Oracle® Cloud

Using the SAP ASE (Sybase) Adapter with Oracle Integration 3

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Oracle Cloud Using the SAP ASE (Sybase) Adapter with Oracle Integration 3,

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Contents

Preface

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

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

Topics:

Audience

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

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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 at `http://cloud.oracle.com`
- *Using Integrations in Oracle Integration 3*
- *Using the Oracle Mapper with Oracle Integration 3*
- Oracle Integration documentation on the Oracle Help Center.

Conventions

The following text conventions are used in this document:

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

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Understand the SAP ASE (Sybase) Adapter

Review the following conceptual topics to learn about the SAP ASE (Sybase) 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:

SAP ASE (Sybase) Adapter Capabilities

The SAP ASE (Sybase) Adapter enables you to integrate the SAP ASE database residing behind the firewall of your on-premises environment with Oracle Integration through use of the on-premises connectivity agent. You can configure the SAP ASE (Sybase) Adapter as a trigger or an invoke connection in an integration in Oracle Integration. Use the SAP ASE (Sybase) Adapter to poll for new and updated records for processing in Oracle Integration.

The SAP ASE (Sybase) Adapter provides the following capabilities:

For trigger endpoints:

- Support for polling new and updated records for processing in the SAP ASE database. The SAP ASE (Sybase) Adapter supports distributed polling. Distributed polling provides high availability and improves performance.
- Support for a logical delete polling strategy. This strategy involves updating a special field on each row once it is processed.
- Support for processing message payloads up to 10 MB in size. In the case of polling, you must set the **Rejected Value** property to **REJECTED** on the Polling Strategy and Options page. If the incoming message is greater than 10 MB, that particular record is updated to **REJECTED** instead of **READ**. If the message payload is greater than 10 MB, a fault response is sent to the calling clients.

For invoke endpoints:

- Support for invocation of stored procedures in the SAP ASE database.
- Support for execution of DML statements and SQL queries:
  - Select
  - Insert
  - Update
  - Delete

  Select **Run a SQL Statement** on the Basic Info page of the Adapter Endpoint Configuration Wizard to execute simple SQL queries. For complex SQL queries, use

stored procedures by selecting **Invoke a Stored Procedure** on the Basic Info page of the Adapter Endpoint Configuration Wizard. Stored procedures can reduce the complexity of a SQL query.

- Support for performing a **Select** operation against database tables.
- Support for bulk data import by selecting the **Perform Bulk Data Import Operation** on the Basic Info page of the Adapter Endpoint Configuration Wizard. See Import Data Files Using the Bulk Data Import Operation and Import Transactional Data Using the Bulk Data Import Operation.
- Support for bulk extract by selecting the **Select** operation from the **Perform an Operation On a Table** list on the Basic Info page of the Adapter Endpoint Configuration Wizard.
- Support for pagination. You can implement pagination when fetching a large number of records for a **Select** query and receive sorted data in chunks.

The SAP ASE (Sybase) Adapter is one of many predefined adapters included with Oracle Integration. You can configure the SAP ASE (Sybase) Adapter as a trigger or invoke connection in an integration in Oracle Integration.

Supported Data Types for SQL Stored Procedures

The SAP ASE (Sybase) Adapter supports the following data types for SQL stored procedures.

- int
- smallint
- tinyint
- bigint
- unsigned int
- unsigned smallint
- unsigned bigint
- univarchar
- nvarchar
- varchar
- char(n)
- nchar
- unichar(n)
- text
- unitext
- money
- smallmoney
- bit
- binary
- varbinary

- numeric
- decimal
- float
- real
- double precision
- bigdatetime
- smalldatetime
- datetime
- bigtime
- date
- time

SAP ASE (Sybase) Adapter Restrictions

Note the following SAP ASE (Sybase) Adapter restrictions.

- An integration that includes stored procedure or PureSQL database operations must finish within 240 seconds. Otherwise, the query times out and a `Limit Exceeded` error occurs.
- The polling operation has the following restriction:
  - Flag/Status column must be present in the table.
  - Maximum batch size limit is 50.

> **Note:**
>
> There are overall service limits for Oracle Integration. A service limit is the quota or allowance set on a resource. See Service Limits.

What Application Version Is Supported?

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

Workflow to Create and Add an SAP ASE (Sybase) 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 an SAP ASE (Sybase) 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 3* and Add the SAP ASE (Sybase) Adapter Connection to an Integration
4	Map data between the trigger connection data structure and the invoke connection data structure.	Map Data in *Using Integrations in Oracle Integration 3*
5	(Optional) Create lookups that map the different values used by those applications to identify the same type of object (such as gender codes or country codes).	Manage Lookups in *Using Integrations in Oracle Integration 3*
6	Activate the integration.	Activate Integrations in *Using Integrations in Oracle Integration 3*
7	Monitor the integration on the dashboard.	Monitor Integrations in *Using Integrations in Oracle Integration 3*
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 3*
9	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in *Using Integrations in Oracle Integration 3*

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Create an SAP ASE (Sybase) 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

You must satisfy the following prerequisites to create a connection with the SAP ASE (Sybase) Adapter:

Prerequisites to Access the SAP ASE Database

- Ensure that you have write permissions on the database.
- Ensure that you have the required permissions to run stored procedures and packages and SQL statements against the SAP ASE database.
- Know the database hostname or IP address and the port number.
- Know the database name.
- Know the username and password for connecting to the database.
- Install the connectivity agent. The connectivity agent is required to connect Oracle Integration with an SAP ASE (Sybase) on-premises database. See Configure the Endpoint Access Type.
- Download a Java Database Connectivity (JDBC) `.jar` file and place it in the third-party `lib` folder while configuring the connectivity agent. A JDBC driver enables a Java application to interact with a database. See SAP ASE JDBC Driver.

