Oracle® Cloud

Using the Microsoft Calendar Adapter with Oracle Integration
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Preface

This guide describes how to configure the Microsoft Calendar 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 Microsoft Calendar 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>monospace</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 Microsoft Calendar Adapter

Review the following conceptual topics to learn about the Microsoft Calendar 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:
- About the Microsoft Calendar Adapter
- What Application Version Is Supported?
- About Microsoft Calendar Adapter Use Cases
- Workflow to Create and Add a Microsoft Calendar Adapter Connection to an Integration

About the Microsoft Calendar Adapter

Use the Microsoft Calendar Adapter to create a Microsoft Calendar application integration.

Microsoft Calendar enables you to organize your events and appointments. You can use the Microsoft Calendar Adapter to connect to Microsoft Calendar to manage events and appointments.

The Microsoft Calendar Adapter is one of many predefined adapters included with Oracle Integration. You can configure the Microsoft Calendar 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

About Microsoft Calendar Adapter Use Cases

The Microsoft Calendar Adapter can be used in scenarios such as the following.

You can create an integration that includes the REST Adapter on the source (inbound) side and a Microsoft Calendar Adapter on the invoke (outbound) side.

When configuring the Microsoft Calendar Adapter, you can select the Create Event API operation to create an event in Microsoft Calendar. The REST Adapter is configured with a POST action, an endpoint relative resource URI of createEvent, and a JSON response payload file type. Appropriate data mapping between the REST
Adapter and the Microsoft Calendar Adapter is performed in the mapper. The REST Adapter sends a POST request to the Microsoft Calendar Adapter, which creates the event, and returns details about event attendees, start time, and so on.

**Workflow to Create and Add a Microsoft Calendar Adapter Connection to an Integration**

Follow a 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 a Microsoft Outlook account, enable REST APIs, and add the application to the Microsoft Outlook account.</td>
<td>Prerequisites for Creating a Connection</td>
</tr>
<tr>
<td>2</td>
<td>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.</td>
<td>Create a Microsoft Calendar Adapter Connection</td>
</tr>
<tr>
<td>3</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 Microsoft Calendar Adapter Connection to an Integration</td>
</tr>
<tr>
<td>4</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>5</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>6</td>
<td>Activate the integration.</td>
<td>Manage Integrations of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>7</td>
<td>Monitor the integration on the dashboard.</td>
<td>Monitor Integrations of Using Integrations in Oracle Integration</td>
</tr>
<tr>
<td>8</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>9</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 Microsoft Calendar 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

These are the prerequisites for creating a connection with the Microsoft Calendar Adapter.

Note:

Before creating a Microsoft Calendar Adapter connection, you must upload the trusted Microsoft Calendar public certificate to Oracle Integration. The Microsoft Calendar public certificate is created when you create the private key. Rename the public certificate file extension to .crt. To upload the certificate, see Upload an SSL Certificate.

1. Create a Microsoft Outlook account.
2. Submit a request to outlookdev@microsoft.com to enable REST API functionality on the Microsoft Outlook account. You can also create a developer preview account by submitting a request to the same email address.
3. Follow the instructions provided in the email response sent by Microsoft.
4. Open a web browser and navigate to https://apps.dev.microsoft.com/.
5. Click Sign in with a Microsoft account and enter your email address and password.
6. Click Sign in.
7. Click Add an app.
8. Enter a name for the application and click Create application.
9. Click Generate New Password to generate a secret key.
10. Enter a password for the key and click Ok.
11. Select a location for the certificate and click OK.
12. Copy or record the values in the **Application Id** and **Private Key** values. These values are required to create the connection in Oracle Integration.

13. Click **Add Platform**.

14. Click **Web**.

15. Enter `https://server:port/icsapis/agent/oauth/callback` in the **Enter a url** field.

16. Scroll to the bottom of the page and click **Save**.

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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**.

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**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.
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

Enter connection information so your application can process requests.

