Oracle® Cloud

Using the Gmail Adapter with Oracle Integration
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Preface

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

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

Topics

• Audience
• Documentation Accessibility
• Related Resources
• Conventions

Audience

This guide is intended for developers who want to use the Gmail 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:
Conventions

The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td><code>monospace</code></td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
Understand the Gmail Adapter

Review the following conceptual topics to learn about the Gmail 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:

- Gmail Adapter Capabilities
- What Application Version Is Supported?
- Workflow to Create and Add a Gmail Adapter Connection to an Integration

Gmail Adapter Capabilities

The Gmail Adapter enables you to create an integration with a Gmail application. Gmail is a free email service provided by Google. Users can access Gmail as secure web mail and also through the Post Office Protocol version 3 (POP3) or Internet Message Access Protocol version 4 (IMAP4) protocols.

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

What Application Version Is Supported?

For information about which application version is supported by this adapter, see the Oracle Integration Adapters Certification Matrix under section Oracle Integration Adapters Certification at the top of the page:

Oracle Integration Adapters Certification Matrix

Workflow to Create and Add a Gmail 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.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>More Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create the adapter connections for the applications you want to integrate.</td>
<td>Create a Gmail Adapter Connection</td>
</tr>
<tr>
<td></td>
<td>The connections can be reused in multiple integrations and are typically</td>
<td></td>
</tr>
<tr>
<td></td>
<td>created by the administrator.</td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
<td>More Information</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>2</td>
<td>Create the integration. When you do this, you add trigger and invoke connections to the integration.</td>
<td>Create Integrations and Add the Gmail Adapter Connection to an Integration</td>
</tr>
<tr>
<td>3</td>
<td>Map data between the trigger connection data structure and the invoke connection data structure.</td>
<td>Map Data of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>4</td>
<td>(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).</td>
<td>Manage Lookups of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>5</td>
<td>Activate the integration.</td>
<td>Manage Integrations of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>6</td>
<td>Monitor the integration on the dashboard.</td>
<td>Monitor Integrations of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>7</td>
<td>Track payload fields in messages during runtime.</td>
<td>Assign Business Identifiers for Tracking Fields in Messages and Manage Business Identifiers for Tracking Fields in Messages of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>8</td>
<td>Manage errors at the integration level, connection level, or specific integration instance level.</td>
<td>Manage Errors of Using Integrations in Oracle Integration</td>
</tr>
</tbody>
</table>
Create a Gmail 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
• Upload an SSL Certificate

Prerequisites for Creating a Connection

To use the Gmail Adapter, you must first have access to the Gmail API for your integration. To access the Gmail API, you must create a Google project.

To create a Google project:

2. Click the Select a project dropdown list.
3. Select an existing project to use or create a new project. If you create a new project, ensure that the project is selected from the dropdown list after saving the new project.

Once a project is selected, you see the selected project dashboard in the right frame.

4. Click Enable API and services beside the Dashboard header or click Library in the left navigation pane. This shows the Library page in the right frame with a search box.

5. Search for and select the Gmail API.
6. Click ENABLE beside the Gmail API header.

You see a warning message below the Gmail API header indicating that to use this API, you may need credentials.

7. On the right side, click Create credentials.

The steps to perform are based on your next selection.

• If you do not click the Credentials tab in the left navigation pane.
• If you click the Credentials tab in the left navigation pane.

8. If you do not click the Credentials tab in the left navigation pane:

The Add credentials to your project page is displayed.

a. From the Where will you be calling the API from dropdown list, select Web server.

b. For What data will you be accessing, select User data.
c. Click **What Credentials Do I need**.
The **Add credentials to your project** section is refreshed.

d. Enter a name.

e. In the **Authorized redirect URIs** field, enter the following URL. You can also perform this task at a later time.

```
https://{ICS_HOST}:{ICS_SSL_PORT}/icsapis/agent/oauth/callback
```

Where:
- `{ICS_HOST}` is a placeholder for the Oracle Integration host name.
- `{ICS_SSL_PORT}` is a placeholder for the Oracle Integration SSL port.