Prerequisites to Use Trigger Polling

Perform the following prerequisite before you use trigger polling.

- You must use the following `ROWLOCK` command in the database configuration at table level. `ROWLOCK` tells the SAP ASE server to only use row-level locks to ensure data consistency. This is a one-time setup.

  ```
  alter table table_name lock datarows
  ```

- You must use the following command at the schema or database level. This is a one-time setup.

  ```
  sp_configure "select for update", 1
  ```

Prerequisites to Use Bulk Data Import

Perform the following prerequisites before using the bulk data import operation.

- Have either admin privileges or know the database/file location.
- Have read, write, create, and delete file permissions for the mount location.
- Ensure that the mount path is local to the SAP ASE database and accessible by the SAP ASE database.
- Enable a drop table using Data Definition Language (DDL) commands at the connection credentials level. Run the following command from the master database and specify the database name for the table. This is a single time activity.

  ```
  sp_dboption database_name, 'ddl in tran', 'true' from db side
  ```

- Enable network discovery and configure/folder sharing.
- Enable external file system access using `sp_configure`.

  ```
  sp_configure "enable file access", 1
  ```

  See External File System Access.
- Ensure that file header names match with target table fields and the order of fields is the same.

Prerequisites to Use an SSL Certificate

If you want the SAP ASE (Sybase) Adapter to use Secure Sockets Layer (SSL), you must import the respective certificate on the connectivity agent host. For example:

```
keytool -importcert -keystore keystore.p12 -storepass changeit -alias
sybasecertificate
-noprompt -file certificate_file -trustcacerts
```

Where *SAP_ASE_SSL_Certificate* is the complete path to the `\agenthome\agent\cert` directory of the certificate file. See Install a Certificate on the Agent Host in *Using Integrations in Oracle Integration 3*.

Create a Connection

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

To create a connection in Oracle Integration:

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

> **Note:**
>
> You can also create a connection in the integration canvas. See Define Inbound Triggers and Outbound Invokes.

3. In the Create connection panel, 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.
4. Enter the information that describes this connection.

Element	Description
Name	Enter a meaningful name to help others find your connection when they begin to create their own integrations.
Identifier	Automatically displays the name in capital letters that you entered in the **Name** field. If you modify the identifier name, don't include blank spaces (for example, `SALES OPPORTUNITY`).
Role	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, assume you configure a connection for the Oracle Service Cloud (RightNow) Adapter as only an **invoke**. Dragging the adapter to a **trigger** section in the integration produces an error.
Keywords	Enter optional keywords (tags). You can search on the connection keywords on the Connections page.
Description	Enter an optional description of the connection.

Element	Description
Share with other projects	**Note**: This field only appears if you are creating a connection in a project. Select to make this connection publicly available in other projects. Connection sharing eliminates the need to create and maintain separate connections in different projects. When you configure an adapter connection in a different project, the **Use a shared connection** field is displayed at the top of the Connections page. If the connection you are configuring matches the same type and role as the publicly available connection, you can select that connection to reference (inherit) its resources. See Add and Share a Connection Across a Project.

5. Click **Create**.

   Your connection is created. You're now ready to configure the connection properties, security policies, and (for some connections) access type.

Configure Connection Properties

Enter connection information so your application can process requests.

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

Field	Description
Host	Enter the host name or IP address of the database server.
Port	Enter the database server port number.
Database Name	Enter the database name.
Use SSL (Optional)	Select **Yes** to use the SAP ASE (Sybase) Adapter in an SAP ASE SSL-enabled environment. You must also import the respective certificate on the connectivity agent host. See Prerequisites to Use an SSL Certificate.

2. Enter the host name or IP address of the database server.
3. Enter the database server port number.
4. Enter the database name.

Configure Connection Security

Configure security for your SAP ASE (Sybase) Adapter connection.

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

   The **Security Policy** field shows **Username Password Token**. This value cannot be changed.

2. Complete the **Username** and **Password** fields.

Configure the Endpoint Access Type

Configure access to your endpoint. Depending on the capabilities of the adapter you are configuring, options may appear to configure access to the public internet, to a private endpoint, or to an on-premises service hosted behind a fire wall.

Select the Endpoint Access Type

Select the option for accessing your endpoint.

Option	This Option Appears If Your Adapter Supports ...
Connectivity agent	Connections to on-premises endpoints through the connectivity agent. 1. Click **Associate agent group**. The Associate agent group panel appears. 2. Select the agent group, and click **Use**. To configure an agent group, you must download and install the on-premises connectivity agent. See Download and Run the Connectivity Agent Installer and About Creating Hybrid Integrations Using Oracle Integration in *Using Integrations in Oracle Integration 3*.

Test the Connection

Test your connection to ensure that it's configured successfully.

1. In the page title bar, click **Test**. What happens next depends on whether your adapter connection uses a Web Services Description Language (WSDL) file. Only some adapter connections use WSDLs.

