabbitMQ Adapter with Oracle Integration 3

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Contents

Preface

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

> **Note:**
>
> The use of this adapter may differ depending on the features you have, or whether your instance was provisioned using Standard or Enterprise edition. These differences are noted throughout this guide.

Topics:

Audience

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

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the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

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.

1

Understand the RabbitMQ Adapter

Review the following topics to learn about the RabbitMQ 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:

RabbitMQ Adapter Capabilities

The RabbitMQ Adapter enables you to create an integration in Oracle Integration that connects to a RabbitMQ messaging system. The RabbitMQ Adapter connects to the RabbitMQ distributed publish-consume messaging system from Oracle Integration and allows for the publishing and consuming of events from RabbitMQ exchanges/queues. You can configure the RabbitMQ Adapter as a trigger connection and an invoke connection in an integration in Oracle Integration.

The RabbitMQ Adapter provides the following capabilities:

- Supports configuration of queues and exchanges, where queues store messages, and exchanges route messages to queues based on defined routing rules. Available exchange types include direct, fanout, and topic.
- Supports sample XML/JSON, binary, and string message structures for publishing and consuming messages.
- Supports adding custom headers. You can add custom header values on the Headers page.
- Supports persistent messages for durability and non-persistent messages for temporary storage.
- Supports dead lettering for inbound operations.
- Supports Basic Authentication for both invoke and trigger connections.
- Supports binding and routing keys to enable precise message delivery to relevant queues for invoke connections, improving efficiency and scalability.
- Allows you to set the polling frequency to a maximum of 600 seconds and fetching to a maximum of 1000 records for trigger connections.
- Supports integrating with publicly accessible resources (direct connectivity over the public internet) and private resources using the connectivity agent.
- Supports implementing secure egress (dedicated NAT Gateway) to establish a connection by using a private endpoint. See Connect to Private Resources in *Provisioning and Administering Oracle Integration 3* and Configure the Endpoint Access Type. This type of connection does not use the connectivity agent.

The RabbitMQ Adapter is one of many predefined adapters included with Oracle Integration. See the Adapters page in the Oracle Help Center.

RabbitMQ Adapter Restrictions

Note the following RabbitMQ Adapter restriction.

The RabbitMQ Adapter cannot display runtime exceptions in the user interface or create error instances under the Observability section. However, pulled messages are moved to the dead letter queue.

> **Note:**
>
> There are overall service limits for 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 a RabbitMQ 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.

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	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 a RabbitMQ Adapter Connection
3	Create the integration. When you do this, you add trigger (source) and invoke (target) connections to the integration.	Understand Integration Creation and Best Practices in *Using Integrations in Oracle Integration 3* and Add the RabbitMQ Adapter Connection to an Integration
4	Map data between the trigger connection data structure and the invoke connection data structure.	Map Data in *Using Integrations in Oracle Integration 3*
5	(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*

Step	Description	More Information
6	Activate the integration.	Activate an Integration in *Using Integrations in Oracle Integration 3*
7	Monitor the integration on the dashboard.	Monitor Integrations During Runtime in *Using Integrations in Oracle Integration 3*
8	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*
9	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in *Using Integrations in Oracle Integration 3*

2

Create a RabbitMQ 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 to create a connection with the RabbitMQ Adapter:

- Know the host name. The host name is essentially the server where RabbitMQ is hosted along with the management port (SSL-enabled).

  > **Note:**
  >
  > – The RabbitMQ Adapter only supports the HTTPS port.
  >
  > – Port number requirements:
  >
  > * Specifying the management port number in the host name field is mandatory, except when using port `443`.
  >
  > * Enter the host name as *`host_name`*`:`*`management`*`:`*`port`* without HTTPS.
  >
  > Example: `test.rabbitmq.com:15671` (instead of `https://test.rabbitmq.com:15671`)

- Locate the virtual host (vHost) or user name.
  1. In the RabbitMQ Management Console, navigate to the **Admin** tab.
  2. In the **Virtual Hosts** section, find the list of all available virtual hosts.
- Ensure you know the password. When a new user is created using `rabbitmqctl`, the password is combined with a salt value and hashed.

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).
     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`).

Element	Description
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.
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.

2. In the **Hostname** field, enter the host name. See Prerequisites for Creating a Connection.
3. In the **Virtual Hostname** field, enter the virtual hostname. See Prerequisites for Creating a Connection.
4. Under **Optional Properties**, enter the RabbitMQ AMQP port in the **AMQP Port** field. If left blank, the default port of `5671` is used.

> **Note:**
>
> Refresh the metadata on the Connections page whenever a new exchange or queue is created in the RabbitMQ application.

Configure Connection Security

Configure security for your RabbitMQ Adapter connection.

1. Go to the **Security** section.

   In the **Security policy** field, **Basic Authentication** is selected by default.
2. In the **Username** field, enter the user name that you obtained after performing the prerequisite steps. See Prerequisites for Creating a Connection.
3. In the **Password** field, enter the password that you obtained after performing the prerequisite steps. See Prerequisites for Creating a Connection.

