

## **Oracle® Public Cloud Machine**

Using the Microsoft Contact Adapter

Release 16.3.1

**E74266-02**

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This guide describes how to configure and add the Microsoft Contact Adapter to an integration in Oracle Integration Cloud Service.

Oracle Public Cloud Machine Using the Microsoft Contact Adapter, Release 16.3.1

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# Contents

Preface .....	v
Audience .....	v
Related Resources .....	v
Conventions .....	v
<b>1 Getting Started with the Microsoft Contact Adapter</b>	
About the Microsoft Contact Adapter .....	1-1
What Application Version Does the Microsoft Contact Adapter Support? .....	1-1
About Oracle Integration Cloud Service .....	1-2
About Oracle Integration Cloud Service Connections .....	1-2
About Oracle Integration Cloud Service Integrations .....	1-2
About Microsoft Contact Adapter Use Cases .....	1-3
Typical Workflow for Creating and Including an Adapter Connection in an Integration .....	1-3
<b>2 Creating a Microsoft Contact Adapter Connection</b>	
Prerequisites for Creating a Connection .....	2-1
Uploading an SSL Certificate .....	2-2
Creating a Connection .....	2-3
Adding a Contact Email .....	2-4
Configuring Connection Security .....	2-4
Testing the Connection .....	2-5
Editing a Connection .....	2-5
Cloning a Connection .....	2-5
Deleting a Connection .....	2-6
<b>3 Creating an Integration</b>	
<b>4 Adding the Microsoft Contact Adapter Connection to an Integration</b>	
Configuring Basic Information Properties .....	4-1
What You Can Do from the Basic Info Page .....	4-1
What You See on the Basic Info Page .....	4-1
Configuring Microsoft Contact Adapter Invoke Operations Properties .....	4-2

What You Can Do from the Microsoft Contact Adapter Operations Page.....	4-2
What You See on the Microsoft Contact Adapter Operations Page .....	4-3
Reviewing Configuration Values on the Summary Page .....	4-3
What You Can Do from the Summary Page .....	4-3
What You See on the Summary Page .....	4-4

## **5** Creating Mappings and Lookups in Integrations

## **6** Administering Integrations

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# Preface

*Using the Microsoft Contact Adapter* describes how to configure the Microsoft Contact Adapter as a connection in an integration in Oracle Integration Cloud Service.

## Topics:

- [Audience](#)
- [Related Resources](#)
- [Conventions](#)

## Audience

*Using the Microsoft Contact Adapter* is intended for developers who want to use the Microsoft Contact Adapter in integrations in Oracle Integration Cloud Service.

## Related Resources

For more information, see these Oracle resources:

- *Using Oracle Integration Cloud Service*
- *Using the Oracle Mapper*
- Oracle Public Cloud Machine documentation in the Oracle Help Center:  
<http://docs.oracle.com>

## Conventions

The following text conventions are used in this document:

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



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# Getting Started with the Microsoft Contact Adapter

Review the following conceptual topics to learn about the Microsoft Contact Adapter and how to use it as a connection in integrations in Integration Cloud Service. A typical workflow of adapter and integration tasks is also provided.

## Topics

- [About the Microsoft Contact Adapter](#)
- [What Application Version Does the Microsoft Contact Adapter Support?](#)
- [About Oracle Integration Cloud Service](#)
- [About Oracle Integration Cloud Service Connections](#)
- [About Oracle Integration Cloud Service Integrations](#)
- [About Microsoft Contact Adapter Use Cases](#)
- [Typical Workflow for Creating and Including an Adapter Connection in an Integration](#)

## About the Microsoft Contact Adapter

Use the Microsoft Contact Adapter to transfer files to a target Microsoft Contact server in an Oracle Integration Cloud Service integration.

The Microsoft Contact Adapter is one of many predefined adapters included with Oracle Integration Cloud Service. You can configure the Microsoft Contact Adapter as a connection in an integration in Oracle Integration Cloud Service. For information about Oracle Integration Cloud Service, connections, and integrations, see the following sections:

- [About Oracle Integration Cloud Service](#)
- [About Oracle Integration Cloud Service Connections](#)
- [About Oracle Integration Cloud Service Integrations](#)

## What Application Version Does the Microsoft Contact Adapter Support?

The Microsoft Contact Adapter is compatible with version 2.0 of the Outlook Contacts REST API.

