Oracle® Cloud

Using the Oracle E-Business Suite Adapter with Oracle Integration 3

F45577-03
February 2025

Oracle Cloud Using the Oracle E-Business Suite Adapter with Oracle Integration 3,

F45577-03

Primary Author: Oracle Corporation

Contents

7 Troubleshoot the Oracle E-Business Suite Adapter and Related Error Messages

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.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

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

1

Understand the Oracle E-Business Suite Adapter

Review the following conceptual topics to learn about the Oracle E-Business Suite 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:

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

Oracle E-Business Suite Adapter Capabilities

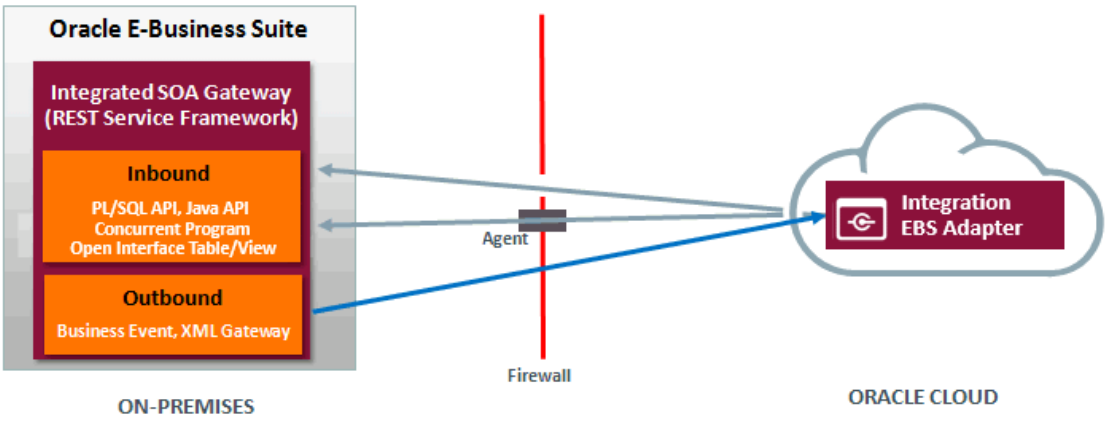
The Oracle E-Business Suite Adapter is one of many predefined adapters included with Oracle Integration allowing you to securely connect and use Oracle E-Business Suite services in integrations in Oracle Integration. It not only provides the connectivity between Oracle E-Business Suite and other cloud-based applications, but also significantly simplifies the complexity of typical integration experiences. Through the Oracle E-Business Suite Adapter, you can quickly integrate your systems with desired Oracle E-Business Suite services in the cloud, as well as monitor and manage the integrations when needed.

The Oracle E-Business Suite Adapter in Oracle Integration leverages the functionality of Oracle E-Business Suite Integrated SOA Gateway (ISG) to provide the access of Oracle E-Business Suite REST services.

> **Note:**
>
> The Oracle E-Business Suite Adapter in Oracle Integration allows you to connect to Oracle E-Business Suite Release 12.1.3 as well as Release 12.2.3 and later.

The following diagram illustrates the supported integrations when using the Oracle E-Business Suite Adapter from Oracle Integration:

Supporting Inbound and Outbound Integrations



In this diagram, Business Events and XML Gateway messages are available for inbound integrations in Oracle Integration when adding the Oracle E-Business Suite Adapter as a trigger (source) connection in an integration. If the Oracle E-Business Suite Adapter is added as an invoke (target) connection, PL/SQL APIs, Concurrent Programs, Java APIs, as well as Open Interface Tables and Views are available as REST services for invocation from Oracle Integration.

> **Note:**
>
> An outbound integration from Oracle E-Business Suite into Oracle Integration is also referred as an inbound (trigger or source) integration in Oracle Integration.

To access these REST services or interfaces on an on-premises Oracle E-Business Suite instance which is behind the firewall, the Oracle Integration connectivity agent can be used if your Oracle E-Business Suite is not set up in a DMZ configuration.