For example:

```
https://myicshost.mycompanydomain.com:443/icsapis/agent/oauth/callback
```

9. If you click the **Credentials** tab in the left navigation pane:
The page is refreshed to show a dropdown menu.

a. From the **Create credentials** dropdown list, select **OAuth client ID**.

If the selections in the **Application type** list are disabled, you must create an OAuth client ID. The first task is to set a product name on the consent screen.

i. Click **Configure consent screen**.

ii. In the **Product name shown to users** field, enter a product name.

iii. Specify other details as necessary, then click **Save**.

You are returned to the Create client ID page.

b. Under **Application Type**, select **Web application**.
The page is refreshed to display additional fields for updating.

c. In the **Name** field, specify a name for the OAuth 2.0 client ID credential.

d. In the **Authorized Redirect URI** field, enter the following URL. You can also perform this task at a later time.

```
https://{ICS_HOST}:{ICS_SSL_PORT}/icsapis/agent/oauth/callback
```

Where:
- `{ICS_HOST}` is a placeholder for the Oracle Integration host name.
- `{ICS_SSL_PORT}` is a placeholder for the Oracle Integration SSL port.

For example:

```
https://myicshost.mycompanydomain.com:443/icsapis/agent/oauth/callback
```

e. Click **Create**. This provides you with the client ID and client secret.
f. Copy and paste this information to a safe location because it is required for creating a Gmail Adapter connection, then click **OK**.

10. Select **Create client ID**.
   This enables you to create an OAuth 2.0 client ID and set up an OAuth 2.0 consent screen.

11. Specify a product name to be shown to users.

12. Specify other details as required.

13. Click **Download** to download the credentials, then click **Done**.

---

**Note:**

Before creating a Gmail connection, you must upload the trusted Gmail public certificate to Oracle Integration. The trusted Gmail public certificate can be downloaded from [https://gmail.com](https://gmail.com). Rename the `GoogleCertificate.txt` file extension to `.cer`. See **Certificate Errors** to obtain the trusted certificate from Google and **Upload an SSL Certificate** to upload the certificate.

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### Create a Connection

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

1. In the navigation pane, click **Integrations**, then click **Connections**.
2. Click **Create**.

---

**Note:**

You can also create a connection in the integration canvas of:

- An orchestrated integration (See Define Inbound Triggers and Outbound Invokes.)
- A basic routing integration (See Add a Trigger (Source) Connection.)

The Create Connection — Select Adapter dialog is displayed.

3. Select an adapter from the dialog. You can also search for the type of adapter to use by entering a partial or full name in the **Search** field, and clicking **Search**.

The Create New Connection dialog is displayed.

4. Enter the information to describe the connection.
   - Enter a meaningful name to help others find your connection when they begin to create their own integrations. The name you enter is automatically added in capital letters to the **Identifier** field. If you modify the identifier name, do not include a blank space (for example, `Sales Opportunity`).
• Select the role (direction) in which to use this connection (trigger, invoke, or both). Only the roles supported by this adapter are displayed for selection. When you select a role, only the connection properties and security policies appropriate to that role are displayed on the Connections page. If you select an adapter that supports both invoke and trigger, but select only one of those roles, then try to drag the adapter into the section you did not select, you receive an error (for example, configure an Oracle Service Cloud (RightNow) Adapter as only an invoke, but drag the adapter to the trigger section).

• Enter an optional description of the connection.

![Create New Connection](image)

5. Click Create.

Your connection is created and you are now ready to configure connection details, such as email contact, connection properties, security policies, connection login credentials, and (for certain connections) agent group.

Add a Contact Email

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

1. In the Email Address field, enter an email address to receive email notifications when problems occur.

2. In the upper right corner, click Save.

Configure Connection Security

Configure security for your Gmail connection by selecting the security policy and specifying the client ID and client secret. The security policy grants you authorization access to the resources of the Gmail application. When your Gmail connection
requests access to the resources stored on the resource server, your connection is authenticated by sending the client ID and the client secret to the authorization server.