## About Oracle Integration Cloud Service

Oracle Integration Cloud Service is a complete, secure, but lightweight integration solution that enables you to connect your applications in the cloud. It simplifies connectivity between your applications, and can connect both your applications that live in the cloud and your applications that still live on premises. Oracle Integration Cloud Service provides secure, enterprise-grade connectivity regardless of the applications you are connecting or where they reside.

Oracle Integration Cloud Service provides native connectivity to Oracle Software as a Service (SaaS) applications, such as Oracle Sales Cloud, Oracle RightNow Cloud, and so on. Oracle Integration Cloud Service *adapters* simplify connectivity by handling the underlying complexities of connecting to applications using industry-wide best practices. You only need to create a *connection* that provides minimal connectivity information for each system. Oracle Integration Cloud Service *lookups* map the different codes or terms used by the applications you are integrating to describe similar items (such as country or gender codes). Finally, the visual data mapper enables you to quickly create direct mappings between the trigger and invoke data structures. From the mapper, you can also access lookup tables and use standard XPath functions to map data between your applications.

Once you integrate your applications and activate the integrations to the runtime environment, the dashboard displays information about the running integrations so you can monitor the status and processing statistics for each integration. The dashboard measures and tracks the performance of your transactions by capturing and reporting key information, such as throughput, the number of messages processed successfully, and the number of messages that failed processing. You can also manage business identifiers that track fields in messages and manage errors by integrations, connections, or specific integration instances.

## About Oracle Integration Cloud Service Connections

Connections define information about the instances of each predefined configuration you are integrating. Oracle Integration Cloud Service includes a set of predefined *adapters*, which are the types of applications on which you can base your connections, such as Oracle Sales Cloud, Oracle Eloqua Cloud, Oracle RightNow Cloud, and others. A connection is based on an adapter. A connection includes the additional information required by the adapter to communicate with a specific instance of an application (this can be referred to as metadata or as connection details). For example, to create a connection to a specific RightNow Cloud application instance, you must select the Oracle RightNow adapter and then specify the WSDL URL, security policy, and security credentials to connect to it.



## About Oracle Integration Cloud Service Integrations

Integrations are the main ingredient of Oracle Integration Cloud Service. An integration includes at the least a trigger (source) connection (for requests sent to Oracle Integration Cloud Service) and invoke (target) connection (for requests sent from Oracle Integration Cloud Service to the target) and the field mapping between those two connections.

When you create your integrations, you build on the [connections](#) you already created by defining how to process the data for the trigger (source) and invoke (target) connections. This can include defining the type of operations to perform on the data, the business objects and fields against which to perform those operations, required



schemas, and so on. To make this easier, the most complex configuration tasks are handled by Oracle Integration Cloud Service. Once your trigger (source) and invoke (target) connections are configured, the mappers between the two are enabled so you can define how the information is transferred between the trigger (source) and invoke (target) data structures for both the request and response messages.



[Video](#)

## About Microsoft Contact Adapter Use Cases

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

You can create two integrations that include a REST Adapter on the source (inbound) side and an Microsoft Contact Adapter on the invoke (outbound) side.

- When configuring the Microsoft Contact Adapter in one integration, you can select the List Contacts API operation to list all contacts in a default or specific Microsoft Contact folder. Appropriate data mapping between the REST Adapter and the Microsoft Contact Adapter is performed in the mapper. The REST Adapter sends a GET request to the Microsoft Contact Adapter, which returns the display names, given names, and sir names for all the contacts in the folder.
- When configuring the Microsoft Contact Adapter in the other integration, you can select the Create Contact API operation to create new contacts in a default or specific Microsoft Contact folder. Appropriate data mapping between the REST Adapter and the Microsoft Contact Adapter is performed in the mapper. The REST Adapter sends a POST request to the Microsoft Contact Adapter, which adds the new contact to the contact list and returns the results.