> **Note:**
>
> All special characters are supported, except for the following:
>
> - ₹
> - €

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.

Option	This Option Appears If Your Adapter Supports ...
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 Infrastructure 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 Infrastructure 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**.
- IPSec tunneling and FastConnect are not supported for use with private endpoints.

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 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.

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 and verify URLs and credentials. Continue to test until the connection is successful.
3. When complete, click **Save**.

3

Add the RabbitMQ Adapter Connection to an Integration

When you drag the RabbitMQ Adapter into the trigger or invoke area of an integration, the Adapter Endpoint Configuration Wizard is invoked. This wizard guides you through configuration of the RabbitMQ Adapter endpoint properties.

The following sections describe the wizard pages that guide you through configuration of the RabbitMQ Adapter as a trigger or an invoke in an integration.

Topics:

Basic Info Page

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

Element	Description
What do you want to call your endpoint?	Provide a meaningful name so that others can understand the responsibilities of this connection. You can include English alphabetic characters, numbers, underscores, and hyphens in the name. You can't include the following characters: • No blank spaces (for example, `My Inbound Connection`) • No special characters (for example, `#;83&` or `righ(t)now4`) except underscores and hyphens • No multibyte characters
What does this endpoint do?	Enter an optional description of the connection's responsibilities. For example: `This connection receives an inbound request to synchronize account information with the cloud application.`

Invoke Configuration Page

Enter the configuration values for your integration.

Element	Description
Select the Exchange Type to Publish message	Select the exchange type to publish the messages. • **Direct Exchange** • **Fanout Exchange** • **Topic Exchange** • **All Exchanges**
Available Exchanges	Select the available exchanges from the drop-down list.
Available Binding Keys for Exchange	Choose the binding keys for the selected exchange. **Note**: • The binding key is mandatory for both direct exchange and topic exchange. • Upon selecting **Fanout Exchange**, the binding key option is disabled.
Routing key	• Upon selecting **Direct Exchange** as the exchange type and the binding key from the drop-down list, the routing key automatically populates the same value. • Upon selecting **Fanout Exchange**, the routing key option is disabled. • Upon selecting **Topic Exchange** as the exchange type and the binding key from the drop-down list, you have an option for editing the ***** or # value. For example, if the selected binding key is **abcd.***, you have the option to set the routing key as **abcd.com**, **abcd.net**, and more. **Note**: The mapper also provides the option to set the routing key.
Select Message Structure type for the payload	Select the message structure type for the payload format. • **XML/JSON** • **Binary** • **String**
Do you want to specify the headers for the message?	Select **Yes** or **No** to specify the headers for the message.

Trigger Configure Polling Operation to Perform on the RabbitMQ Page

Enter the polling operation configuration values for your integration.

Element	Description
Select a Queue	Select the queue from the drop-down list. **Note**: • The warning alerts you about potential message loss when a non-dead lettering queue is selected from the drop-down list. • Configuring a dead letter queue to route invalid structured messages is optional.
Specify the value for the polling frequency (in seconds). Maximum value 600 seconds.	Specify the value for the polling frequency. The minimum value is `1` second and the maximum value is `600` seconds.

Element	Description
Specify the value for the maximum number of records to be fetched. Maximum value 1000 records.	Specify the value for the maximum number of records to be fetched. The minimum value is `1` record and the maximum value is `1000` records.
Select Message Structure type for the payload	Select the message structure type for the payload format. • **XML/JSON** • **Binary** • **String**
Do you want to specify the headers for the message?	Select **Yes** or **No** to specify the headers for the message.

Message Structure Page

This page appears when **XML/JSON** is selected as the message structure type for both invoke and trigger connections. Enter the values for your integration.

Element	Description
How would you like to specify the message structure?	Select the message structure from the drop-down list. • **Sample JSON document** Click**<<inline>>** to copy and paste the JSON payload. • **Sample XML document**
Drag and Drop	Select a file or drop the file here.

Headers Page

Specify the message custom headers for both invoke and trigger connections. You can add or remove the custom header name.

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**.

4

Troubleshoot the RabbitMQ Adapter

Review the following topics to learn about troubleshooting issues with the RabbitMQ Adapter.

Topics:

RabbitMQ Adapter Issues and Solutions

Review the following troubleshooting issues with the RabbitMQ Adapter.

Issue	Problem	Solution
Special characters in RabbitMQ passwords	In RabbitMQ Adapter releases up to 25.04, message publishing and polling operations fail when the configured RabbitMQ instance password contains unsupported special characters. See Configure Connection Security for details about supported and unsupported special characters.	As a temporary workaround, it is recommended that you use passwords that avoid problematic special characters.
Non-SSL configuration on management and AMQP ports causes failures	The RabbitMQ Adapter requires SSL configuration for both the management port and the AMQP port. Issues may arise if either of these ports is configured without SSL. Potential problems and their causes are as follows: • Test connection failure: The management port is configured without SSL. • Runtime errors: The AMQP port is configured without SSL.	• Test connection failure: Ensure that the management port is SSL-enabled. • Runtime errors: Configure the AMQP port with SSL to avoid runtime issues.