Oracle® Cloud

Using the SugarCRM Adapter with Oracle Integration Generation 2

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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
- Documentation Accessibility
- Diversity and Inclusion
- Related Resources
- Conventions

Audience

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

Documentation Accessibility

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Access to Oracle Support

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Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our

initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and 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

  http://cloud.oracle.com
- *Using Integrations in Oracle Integration Generation 2*
- *Using the Oracle Mapper with Oracle Integration Generation 2*

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 SugarCRM Adapter

Review the following conceptual topics to learn about the SugarCRM 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:

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

SugarCRM Adapter Capabilities

The SugarCRM Adapter enables you to create an integration with the SugarCRM application. You can configure the SugarCRM Adapter as an invoke connection in an integration in Oracle Integration.

The SugarCRM Adapter provides the following benefits:

- Provides metadata caching support
- Provides invoke (target) connection support for performing the following types of actions against the selected module and operation:
    - Create (create records in SugarCRM)
    - Update (update records in SugarCRM)
    - Query (get records from SugarCRM)
    - Delete (delete records from SugarCRM)
- Supports SugarCRM APIs protected using OAuth 2.0 two-legged authentication

The SugarCRM Adapter is one of many predefined adapters included with Oracle Integration.

What Application Version Is Supported?

For information about which application version is supported by this adapter, see the Connectivity Certification Matrix.

See Connectivity Certification Matrix.

Workflow to Create and Add a SugarCRM 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	Access Oracle Integration.	Go to `https://`*`instance_URL`*`/ic/home`
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 SugarCRM Adapter Connection
3	Create the integration. When you do this, you add trigger (source) and invoke (target) connections to the integration.	Create Integrations in *Using Integrations in Oracle Integration Generation 2* and Add the SugarCRM 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 Generation 2*
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 Generation 2*
6	Activate the integration.	Activate Integrations in *Using Integrations in Oracle Integration Generation 2*
7	Monitor the integration on the dashboard.	Monitor Integrations in *Using Integrations in Oracle Integration Generation 2*
8	Track payload fields in messages during runtime.	Assign Business Identifiers for Tracking Fields in Messages and Manage Business Identifiers for Tracking Fields in Messages in *Using Integrations in Oracle Integration Generation 2*
9	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in *Using Integrations in Oracle Integration Generation 2*

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Create a SugarCRM 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
- Create a Connection
- Upload an SSL Certificate

Prerequisites for Creating a Connection

You must satisfy the following prerequisites to create a connection with the SugarCRM Adapter.

- Purchase a Subscription to SugarCRM
- Create an Instance
- Create an OAuth Key

Purchase a Subscription to SugarCRM

Purchase a subscription to SugarCRM. When you subscribe, you receive the SugarCRM admin credentials. You must have Sugar Sell and Sugar Serve licenses.

Create an Instance

1. Enroll in the SugarCRM Software Partner Program using the link https://sugarexchange.sugarcrm.com/register/partner.

2. Once you are enrolled, request a Demo Builder account using the link https://demobuilder.sugarcrmdemo.com/isv-account-request.
   The Demo Builder enables you to create and manage your own sandboxes. An email is sent to you to activate your Demo Builder account and set your password.

3. Log in to your Demo Builder account https://demobuilder.sugarcrmdemo.com/login?next=%2F.

4. Create an instance in Demo Builder. An email is sent to you containing your instance username and password.

5. Copy your username and password. You'll need to enter these values in the username and password fields when you configure security for your SugarCRM Adapter connection. See Configure Connection Security.

6. Click **Preview** for the respective instance.

7. Copy the value for your SugarCRM instance URL. You'll need to enter this value in the **Site URL** field when you configure connection properties for your SugarCRM Adapter connection. See Configure Connection Properties.

Create an OAuth Key

1. Log in to your SugarCRM instance using the SugarCRM admin credentials.

2. In the upper-right corner, click your profile icon, and select **Admin**.
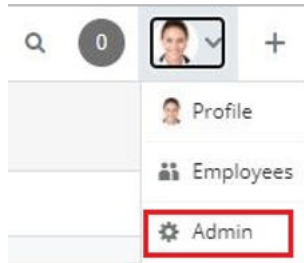
3. Click **OAuth Keys**.