## Typical Workflow for Creating and Including an Adapter Connection in an Integration

Follow a workflow to create a connection with an adapter and include the connection in an integration in Oracle Integration Cloud Service.

Step	Description	More Information
1	Create a Microsoft Outlook account, enable REST APIs and add the application to the Microsoft Outlook account.	<a href="#">Prerequisites for Creating a Connection</a>
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.	<a href="#">Creating a Microsoft Contact Adapter Connection</a>
3	Create the integration. When you do this, you add trigger and invoke connections to the integration.	<a href="#">Creating an Integration and Adding the Microsoft Contact Adapter Connection to an Integration</a>
4	Map data between the trigger connection data structure and the invoke connection data structure.	<a href="#">Mapping Integration Cloud Service Data of Using Oracle Integration Cloud Service</a>

<b>Step</b>	<b>Description</b>	<b>More Information</b>
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).	<i>Creating Lookups of Using Oracle Integration Cloud Service</i>
6	Activate the integration.	<i>Managing Integrations of Using Oracle Integration Cloud Service</i>
7	Monitor the integration on the dashboard.	<i>Monitoring Integration Cloud Services of Using Oracle Integration Cloud Service</i>
8	Track payload fields in messages during runtime.	<i>Assigning Business Identifiers for Tracking Fields in Messages and Managing Business Identifiers for Tracking Fields in Messages of Using Oracle Integration Cloud Service</i>
9	Manage errors at the integration level, connection level, or specific integration instance level.	<i>Managing Errors of Using Oracle Integration Cloud Service</i>

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# Creating a Microsoft Contact Adapter Connection

A connection is based on an adapter. You define connections to the specific cloud applications that you want to integrate. The following topics describe how to define connections:

## Topics

- [Prerequisites for Creating a Connection](#)
- [Uploading an SSL Certificate](#)
- [Creating a Connection](#)
- [Editing a Connection](#)
- [Cloning a Connection](#)
- [Deleting a Connection](#)

## Prerequisites for Creating a Connection

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

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### Note:

Before creating a Microsoft Contact Adapter connection, you must upload the trusted Microsoft Contact public certificate to Oracle Integration Cloud Service. The Microsoft Contact public certificate is created when you create the private key. Rename the public certificate file extension to `.crt`. To upload the certificate, see [Uploading an SSL Certificate](#).

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1. Create a Microsoft Outlook account.
2. Submit a request to [outlookdev@microsoft.com](mailto: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 Key Pair** to generate a private 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 Cloud Service.
13. Click **Add Platform**.
14. Click **Web**.
15. Enter `https://your_server/icsapis/agent/oauth/callback` in the **Enter a url** field.
16. Scroll to the bottom of the page and click **Save**.

## Uploading 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 Cloud Service, an exception is thrown. In that case, you must upload the appropriate certificate. A certificate enables Oracle Integration Cloud Service to connect with external services. If the external endpoint requires a specific certificate, request the certificate and then upload it into Oracle Integration Cloud Service.

To upload a certificate:

1. From the Oracle Integration Cloud Service home page, click the **Administration** tab in the upper right corner.

All certificates currently uploaded to the trust store are displayed in the Certificates dialog. A navigation panel on the left side of the dialog displays the following details:

- **All:** Displays all certificates in Oracle Integration Cloud Service.
- **System:** Displays the certificates automatically included in Oracle Integration Cloud Service. These certificates cannot be deleted.
- **Uploaded:** Displays the certificates uploaded by individual users. These certificates can be deleted and updated.

2. Click **Upload Certificate** at the top of the page.
3. In the Upload Certificate dialog box, enter a unique identifier for the certificate.  
This is a name you can use to identify the certificate.
4. Click **Browse** to locate the certificate file (.cer).
5. Click **Upload**.

- 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.