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

2. Wait for a message about the results of the connection test.
   - If the test was successful, then the connection is configured properly.
   - If the test failed, then edit the configuration details you entered. Check for typos and verify URLs and credentials. Continue to test until the connection is successful.

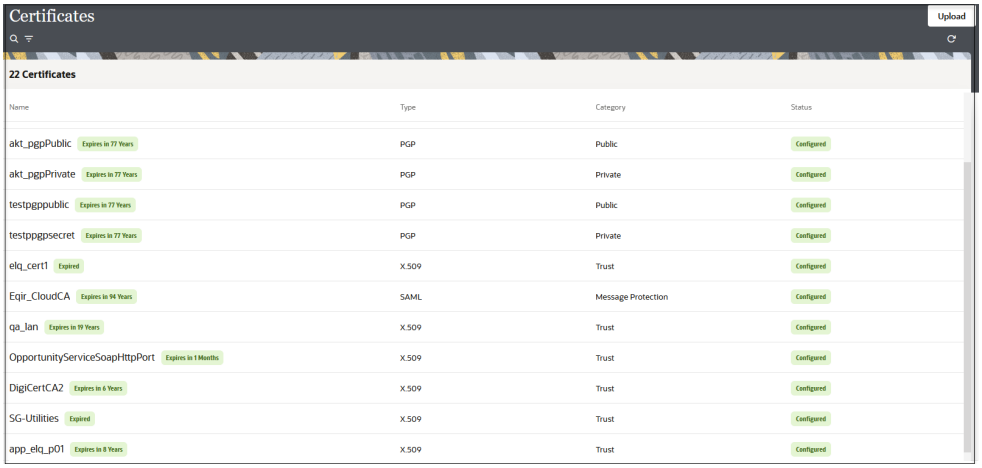
3. When complete, click **Save**.

Upload a Certificate to Connect with External Services

Certificates allow Oracle Integration to connect with external services. If the external service/endpoint needs a specific certificate, request the certificate and then import it into Oracle Integration.

If you make an SSL connection in which the root certificate does not exist in Oracle Integration, an exception error 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.

1. Sign in to Oracle Integration.
2. In the navigation pane, click **Settings**, then **Certificates**.
   All certificates currently uploaded to the trust store are displayed on the Certificates page.
3. Click **Filter** 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.



4. Click **Upload** at the top of the page.
   The Upload certificate panel is displayed.
5. Enter an alias name and optional description.
6. In the **Type** field, select the certificate type. Each certificate type enables Oracle Integration to connect with external services.
   - Digital Signature
   - X.509 (SSL transport)
   - SAML (Authentication & Authorization)
   - PGP (Encryption & Decryption)
   - Signing key

Digital Signature

The digital signature security type is typically used with adapters created with the Rapid Adapter Builder. See Learn About the Rapid Adapter Builder in Oracle Integration in *Using the Rapid Adapter Builder with Oracle Integration 3*.

1. Click **Browse** to select the digital certificate. The certificate must be an X509Certificate. This certificate provides inbound RSA signature validation. See Implement Digital Signature Validation (RSA) in *Using the Rapid Adapter Builder with Oracle Integration 3*.
2. Click **Upload**.

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. The following supported cipher algorithms are FIPS-compliant:

   - AES128
   - AES192
   - AES256
   - TDES

c. Click **Upload**.

Signing key

A signing key is a secret key used to establish trust between applications. Signing keys are used to sign ID tokens, access tokens, SAML assertions, and more. Using a private signing key, the token is digitally signed and the server verifies the authenticity of the token by using a public signing key. You must upload a signing key to use the OAuth Client Credentials using JWT Client Assertion and OAuth using JWT User Assertion security policies in REST Adapter invoke connections. Only PKCS1- and PKCS8-formatted files are supported.

1. Select **Public** or **Private**.
2. Click **Browse** to upload a key file.
   If you selected **Private**, and the private key is encrypted, a field for entering the private signing key password is displayed after key upload is complete.
3. Enter the private signing key password. If the private signing key is not encrypted, you are not required to enter a password.
4. Click **Upload**.

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Add the SAP ASE (Sybase) Adapter Connection to an Integration

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

The following sections describe the wizard pages that guide you through configuration of the SAP ASE (Sybase) Adapter as a trigger or invoke in an integration.

Topics:

Basic Info Page

Specify a name, description, and operation type on the Basic Info page of each trigger and invoke connection in your integration.

Element	Description
What do you want to call your endpoint?	Identifies the connection with a meaningful name that defines the purpose of connection. For example, `CreateEmployeeInDB` for a database connection that adds new employee data. The name can include English alphabetic characters, numbers, underscores, and dashes. The name cannot include: • Blank spaces (for example, `My DB Connection`) • Special characters (for example, `#;83&` 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.`

Element	Description

What operation do you want to perform?
Note: This option is only displayed when you configure the SAP ASE (Sybase) Adapter as an invoke connection in an integration.
	Select the type of operation for this connection to perform:
	• **Invoke a Stored Procedure**: Select to invoke a stored procedure in the database.
	• **Run a SQL Statement**: Select to run a SQL query against the database.
	• **Perform an Operation On a Table**: Select to perform one of the following operations on a table. You can update or insert multiple records in a single request.
	– **Insert**
	– **Update**
	– **Insert or Update (Merge)**
	– **Select**
	Note: When operations in a SQL statement such as **Update**, **Concat**, and **Merge** accept values for the inbound invocation of an integration, they do not work. For example, the following query does not work:
	`select concat(empname, 'ss') from DB_AQ where empno=#empno`
	`select empno from DB_AQ where empname=concat(#empname, 'YY')`
	As a workaround, handle these scenarios during payload mapping. For example, perform a concatenation during mapping of the payload. The final output can then be passed as input to the SQL query.
	• **Perform Bulk Data Import Operation**: Select to import bulk data into an SAP ASE (Sybase) database.