4. Click **Create OAuth Key**.
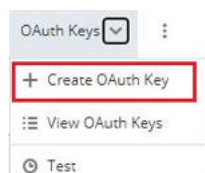
5. Enter a consumer key name and consumer key.

6. Copy the value for your consumer key. You'll need to enter this value in the **Client Id** field when you configure security for your SugarCRM Adapter connection. See Configure Connection Security.

7. Enter a consumer secret.

8. Copy the value for your consumer secret. You'll need to enter this value in the **Client Secret** field when you configure security for your SugarCRM Adapter connection. Configure Connection Security.

9. Select **OAuth 2.0** for the **OAuth Version**.

10. Click **Save**.

Create a Connection

Before you can build an integration, you have to create the connections to the applications with which you want to share data.

To create a connection in Oracle Integration:

1. In the left navigation pane, click **Home** > **Integrations** > **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.)

3. In the Create Connection — Select Adapter dialog, 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 and click
   🔍
   Search.

4. In the Create Connection dialog, enter the information that describes this connection.

   a. 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, don't include blank spaces (for example, `SALES OPPORTUNITY`).

   b. Enter optional keywords (tags). You can search on the connection keywords on the Connections page.

   c. Select the role (direction) in which to use this connection (trigger, invoke, or both). Only the roles supported by the 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, you'll get an error when you try to drag the adapter into the section you didn't select. For example, let's say 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.

   d. Enter an optional description of the connection.

5. Click **Create**.

Your connection is created. You're now ready to configure the connection details, such as connection properties, security policies, connection login credentials, and (for certain connections) agent group.

Configure Connection Properties

Enter connection information so your application can process requests.

Before you can create a connection, you must obtain the site URL that you specify on the Connections page. See Prerequisites for Creating a Connection.

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

2. In the **Site URL** field, enter the SugarCRM instance URL. For example:

    ```
    https://sg-your_instance_name.demo.sugarcrm.com
    ```

3. In the **REST Version** field, enter the supported SugarCRM REST version. The following example shows the format in which to enter the supported SugarCRM REST version: v11_8.

Configure Connection Security

Configure security for your SugarCRM Adapter connection by selecting the security policy and specifying security details.

Before you can create a connection, you must obtain the client ID and client secret to specify on the Connections page. See Prerequisites for Creating a Connection.

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

2. View the security policy. Only the **Resource Owner Password Credentials** policy is supported. It cannot be deselected.

3. In the **Client Id** field, enter the client ID that you obtained after performing the steps in the prerequisites section. See Create an OAuth Key.

4. In the **Client Secret** field, enter the client secret that you obtained after performing the steps in the prerequisites section. See Create an OAuth Key.

5. In the **Username** field, enter your SugarCRM instance username that you created in Demo Builder. See Create an Instance.

6. In the **Password** field, enter your SugarCRM instance password that you created in Demo Builder. See Create an Instance.

7. Click **Save**.

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 connection uses a Web Services Description Language (WSDL) file.

If Your Connection...	Then...
Doesn't use a WSDL	The test starts automatically and validates the inputs you provided for the connection.
Uses a WSDL	A dialog prompts you to select the type of connection testing to perform: • **Validate and Test**: Performs a full validation of the WSDL, including processing of the imported schemas and WSDLs. Complete validation can take several minutes depending on the number of imported schemas and WSDLs. No requests are sent to the operations exposed in the WSDL. • **Test**: Connects to the WSDL URL and performs a syntax check on the WSDL. No requests are sent to the operations exposed in the WSDL.

2. Wait for a message about the results of the connection test.

   • If the test was successful, then the connection is configured properly.

   • If the test failed, then edit the configuration details you entered. Check for typos, verify URLs and credentials, and download the diagnostic logs for additional details. Continue to test until the connection is successful.

3. When complete, click **Save**.

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 left navigation pane, click **Home** > **Settings** > **Certificates**.
   All certificates currently uploaded to the trust store are displayed in the Certificates dialog. The

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   link enables you to filter by name, certificate expiration date, status, type, category, and installation method (user-installed or system-installed). Certificates installed by the system cannot be deleted.

2. Click **Upload** at the top of the page.
   The Upload Certificate dialog box is displayed.

3. Enter an alias name and optional description.

4. In the **Type** field, select the certificate type. Each certificate type enables Oracle Integration to connect with external services.