Key Features

The Oracle E-Business Suite Adapter in Oracle Integration serves as a connection tool for you to access Oracle E-Business Suite services in the cloud. It has the following key features:

- It provides seamless connection between Oracle E-Business Suite and Oracle Integration.
- It leverages Oracle E-Business Suite Integrated SOA Gateway to provide Oracle E-Business Suite REST services.
- It supports business events and XML Gateway messages for inbound integrations in Oracle Integration when using the Oracle E-Business Suite Adapter as **trigger (source)** connections.
- It provides Oracle E-Business Suite services (PL/SQL APIs, concurrent programs, Java APIs, as well as open interface tables and views) for outbound integrations from Oracle Integration when adding the Oracle E-Business Suite Adapter as **invoke (target)** connections.
- It supports Oracle seeded and custom interfaces for integrations.
- It supports HTTP Basic Authentication security for REST services.
- It allows you to access and use Oracle E-Business Suite deployed REST-based services.

> **Note:**
>
> If a REST service is not deployed, it cannot be used for integration. When such a service is selected for an integration, "Not Deployed" is shown as the service status and a warning message appears indicating that you need to contact an Integration Administrator in Oracle E-Business Suite to deploy the service through Oracle Integration Repository before using it.

- It allows you to monitor and manage integration activities with Oracle E-Business Suite services.

Common Terminologies

To better understand the Oracle E-Business Suite Adapter, the following common terminologies are explained in this section.

Oracle E-Business Suite Integrated SOA Gateway (ISG)

Oracle E-Business Suite Integrated SOA Gateway provides the functionality to expose integration interfaces published in the Integration Repository as SOAP and REST based web services.

Oracle E-Business Suite users with appropriate privileges can deploy these integration interfaces as REST services and manage the service lifecycle activities through the Integration Repository. The Oracle E-Business Suite Adapter in turn provides the access to these REST services that you can use for creating integrations in Oracle Integration.

Integration Repository

Integration Repository is an essential component in Oracle E-Business Suite Integrated SOA Gateway. It is the centralized repository that contains numerous interface endpoints within Oracle E-Business Suite.

When the connection to Oracle E-Business Suite is successfully established, Oracle E-Business Suite service metadata will be retrieved from the Integration Repository and imported to Oracle Integration. You can then create an integration by selecting a desired Oracle E-Business Suite service. The supported interface types for integrations in Oracle Integration through the Oracle E-Business Suite Adapter are:

- **PL/SQL API**

  A business interface can be based on a PL/SQL package from which you invoke procedures and functions appropriate to an integration.

  When you add the Oracle E-Business Suite Adapter as invoke (target) connections, PL/SQL REST services are available for outbound integrations from Oracle Integration.

- **Concurrent Program**

  A concurrent program runs as a concurrent process that executes multiple programs running in the background. Functions performed by concurrent programs are normally data-intensive and long-running, such as posting a journal.

  The Oracle E-Business Suite Adapter supports outbound integrations with concurrent programs from Oracle Integration when adding the Oracle E-Business Suite Adapter as invoke (target) connections.

- **Java API**

  Java APIs are business interfaces based on Java classes. Oracle E-Business Suite Adapter supports the following Java API types:

  - **Java Bean Services** - This type of Java APIs whose methods must use parameters of either serializable Java Beans or simple data such as `String`, `Int`, and so forth can be categorized as Java Bean Services, a subtype of Java interface.
  - **Application Module Services** - Application Module Implementation class is a Java class that provides access to business logic governing the OA Framework-based components and pages. Such Java classes are called Application Module Services and are also categorized as a subtype of Java interface.
  - **Business Service Object (BSO)** - This type of interface is a high-level service component that allows BC4J (Business Components for Java) or OA Framework-based components to be deployed as services.

  When you add the Oracle E-Business Suite Adapter as invoke (target) connections, Java REST services including all types of Java APIs are available for outbound integrations from Oracle Integration.

- **Business Event**

  A business event is an occurrence in Oracle E-Business Suite that might be significant to other objects in a system or to external agents. An example of a business event can be the creation of a new sales order or changes to an existing order.