Trigger Polling Page

The following table describes the key information on the trigger Polling page.

> **Note:**
>
> • You must perform prerequisites before you use trigger polling. See Prerequisites to Access the SAP ASE Database.
>
> • Sequential order is not always maintained while polling records.

Element	Description
Add Tables	Imports tables and the root database table for the service query.

Element	Description
Remove Tables	Removes tables. Select **Remove Tables**, clear the checkbox to the right of the table you want to remove, and click **Ok**. You cannot remove the root database table.
Review and manage parent database table relationships	Appears after importing tables. Select **Edit** to open the Relationships page where you can view, create, and remove relationships between tables.
Review and verify table and relationship attributes	Appears after importing tables. Select **Edit** to open the Attributes Filtering page where you can review, verify, select or deselect the attributes in the object model created from the imported tables and the defined relationships.
Review the polling strategy and specify polling options	Appears after importing tables. Select **Edit** to open the Polling Strategy and Options page where you can define the polling strategy and specify polling options.

Trigger Manage Tables Page

The following table describes the key information on the trigger Manage Tables page. The trigger Manage Tables page appears when you select **Add Tables** on the adapter trigger Poll for a New or Changed Records page.

Element	Description
Schema	Select the schema for the tables and views you are importing.
Table Type	The type of the table to which the schema or view is applied. The list allows these selections: • **All**: Selects all available tables and views. • **Table**: Selects tables. • **View**: Selects views.
Table Name	Specify the table name. Table names are case sensitive.
Search	Click to search for the specified table.
Available	Lists the tables that meet the selection criteria.
Selected	Lists your table selection.
Filter By	Type the initial letters to filter the display of table names.
Primary Keys	Appears when you select tables without a primary key defined. Select the virtual primary key for the table. **Note**: Having the primary key at the database level is the best practice.

Trigger Relationships Table

The following table describes the key information on the trigger Relationships page. The trigger Relationships page appears when you select **Edit** to review and manage the parent database table relationships option on the adapter trigger Poll for a New or Changed Records page.

Element	Description
Create New	Opens the Create Relation page with these options: • **Parent Table**: Selects the parent table for the relationship between tables. • **Child Table**: Selects the child table for the relationship between tables. • **Relationship**: Defines the relationship between the parent and child tables. • **Attribute Name**: Applies attributes to the table relationship. • **Mapping**: Displays the mapping for the table relationship.
Detach	Opens the **Relationships** list in a new window.

Trigger Polling Strategy and Options Page

The following table describes the key information on the trigger Polling Strategy and Options page. The trigger Polling Strategy and Options page appears when you select **Edit** to review the polling strategy and specify polling options on the adapter trigger Poll for a New or Changed Records page.

Element	Description
Logical Delete Field	Select a field in the root database table. To allow the selection, polling must be enabled in the **Status** column.
Read Value	Identifies the value used to indicate a row has been read (for example, **PROCESSED**). Surrounding quotes are not required.
Unread Value	Indicates the rows to process. Only rows with logical delete field and column values that match the **Unread Value** are read.
Rejected Value	Set to **REJECTED**. If the incoming message is greater than the 10 MB threshold size, that particular record is updated to **REJECTED** instead of **READ**. If the message payload is greater than 10 MB, a fault response is sent to the calling client.
Polling Frequency (Sec)	Specifies the polling frequency (in seconds) for new records or events.
Advanced Options	Click **Edit** to access the **Batch Size** field to specify the number of table rows to process during a single transaction. The default value is **1** and the maximum value is **50**.

Invoke a Stored Procedure Page

Enter the SAP ASE (Sybase) Adapter invoke stored procedure parameters. The Invoke a Stored Procedure page is the wizard page that is displayed if you selected **Invoke a Stored Procedure** as the operation type on the Basic Info page.

> **Note:**
>
> Adapter input/output parameters are defined based on the stored procedure IN/OUT parameters. The IN parameter corresponds to the request and the OUT parameter is translated as the response.

Element	Description
Select Schema	Select a database schema from the list that includes the data you want to query (for example, you want to query details about an employee based on their employee ID). This action refreshes the page to display fields for selecting a package or procedure to invoke.
Select Package	Select the database package.
Select Procedure	Select the stored procedure. The page is refreshed to display the in (inbound), out (outbound), and in/out (inbound/outbound) parameters available with this procedure.
Arguments	Display the in, out, and in/out parameters that are passed with this procedure.

Invoke Run a SQL Statement Page

Enter the SQL statement parameters. The Run a SQL Statement page is the wizard page that is displayed if you selected **Run a SQL Statement** as the operation type on the Basic Info page.