1. Click **Configure Credentials**.
2. In the **Security Policy** field, note that the **Google OAuth Authorization Code Credentials** security policy is displayed by default, and cannot be deselected.
3. In the **Client ID** field, enter the client ID created after completing the steps in **Prerequisites for Creating a Connection**.
4. In the **Client Secret** field, enter the client secret created after completing the steps in **Prerequisites for Creating a Connection**.
5. In the **Scope** field, click to display a list of available scopes.
6. Copy and paste the scopes to use, separated by blank spaces.
7. Click **Provide Consent** to allow consent.
   A dialog is displayed indicating that an OAuth request is being initiated from Oracle Integration to Gmail. If the redirect URL in the project in the developer console is correct, the consent screen is displayed. Otherwise, an error occurs indicating that there is a redirect URI mismatch. Once consent is given, a successful consent page is displayed.
8. Click **OK**.
   You are now ready to test your connection.

### Test the Connection

Test your connection to ensure that it is successfully configured.

1. In the upper right corner of the page, click **Test**.
2. If your adapter connection uses a WSDL, you are prompted 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.
   If successful, the following message is displayed and the progress indicator shows 100%.
   Connection *connection_name* was tested successfully.
3. If your connection was unsuccessful, an error message is displayed with details. Verify that the configuration details you entered are correct.
4. When complete, click **Save**, then click **Close**.

### Upload an SSL Certificate

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

To upload an SSL certificate:

1. In the navigation pane, click **Integrations**, then click the < arrow next to **Designer**.
2. Click **Settings > Certificates**.
   
   All certificates currently uploaded to the trust store are displayed in the Certificates dialog. The **Filter By > Type** list displays the following details:
   
   - **Preinstalled**: Displays the certificates automatically installed in Oracle Integration. These certificates cannot be deleted.
   - **Uploaded**: Displays the certificates uploaded by individual users. These certificates can be deleted and updated.

You can also search for certificates in the **Search** field. The search results are limited to a maximum of ten records sorted by name for performance and usability reasons. To ensure that your search results are more granular, enter as much of the certificate name as possible.

3. Click **Upload** at the top of the page.
4. In the Upload Certificate dialog box, select the certificate type. Each certificate type enables Oracle Integration to connect with external services.
   
   - **Trust Certificate**: Use this option to upload a trust certificate.
     
     a. Enter a unique alias for the certificate.
     b. Click **Browse**, then select the trust file (for example, `.cer` or `.crt`) to upload.
   
   - **Message Protection Certificate**: Use this option to upload a keystore certificate with SAML token support. Create, read, update, and delete (CRUD) operations are supported on this type of certificate.
     
     a. Enter a unique alias for the certificate.
     b. Click **Browse**, then select the certificate file (`.cer` or `.crt`) to upload.
   
   - **Identity Certificate**: Use this option to upload a certificate for two-way SSL communication.
     
     a. Click **Browse**, then select the keystore file (`.jks`) to upload.
     b. Enter the password of the keystore being imported.
     c. Enter the comma-separated list of aliases from the keystore being imported.
     d. Enter the comma-separated list of passwords corresponding to key aliases.
     e. If you want to display the passwords in clear text, select **Show Key Password(s)**. This enables you to ensure that you are correctly entering a list of keystore passwords.

5. Click **Upload**.
6. Click the certificate name to view details such as the subject of the certificate, the issuer of the certificate, the date the certificate was issued, and the date the certificate expires.
Add the Gmail Adapter Connection to an Integration

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

These topics describe the wizard pages that guide you through configuration of the Gmail Adapter as an invoke in an integration. The Gmail Adapter cannot be used as a trigger in an integration.