1. Click Configure Credentials.

The Credentials dialog is displayed. The Security Policy field displays Microsoft Calendar Authorization Code Credentials. This value cannot be changed. This security policy supports OAuth 2.0 authorization code flow credentials.

2. Enter the client ID (Microsoft application ID) and client secret (Microsoft password) values you recorded when you added your application to your Microsoft email account.

   See Prerequisites for Creating a Connection.

3. Enter the scope URLs in the Scope field.
A scope is a list of authorization permissions for the target application. You must include the `offline_access` scope along with the application-specific scopes. For example:

```
https://outlook.office.com/Mail.ReadWrite offline_access
```

4. Click **Provide Consent**.
5. Click **OK**.

**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 Microsoft Calendar Adapter Connection to an Integration

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

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

Topics:
- Basic Info Page
- Invoke Operations Page
- Invoke Request Parameters 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>
</table>
| 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 dashes in the name. You cannot include the following:  
  - Blank spaces (for example, My Inbound Connection)  
  - Special characters (for example, #;836 or righ(t)now4)  
  - 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 Operations Page

Select the Microsoft Calendar API operation to perform.
<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get user's primary calendar</td>
<td>Returns all events associated with the user's primary calendar.</td>
</tr>
<tr>
<td>Create a calendar</td>
<td>Creates a calendar in the default calendar group.</td>
</tr>
<tr>
<td>Get a calendar view</td>
<td>Returns the occurrences, exceptions, and single instances of events from the user's primary calendar for a specific time range.</td>
</tr>
<tr>
<td>Sync user's calendar</td>
<td>Synchronizes and adds, updates, or deletes events in the user's primary calendar for a specific time range.</td>
</tr>
<tr>
<td>Sync a specific calendar</td>
<td>Synchronizes and adds, updates, or deletes events in a specific calendar for a specific time range.</td>
</tr>
<tr>
<td>Get an Event</td>
<td>Returns event information from the user's primary calendar or from a different calendar.</td>
</tr>
<tr>
<td>Get series master and single instance event</td>
<td>Returns a collection of series master and single instance events from the user's primary calendar or from a different calendar.</td>
</tr>
<tr>
<td>Create Event</td>
<td>Creates an event in the user's primary calendar.</td>
</tr>
<tr>
<td>Create Event in a specific calendar</td>
<td>Creates an event in a specific calendar.</td>
</tr>
<tr>
<td>Accept Event</td>
<td>Accepts the specified event.</td>
</tr>
<tr>
<td>Tentatively Accept Event</td>
<td>Tentatively accepts the specified event.</td>
</tr>
<tr>
<td>Decline Event</td>
<td>Declines an invitation to a specified event.</td>
</tr>
<tr>
<td>Delete a Calendar Event</td>
<td>Moves an event to the Deleted Items folder. If the event is a meeting, a cancellation notice is sent to all attendees.</td>
</tr>
<tr>
<td>Get Event Instances</td>
<td>Returns the all instances of an event for a specific time range.</td>
</tr>
</tbody>
</table>

**Invoke Request Parameters Page**

You can configure the request query parameters on the invoke Microsoft Calendar Adapter Request Parameters page. This page is displayed when you select an operation that includes request parameters (for example, the operation *Sync user's calendar includes query parameters*).

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter name to filter</td>
<td>Enter the initial letters of the query parameter to filter the list.</td>
</tr>
<tr>
<td><strong>Available Query Parameters</strong></td>
<td>Select the query parameters to include.</td>
</tr>
<tr>
<td><strong>Selected Query Parameters</strong></td>
<td>Displays the selected query parameters.</td>
</tr>
</tbody>
</table>
You can review the specified adapter configuration values on the Summary page.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>Displays a summary of the configuration values you defined on previous pages of the wizard.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>
Troubleshoot the Microsoft Calendar Adapter

Review these topics to learn about troubleshooting issues with the Microsoft Calendar Adapter.

Topics:

- Specify the Port Number with the Authorized Redirect URL

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"