Note:

- Do not use schema/database names in SQL queries. Configure the details in the connection. For example:

  ```
  Update HR.employee set HR.employee.first_name = 'Name'
  where HR.employee.employee_id='1'
  ```

  can be changed to a simple query, such as:

  ```
  Update employee set first_name = 'Name' where
  employee_id='1'
  ```

  where `HR` is used in the connection details. This restricts a user with specific privileges to a particular schema/database.
- When configuring the adapter as an invoke connection, ensure that proper spaces are provided between key words for a pure SQL statement. For example, the following statement fails during integration activation because there is no blank space between `VALUES` and `(#`.

  ```
  INSERT INTO table_name VALUES(#EMPNO, #EMPNAME)
  ```

  Add a blank space between `VALUES` and `(#`, and the statement is successfully processed.

  ```
  INSERT INTO table_name VALUES (#EMPNO, #EMPNAME)
  ```

Element	Description
SQL Query	Enter a SQL query.
Status	Display the results of the SQL query validation. The **Status** field displays `Success!` when a query is successfully validated.

Invoke Operations On Table Page

Select the database tables. To use the bulk extract feature, you must choose the **SELECT** operation from the **Perform an Operation On a Table** list on the Basic Info page.

Operations on Table Page

Element	Description
Schema	Select the database schema that includes the tables to process.
Table Name	Enter a filter with which to search the schema (for example, `%TAB` to search for tables with `TAB` in the name).
Table Type	Specify the table type filter to get a subset of the appropriate database objects, then click **Search**. • **ALL** • **TABLE** • **VIEW**
Filter By	Enter the initial letters to filter the display of table names.
Available	Lists the tables that meet the selection criteria.
Selected	Lists your table selection.
Import Tables	Click to import the tables. The page is refreshed for you to select the parent database table.
Primary Keys	Appears when you select tables without a primary key defined. Select the virtual primary key for the table. **Note**: Having the primary key at the database level is the best practice.
Select the parent database table	Select the parent (root) table from the list. If using multiple related tables, this is the top-level parent table in the relationship. After making your selection, the page is refreshed for you to view and edit the table relationships.
Add || Remove Tables	Click to add more tables or remove tables no longer in use.
Review and manage parent database table relationships	Click **Edit** to view and edit the table relationships. The relationships automatically identified by the adapter are displayed. See Review and manage parent database table relationships Option.
Review and filter columns from selected database tables	Click **Edit** to view and edit the table attributes. You can deselect any attributes to exclude from the database queries. Primary key attributes cannot be excluded. See Review and filter columns from selected database tables Option.
Review and edit SQL query (Displayed only if the **Select** operation is selected on the Basic Info page.)	Click **Edit** to view and edit the default SQL query. See Review and edit SQL query Option.

Review and manage parent database table relationships Option

Review and manage the parent database table relationships.

Element	Description
Create New	Click to create a new relationship.
Parent Table	Select the parent table.
Child Table	Select the child table.
Relationship	Select the relation type (one-to-many, one-to-one, or one-to-one with the foreign key on the child table). For example, if you selected **Employees** as the parent table and **Departments** as the child table, the following options are displayed: • **Employees has a 1:1 Relationship with Departments** • **Employees has a 1:1 Relationship with Departments (Foreign Key on Child table)** • **Employees has a 1:M Relationship with Departments**
Attribute Name	Applies attributes to the table relationship.
Mapping	Displays the mapping for the table relationship.
Detach	Opens the Relationships list in a new window.

Review and filter columns from selected database tables Option

Review and filter columns from the selected database tables option.

Element	Description
Attributes Tree	View and deselect attributes automatically created by the adapter. Deselect any attributes to exclude from the database query.

Review and edit SQL query Option

Review and edit the SQL query.

> **Note:**
>
> This is only applicable for a Select operation on a table.

Element	Description
SQL Edit	Click to manually edit the query in the **SQL Query** field.

Element	Description
Parameter	Click to specify a bind parameter.
Add New	Click to add new criteria to the SQL query.
Remove	Click to remove the SQL criteria you specified.
Maximum Number of Records to be fetched	Select the number of records to fetch with this SQL query.
Enable Pagination	Select the checkbox. When you must fetch a large number of results/records, you can implement the SAP ASE (Sybase) Adapter's pagination feature and receive sorted results/ records in chunks. **Offset** and **Limit** fields are displayed in the mapper. You can specify the number of results per page by providing the offset and limit values according to your requirement. Enter a starting value in the **Offset** field and an end value in the **Limit** field to receive sorted results.

Invoke Bulk Load from File to Table Page

The following table describes the key information on the Bulk Load from File to Table page.

Element	Description
Mount Location	Specify the mount location. The mount location represents the root directory of the file storage file system.
Delimiter	Select one of the following supported file delimiter options as per the source file: • Single space • Comma • Semicolon • Tab (Displays for releases earlier than Oracle Integration 23.08.) • Pipe (for example, Name|City|Country)
Select Schema	Select the database schema that includes the tables to process.
Select Table	Select the table name.
Search Field	Enter the initial letters to filter the display of table names.
Table columns	Displays the table columns that meet the selection criteria.

See Import Data Files Using the Bulk Data Import Operation and Import Transactional Data Using the Bulk Data Import Operation.

Summary Page

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

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

4

Implement Common Patterns Using the SAP ASE (Sybase) Adapter

You can use the SAP ASE (Sybase) Adapter to implement the following common patterns.

Topics:

> **Note:**
>
> Oracle Integration offers a number of prebuilt integrations, known as *recipes*, that provide you with a head start in building your integrations. You can start with a recipe, and then customize it to fit your needs and requirements. Depending upon the solution provided, a variety of adapters are configured in the prebuilt integrations.
> See the Recipes and Accelerators page on the Oracle Help Center.