   - **X.509 (SSL transport)**
   - **SAML (Authentication & Authorization)**
   - **PGP (Encryption & Decryption)**

X.509 (SSL transport)

1. Select a certificate category.

   a. **Trust**: Use this option to upload a trust certificate.

      i. Click **Browse**, then select the trust file (for example, `.cer` or `.crt`) to upload.

   b. **Identity**: Use this option to upload a certificate for two-way SSL communication.

      i. Click **Browse**, then select the keystore file (`.jks`) to upload.

      ii. Enter the comma-separated list of passwords corresponding to key aliases.

      > **Note:**
      >
      > When an identity certificate file (JKS) contains more than one private key, all the private keys must have the same password. If the private keys are protected with different passwords, the private keys cannot be extracted from the keystore.

      iii. Enter the password of the keystore being imported.

   c. Click **Upload**.

SAML (Authentication & Authorization)

1. Note that **Message Protection** is automatically selected as the only available certificate category and cannot be deselected. Use this option to upload a keystore certificate with SAML token support. Create, read, update, and delete (CRUD) operations are supported with this type of certificate.

2. Click **Browse**, then select the certificate file (`.cer` or `.crt`) to upload.

3. Click **Upload**.

PGP (Encryption & Decryption)

1. Select a certificate category. Pretty Good Privacy (PGP) provides cryptographic privacy and authentication for communication. PGP is used for signing, encrypting, and decrypting files. You can select the private key to use for encryption or decryption when configuring the stage file action.

   a. **Private**: Uses a private key of the target location to decrypt the file.

    i.   Click **Browse**, then select the PGP file to upload.

    ii.   Enter the PGP private key password.

b.   **Public**: Uses a public key of the target location to encrypt the file.

    i.   Click **Browse**, then select the PGP file to upload.

    ii.   In the **ASCII-Armor Encryption Format** field, select **Yes** or **No**. **Yes** shows the format of the encrypted message in ASCII armor. ASCII armor is a binary-to-textual encoding converter. ASCII armor formats encrypted messaging in ASCII. This enables messages to be sent in a standard messaging format. This selection impacts the visibility of message content. **No** causes the message to be sent in binary format.

    iii.   From the **Cipher Algorithm** list, select the algorithm to use. Symmetric-key algorithms for cryptography use the same cryptographic keys for both encryption of plain text and decryption of cipher text.

c.   Click **Upload**.

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Add the SugarCRM Adapter Connection to an Integration

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

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

Topics:

- Basic Info Page
- Invoke Actions Page
- Invoke Operations Page
- Summary Page

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 Actions Page

Select the action to perform in SugarCRM.

Element	Description
Which action do you want to perform in SugarCRM?	• **Query**: Retrieves information from the SugarCRM application corresponding to the selected module and operation. • **Create, update or delete**: Creates a new record, updates an existing record, or deletes a record in/from the SugarCRM application (for example, Create Accounts, Update Products, Delete Bugs, and so on).

Invoke Operations Page

Select the module and operation to perform in the SugarCRM application.

> **Note:**
>
> If you need to perform operations for the Bugs, Releases, and Cases modules, you must have Sugar Sell and Sugar Server licenses.

The fields that appear are based on the selection you made on the Actions page.

- Create, Update, or Delete
- Query

Create, Update, or Delete

Element	Description
Select action type	• **Create**: Creates records based on a selected operation. • **Delete**: Deletes records based on a selected operation. • **Update**: Updates records based on a selected operation.
Action description	Displays a description of the selected action.
Select module	Select a module, such as **Accounts**, **Products**, **Users**, **Trackers**, and so on.
Type *<keyword>* to search	Type a keyword or the initial letters of the module name to filter the display of names in the list.
Select operation	Select an operation name, such as **Create Record**.
Type *<keyword>* to search	Type a keyword or the initial letters of the operation name to filter the display of names in the list.

Query

Element	Description
Select module	Select a module, such as **Accounts**, **Products**, **Users**, **Trackers**, and so on.
Type *<keyword>* to search	Type a keyword or the initial letters of the module name to filter the display of names in the list.
Select operation	Select an operation name, such as **Create Record**.

Element	Description
Type *<keyword>* to search	Type a keyword or the initial letters of the operation name to filter the display of names in the list.

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**.
	To cancel your configuration details, click **Cancel**.