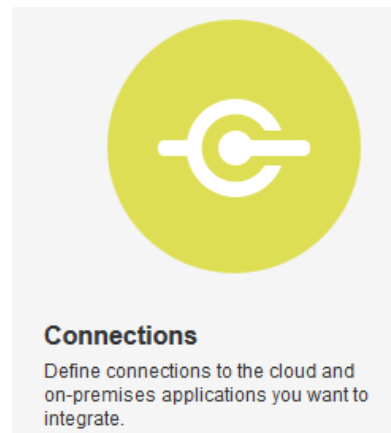
## Creating a Connection

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

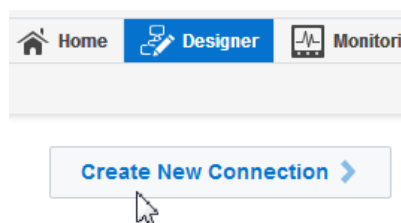
- In the Integration Cloud Service toolbar, click **Designer**.



- On the Designer Portal, click **Connections**.



- Click **Create New Connection**.



The Create Connection — Select Adapter dialog is displayed.

- 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 New Connection — Information dialog is displayed.

- Enter the information to describe the connection. Use a meaningful name to help others find your connection when they begin to create their own integrations.

6. Click **Create**.

Your connection is created and you are now ready to configure connection details, such as email contact, connection properties, security policies, and connection login credentials.

## Adding 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**.

## Configuring Connection Security

Configure security for your Oracle Commerce connection by selecting the security policy and security token.

1. Click **Configure Credentials**.  
The Credentials dialog is displayed.
2. In the **Security Policy** field, note that **Microsoft Contact OAuth Authorization Code Credentials** is displayed by default and cannot be deselected. This security policy supports OAuth 2.0 authorization code flow credentials.
3. Enter the client ID (Microsoft application ID) and client secret (Microsoft private key) values you recorded when you added your application to your Microsoft Email account.

See [Prerequisites for Creating a Connection](#).

4. Enter `https://outlook.office.com/Contacts.ReadWrite offline_access` in the **Scope** field.

A scope is a list of authorization permissions for the target application.

5. Click **Provide Consent**.
6. Click **OK**.

## Testing the Connection

Test your connection to ensure that it is successfully configured.

1. In the upper right corner of the page, click **Test**.

If successful, the following message is displayed and the progress indicator shows 100%.

The connection test was successful!

2. If your connection was unsuccessful, an error message is displayed with details. Verify that the configuration details you entered are correct.
3. When complete, click **Save**.

## Editing a Connection

You can edit connection settings after creating a new connection.

1. In the Oracle Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.
3. On the Connections page, select **Edit** from the connection **Actions** menu or click the connection name.



The Connection page is displayed.

4. To edit the notification email contact, change the email address in the **Email Address** field.
5. To edit the connection properties, click **Configure Connectivity**. Note that some connections do not include this button. If your connector does not include a **Configure Connectivity** button, then click the **Configure Credentials** button.

## Cloning a Connection

You can clone a copy of an existing connection. It is a quick way to create a new connection.

1. In the Oracle Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.
3. On the Connections page, select **Clone** from the connection **Actions** menu.



The Clone Connection dialog is displayed.

4. Enter the connection information.
5. Click **Clone**.
6. Click **Edit** to configure the credentials of your cloned connection. Cloning a connection does not copy the credentials.

See [Editing a Connection](#) for instructions.

## Deleting a Connection

You can delete a connection from the connection menu.

1. In the Oracle Integration Cloud Service toolbar, click **Designer**.
2. On the Designer Portal, click **Connections**.
3. On the Connections page, click **Delete** from the connection **Actions** menu.



The Delete Connection dialog is displayed if the connection is not used in an integration.

4. Click **Yes** to confirm deletion.



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## Creating an Integration

Integrations use the adapter connections you created to your applications, and define how information is shared between those applications. You can create, import, modify, or delete integrations; create integrations to publish or subscribe to messages; add and remove request and response enrichment triggers; and create routing paths for different invoke endpoints in integrations. Click the following topics for more information.

### Topic

- [Creating Integrations \(in \*Using Oracle Integration Cloud Service\*\)](#)



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# Adding the Microsoft Contact Adapter Connection to an Integration

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

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

## Topics

- [Configuring Basic Information Properties](#)
- [Configuring Microsoft Contact Adapter Invoke Operations Properties](#)
- [Reviewing Configuration Values on the Summary Page](#)

For more information about the Microsoft Contact Adapter, see [About the Microsoft Contact Adapter](#).