Extract Bulk Data from an SAP ASE (Sybase) Database and Import it into a Marketo Application

The SAP ASE (Sybase) Adapter enables you to extract a large volume of data from the SAP ASE database. For example, you can extract Leads and Custom Objects data from an SAP ASE database and import it into a Marketo application.

To do so, you need to create a table with columns such as FirstName, LastName, Company, email, phoneNumber, title, and status flag in the SAP ASE (Sybase) database.

This use case describes how the SAP ASE (Sybase) Adapter extracts a large volume of leads data and imports it into the Marketo application. Configure an SAP ASE (Sybase) Adapter trigger endpoint and select the polling operation. Configure a Marketo invoke endpoint to import leads data into Marketo using the import bulk data operation. This implementation pattern provides an overview of the steps.

1. Create an application integration.
2. Drag an SAP ASE (Sybase) Adapter into the integration as a trigger connection.
3. Configure the SAP ASE (Sybase) endpoint with the required details for inbound polling.
    a. On the Basic Info page, provide a name for the trigger endpoint connection.
    b. On the Polling page, import the table from which to poll and send data into Marketo.

c. On the Polling Strategy and Options page, enter the required details as follows:

- **Logical Delete Field**: Select a field (column) in the root database table to logically poll.
- **Read Value:** Specify the value to indicate a row has been read (for example, **PROCESSED** or **READ**).
- **Unread Value**: Specify the value to indicate the rows to process.
- **Rejected Value**: Specify the value to indicate rejected records.
- **Polling Frequency (Sec)**: Set the polling frequency (in seconds) for new records.

d. Review your selections on the Summary page, and click **Done**.

4. Drag a Marketo Adapter into the integration canvas as an invoke connection.
5. Configure the Marketo endpoint with the required operation on the Operations page. For this example, import bulk data is selected, which is invoked when there is a new record in the table that needs to be imported into the Marketo application.
   a. On the Basic Info page, provide an endpoint name.
   b. On the Action page, select **Import Bulk Data**.
   c. On the Operations page, select the **Import Lead** operation, and select the **Leads** object.
   d. Review your selections on the Summary page, and click **Done**.
6. In the mapper, perform the required mappings to import bulk data into Marketo.
7. Drag another Marketo Adapter below the first Marketo Adapter and configure it with the **Final Submit** operation.
   a. On the Basic Info page, provide a name.
   b. On the Action page, select **Import Bulk Data**.
   c. On the Operations page, select the **Final Submit** operation in the Select Operation field.
   d. Review your selections on the Summary page, and click **Done**.
8. Activate the integration.
   a. In the navigation pane, click **Design**, then **Integrations**.
   b. Hover over the integration to activate, then click **Activate** .

      The Activate Integration dialog is displayed.
   c. Select the level of tracing appropriate to your integration. This level describes the amount of data to capture in the activity stream.
   d. Click **Activate**. The integration is deployed.

The integration is invoked when a new lead record is created in the SAP ASE (Sybase) database and the same record details are imported into the Marketo application.

Import Transactional Data Using the Bulk Data Import Operation

This use case describes how to import transactional records in chunks from an application (for example, Salesforce) into the SAP ASE (Sybase) database. In this use case, the Salesforce application is used. Similarly, you can import data files from other applications into the SAP ASE (Sybase) database using the SAP ASE (Sybase) Adapter.

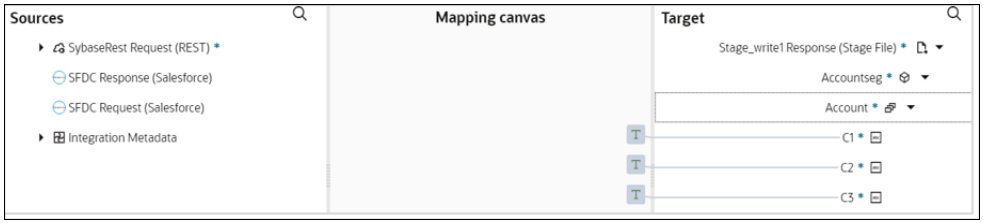
To perform this operation, you create the Salesforce Adapter and SAP ASE (Sybase) Adapter connections in Oracle Integration. The SAP ASE (Sybase) Adapter first validates an input file header with the target table header (columns), places file data into the mount location (local to the database), and then inserts mount location data into the target table if the data is in the expected format.

1. Create an application integration.
2. Drag a REST Adapter into the integration as a trigger connection.
    a. On the Basic Info page, provide a name.
    b. On the Resource Configuration page, select a **GET** action, and select the **Configure this endpoint to receive the response** check box.
    c. On the Response page, select **JSON Sample** in the **Select the response payload format** field.
    d. Select **JSON** in the **What is the media-type of Response Body? (Accept Header)** field.
    e. Review your selections on the Summary page.
3. Drag a Salesforce Adapter into the integration canvas.
4. Configure the Salesforce Adapter endpoint:
    a. On the Basic Info page, provide a name.
    b. On the Action page, select **Query Information**.
    c. On the Operations page, select **Query** as an operation and select the **Exclude** option for the deleted and achieved records.
    d. Enter a valid SOQL query statement and select the **Use Default Header** check box.
    e. Review your selections on the Summary page.
5. Drag a stage file action into the integration canvas after the Salesforce Adapter and configure it to write (insert) transactional records in a file.
    a. On the Basic Info page, provide a name.
    b. On the Configure Operation page, select **Write File** from the **Choose Stage File Operation** field.
    c. Specify the XPath expression for the file name in the **Specify the File Name** field.
    d. Enter the file name with an extension (for example, `Accounts.csv`).
    e. Specify the directory name in the **Specify the Output Directory** field.
    f. On the Scheme Options page, select **Yes** in the **Do you want to specify the structure for the contents of the file** field.
    g. Select **Sample delimited document (e.g. CSV)** in the **Which one of the following choices would be used to describe the structure of the file contents** field.

h. On the Format Definition page, click **Choose File** and upload the sample CSV file in the **Select a New Delimited Data File** field.

i. Review your selections on the Summary page.