Topics:
- Basic Info Page
- Invoke Operation Selection Page
- Summary Page

Basic Info Page

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

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you want to call your endpoint?</td>
<td>Provide a meaningful name so that others can understand the responsibilities of this connection. You can include English alphabetic characters, numbers, underscores, and dashes in the name. You cannot include the following:</td>
</tr>
<tr>
<td></td>
<td>• Blank spaces (for example, My Inbound Connection)</td>
</tr>
<tr>
<td></td>
<td>• Special characters (for example, #;83&amp; or righ(t)now4)</td>
</tr>
<tr>
<td></td>
<td>• Multibyte characters</td>
</tr>
<tr>
<td>What does this endpoint do?</td>
<td>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.</td>
</tr>
</tbody>
</table>

Invoke Operation Selection Page

Select the Gmail API operation to perform.
### Element | Description
---|---
Select Operation | Select the Gmail API operation to perform.  
- Notification Watch  
- List Threads  
- Get Thread  
- Trash Thread  
- List Messages  
- Get Message  
- Get Message Attachment  
- Send Message  
- List Drafts  
- Create Draft  
- Get Draft  
- Delete Draft  
- Send Draft  
- List Labels  
- Create Label  
- Delete Label  

The Gmail resource URI and template parameter associated with your selected operation are displayed on the Summary page of this wizard. For information about the Gmail API, visit the following URL:  
[https://developers.google.com/gmail/api/v1/reference](https://developers.google.com/gmail/api/v1/reference)

---

## Summary Page

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

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

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

Topics:

- Specify the Port Number with the Authorized Redirect URL
- Certificate Errors
- Send Message Operation Failure

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

**Specify the Port Number with the Authorized Redirect URL**

When configuring the authorized redirect URL, ensure that you specify the port number. For example:

```
https://host:443/icsapis/agent/oauth/callback
```

Not specifying the port number in the URL results in an error when configuring the adapter on the Connections page:

"Authorization Failed: String index out of range: -12"

**Certificate Errors**

Note the following certificate errors.

If the certificate is not uploaded, the following error is displayed.

```
Authorization Failed: PKIX path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target
```

If the certificate uploaded is incomplete or the client ID and client secret are invalid, the following error is displayed.

```
Authorization Failed: null
```

To upload the trusted Google certificate to Oracle Integration:

1. Open your browser.
2. Log in to https://gmail.com/.
3. Click the **Lock** icon in front of the URL.
4. Click **More Information > Security**.
5. Click **View Certificate > Details**.
6. Select the root certificate in the **Certificate Hierarchy** section.
7. Export the root certificate.

8. Upload this certificate in Oracle Integration. See **Upload an SSL Certificate**.

---

**Send Message Operation Failure**

If the **send message** operation fails with an error similar to the following, the **uploadType** query parameter is mapped with the wrong value.

```xml
<genericRestFault>
  <errorCode>REST_REQ_HDR_ERR</errorCode>
  <errorPath>
    <![CDATA[An error occurred while processing headers in the target REST endpoint.]]>
  </errorPath>
</genericRestFault>
```
The `uploadType` query parameter is hard-coded in the mapper and enclosed with quotes. The send message operation sends mail from the account used in the connection. It expects the value to be of MIME content. If the send message operation fails with an error similar to the following, the reason is that invalid MIME content is mapped to a raw element.

```
"error": {
  "errors": [
    {
      "domain": "global",
      "reason": "invalidArgument",
      "message": "Recipient address required"
    }
  ],
  "code": 400,
  "message": "Recipient address required"
}
```

Sample mail content is shown below:

From: sender@email.com  
To: receiver@email.com  
Subject: Mail Subject  
MIME-Version: 1.0  
Content-Type: text/plain; charset=utf-8  
Content-Transfer-Encoding: 7bit  

Dear Sender,

This is a sample mail sent using ICS Google Mail Adapter.

Thank You!!

Regards,

Sender

The above mail content can be built using the XSLT mapper with the following steps.

1. Export the flow from Oracle Integration.
2. Manually edit the mapper XSLT with required values in the format using the sample provided below.
3. Save the XSLT and re-import the flow into Oracle Integration.

```xsl
<xsl:template match="/" xml:id="id_11">
  <xsl:variable name="emailContent">
    Chapter 4
    Send Message Operation Failure
  </xsl:variable>
</xsl:template>
```
Dear Sender,

This is a sample mail sent using ICS Google Mail Adapter.

Thank You!!

Regards,

Sender