## Configuring Basic Information Properties

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

### Topics

- [What You Can Do from the Basic Info Page](#)
- [What You See on the Basic Info Page](#)

## What You Can Do from the Basic Info Page

You can specify the following values on the Basic Info page. The Basic Info page is the initial wizard page that is displayed whenever you drag an adapter to the trigger (source) or invoke (target) area supported by your adapter.

- Specify a meaningful name.
- Specify a description of the responsibilities.

## What You See on the Basic Info Page

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

Element	Description
What do you want to call your endpoint?	<p>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:</p> <ul style="list-style-type: none"> <li>• Blank spaces (for example, My Inbound Connection)</li> <li>• Special characters (for example, #;83&amp; or righ(t)now4)</li> <li>• Multibyte characters</li> </ul>
What does this endpoint do?	<p>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.</p>

## Configuring Microsoft Contact Adapter Invoke Operations Properties

Enter the Microsoft Contact Adapter invoke file write parameters.

### Topics

- [What You Can Do from the Microsoft Contact Adapter Operations Page](#)
- [What You See on the Microsoft Contact Adapter Operations Page](#)

## What You Can Do from the Microsoft Contact Adapter Operations Page

This table describes the key information on the Microsoft Contact Adapter Operations page.

Operation	Description	Introduced in Release
List Contacts	Returns a list of contacts from the default contacts folder of the signed-in user, or from the specified contact folder.	16.1.3
Get Specific Contact	Returns a specific contact from the default contacts folder of the signed-in user, or from a specified contact folder.	16.1.3
List All Contacts From Specific Contact Folder	Returns a list of contacts from the specified contact folder.	16.1.3

Operation	Description	Introduced in Release
Create Contact	Creates a contact in the root contacts folder or in the contacts endpoint of another contact folder.	16.1.3
Create Contact in Specific Contact Folder	Creates a contact in the specified contact folder.	16.1.3
Update Contact	Changes the properties of a contact.	16.1.3
Delete Contact	Deletes a contact. Deleted contents might not be recoverable.	16.1.3
List All Contact Folders	Returns a list of contact folders for the signed-in user, or from the specified contact folder.	16.1.3
Get Specific Contact Folder	Returns a specific contact folder for the signed-in user, or from the specified contact folder.	16.1.3

## What You See on the Microsoft Contact Adapter Operations Page

The following table describes the key information on the Microsoft Contact Adapter Operations page.

Element	Option
Select Operation	Select the Microsoft Contact operation to perform.

## Reviewing Configuration Values on the Summary Page

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

### Topics

- [What You Can Do from the Summary Page](#)
- [What You See on the Summary Page](#)

## What You Can Do from the Summary Page

You can review trigger (source) or invoke (target) configuration details from the Summary page. The Summary page is the final wizard page for each adapter after you have completed your configuration.

- View the configuration details you defined for the trigger (source) or invoke (target) adapter. For example, if you have defined an inbound trigger (source) adapter with a request business object and immediate response business object, specific details about this configuration are displayed on the Summary page.

- Click **Done** if you want to save your configuration details.
- Click a specific tab in the left panel or click **Back** to access a specific page to update your configuration definitions.
- Click **Cancel** to cancel your configuration details.

## What You See on the Summary Page

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

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Element	Description
<b>Summary</b>	Displays a summary of the trigger (source) or invoke (target) 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 <b>Back</b> .

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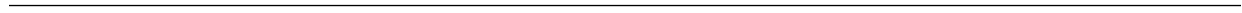
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## Creating Mappings and Lookups in Integrations

You must map data between trigger connections and invoke connections in integrations. You can also optionally create lookups in integrations.

### Topics

- Mapping Integration Cloud Service Data (in *Using Oracle Integration Cloud Service*)
- Creating Lookups (in *Using Oracle Integration Cloud Service*)





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# Administering Integrations

Oracle Integration Cloud Service provides you with the information and tools required to activate, monitor, and manage your integrations in the runtime environment.

## Topic

- Administering Integration Cloud Service ( in *Using Oracle Integration Cloud Service*)