6. In the mapper, map headers as an input for the stage (1) file.



7. Drag a second stage file action into the integration canvas. The stage file action helps to add the header to a file and then append the data to the same file.

a. On the Basic Info page, provide a name.

b. On the Configure Operation page, select **Write File** from the **Choose Stage File Operation** field.

c. Specify the XPath expression for the file name in the **Specify the File Name** field.

d. Enter the same file name and extension that you provided for stage 1.

e. Specify the directory name in the **Specify the Output Directory** field.

f. Enter the same output directory that you provided for stage 1.

g. Select the **Append to Existing File** check box.

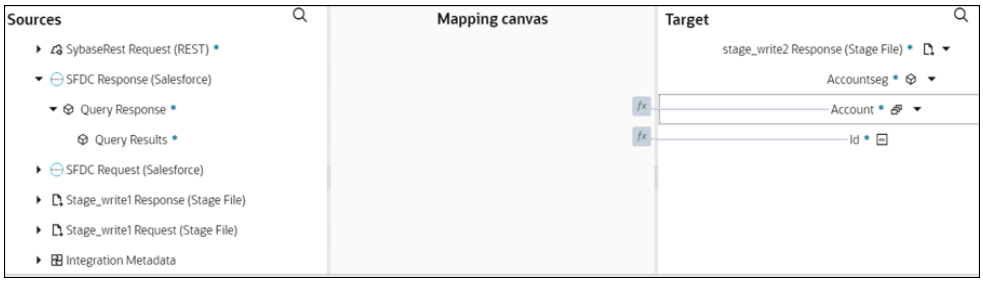
h. On the **Scheme Options** page, select **Yes** in the **Do you want to specify the structure for the contents of the file** field.

i. Select **Sample delimited document (e.g. CSV)** in the **Which one of the following choices would be used to describe the structure of the file contents** field.

j. On the Format Definition page, click **Choose File** and upload the sample CSV file in the **Select a New Delimited Data File** field.

k. Review your selections on the Summary page.

8. In the mapper, map the Salesforce response to the stage 2 request.



9. Drag an SAP ASE (Sybase) Adapter into the integration canvas.

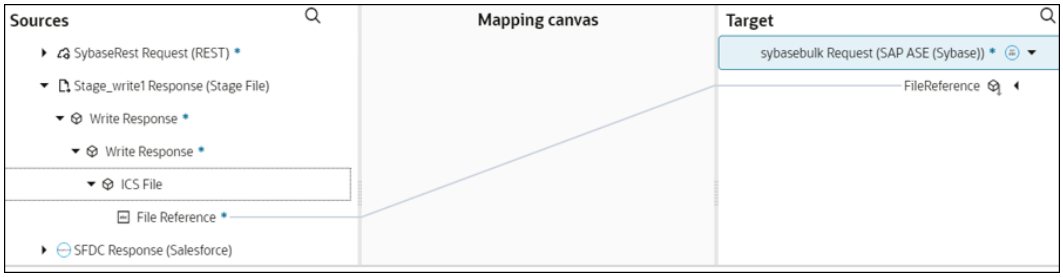
10. Configure the SAP ASE (Sybase) Adapter endpoint:

a. On the Basic info page, provide an endpoint name, select **Perform Bulk Data Import Operation**, and click **Next**.

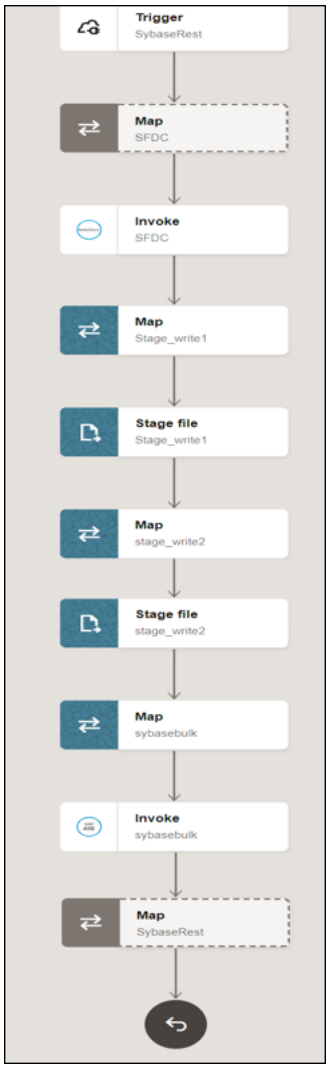
b. On the Bulk load from File to table page, enter the mount location, and select the delimiter (for example, comma), schema, table, and table columns.

c. On the Summary page, review your selections, and click **Done**.

11. In the mapper, map the file reference from the ICS file response to pass the data to the target table.



12. Click **Validate**, and then click **Close**. The completed integration looks as follows.



13. When complete, save and activate the integration. As a result, the SAP ASE (Sybase) Adapter inserts mount location data into the target table if the data is in the expected format.

Import Data Files Using the Bulk Data Import Operation

This use case describes how to import data files from an FTP server into the SAP ASE (Sybase) database. Similarly, you can import data files from an application into the SAP ASE (Sybase) database using the SAP ASE (Sybase) Adapter.

To perform this operation, you create the FTP Adapter and SAP ASE (Sybase) Adapter connections in Oracle Integration. The SAP ASE (Sybase) Adapter first validates an input file header with the target table header (columns), places file data into a mount location (local to the database), and then inserts the mount location data into the target table if the data is in the expected format.

1. Create a schedule integration.
2. Drag an FTP Adapter into the integration canvas.
3. Configure the FTP Adapter as follows.

a. On the Basic Info page, provide a name.

b. On the Operations page, select **Download File** from the **Select Operation** list.

c. Select **Binary** from the **Select a Transfer Mode** list.

d. Provide the input directory, file name, and download directory.

e. On the Summary page, review your selections.

4. Drag an SAP ASE (Sybase) Adapter into the integration canvas.

5. Configure the SAP ASE (Sybase) Adapter endpoint:

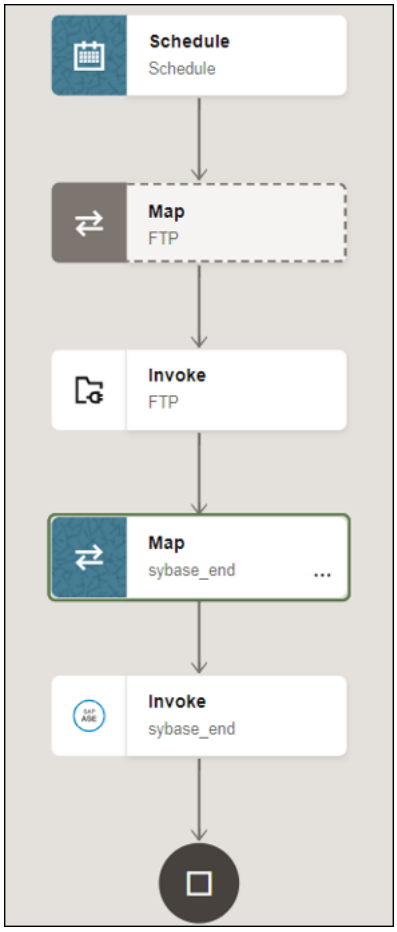
a. On the Basic info page, provide an endpoint name, select **Perform Bulk Data Import Operation**, and click **Next**.

b. On the Bulk load from File to table page, enter the mount location, and select the delimiter (for example, comma), schema, table, and table columns.

c. On the Summary page, review your selections, and click **Done**.

6. In the mapper, map the file reference from the FTP response to pass the data to the target table. The FTP response (file reference) provides an input to the SAP ASE (Sybase) database.

7. Click **Validate**, and then click **Close**. The completed integration looks as follows.



8. When complete, save and activate the integration. As a result, the SAP ASE (Sybase) Adapter inserts the mount location data into the target table if the data is in the expected format.

5

Troubleshoot the SAP ASE (Sybase) Adapter

Review the following topics to learn about troubleshooting issues with the SAP ASE (Sybase) Adapter.

Topics:

Error When Using Text and Unitext Datatypes as an Output Parameter of a Stored Procedure

You encounter errors when you use text and unitext datatypes as an output parameter of a stored procedure in the SAP ASE database.

Solution: Text and unitext datatypes cannot be used as output parameters of a stored procedure. Avoid using them.

Primary Key Error While Importing Table for the Merge Operation

The following error occurs when a table without a primary key is selected for the **Insert or Update (Merge)** operation on the Operation On Table page.

```
One or more tables imported, doesn't have a primary key. Merge operation
cannot proceed without a primary key.
```

Solution: Ensure that a table with a primary key is selected.

Failed to Update Stored Procedure Page Error

The following error can occur on the Invoke a Stored Procedure page when you a select a database name that is different from the one you configured on the Connections page in Oracle Integration.

```
DBSPR002_UPDATEPAGE Failed to update stored procedure page due to stored
procedure qualifier must be name of current database.
```

Solution: Select the database name you configured on the Connections page in Oracle Integration.

Invalid SQL Query Error

The following error occurs when you enter an invalid SQL query on the Run a SQL Statement page when configuring an invoke connection.

```
SQL Query entered is not a supported SQL statement.
```

Solution: Enter a valid SQL query. See Invoke Run a SQL Statement Page.

Troubleshoot the Bulk Data Import Operation

The following issue can occur when you configure the SAP ASE (Sybase) Adapter endpoint with the **Perform Bulk Data Import Operation**. Review the following table to identify the solution for this issue.

Issue	Solution
Why does an integration fail while importing data files into an SAP ASE (Sybase) database?	The file size may be more than 500 MB. The SAP ASE (Sybase) Adapter recommends importing bulk data files of up to 500 MB in size to avoid any error or timeout. In addition, ensure that the file rows count is less than or equal to 1.9 million while importing data files into an SAP ASE (Sybase) database.