  When you add the Oracle E-Business Suite Adapter as trigger (source) connections, business events are available for inbound integrations in Oracle Integration.

- **Open Interface Table**

  An open interface consists of the interface tables to store data from external sources and concurrent programs, as well as to validate and apply this data into the Oracle E-Business Suite base tables. All open interfaces are implemented using concurrent programs. Please note that Open Interface Table is often referred as Open Interface.

  When you add the Oracle E-Business Suite Adapter as invoke (target) connections, open interface table REST services are available for outbound integrations from Oracle Integration.

- **Open Interface View**

  Open interface views are database objects that make data from Oracle E-Business Suite products available for selection.

  Similar to open interface table, open interface view REST services are available for outbound integrations from Oracle Integration when adding the Oracle E-Business Suite Adapter as invoke (target) connections.

- **XML Gateway Message Map**

  Oracle XML Gateway comprises a set of services that allows easy integration with Oracle E-Business Suite to support XML messaging. It uses the message propagation feature of Oracle Advanced Queuing to integrate with Oracle Transport Agent to deliver messages to and receive messages from business partners.

  Similar to business events, XML Gateway messages are available for inbound integrations in Oracle Integration when adding the Oracle E-Business Suite Adapter as trigger (source) connections.

  For more information about Oracle XML Gateway, see the *Oracle XML Gateway User's Guide*.

Representational State Transfer (REST)

REST is an architecture principle in which the web services are viewed as resources and can be uniquely identified by their URLs. The key characteristic of a REST service is through the

use of four HTTP methods (GET, POST, PUT, and DELETE) to denote the invocation of different operations.

Please note that POST is the only supported method for PL/SQL and concurrent program REST services; POST and GET are the supported methods for Java REST services. For open interface tables with `Inbound` direction, four HTTP methods are supported for REST service. For open interface tables with `Outbound` direction and open interface views, only the GET method is supported.

HTTP Basic Authentication

HTTP Basic Authentication is the only supported authentication security for REST services in this release.

When an HTTP client application tries to access an Oracle E-Business Suite REST service, user credentials (username/password) should be provided as input data in HTTP header as part of the REST request message. The username and password will be used for authentication and authorization.

From the perspective of the Oracle E-Business Suite Adapter in Oracle Integration, the username and password information is provided when creating an Oracle E-Business Suite connection. This credential information is then passed from Oracle Integration to Oracle E-Business Suite at runtime.

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 Oracle E-Business Suite 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.

Task	Description	More Information
Prerequisites	Before using the Oracle E-Business Suite Adapter, you must perform setup tasks to ensure the appropriate user privileges and required features are in place and the Oracle E-Business Suite Adapter is ready for creating integrations in Oracle Integration.	Set Up and Enable the Oracle E-Business Suite Adapter for Integrations
1	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 Oracle E-Business Suite Connection

Task	Description	More Information
2	Create the integration. When you do this, you add the Oracle E-Business Suite Adapter as a trigger (source) or an invoke (target) connection to the integration.	Create Integrations in *Using Integrations in Oracle Integration 3*, Add the Oracle E-Business Suite Adapter as a Trigger Connection, and Add the Oracle E-Business Suite Adapter as an Invoke Connection
3	Map data between the trigger connection data structure and the invoke connection data structure.	Map Data in *Using Integrations in Oracle Integration 3*
4	(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*
5	Activate the integration.	Manage Integrations in *Using Integrations in Oracle Integration 3* If an XML Gateway message is used in an integration, you must perform post activation steps to ensure the integration works properly. See: Post Activation Manual Steps for XML Gateway Messages as a Trigger
6	Monitor the integration on the dashboard.	Monitor Integrations in *Using Integrations in Oracle Integration 3*
7	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*
8	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in *Using Integrations in Oracle Integration 3* and Troubleshoot the Oracle E-Business Suite Adapter and Related Error Messages while testing the connection and creating the integration with the Oracle E-Business Suite Adapter at design time.

To better understand how to use the Oracle E-Business Suite Adapter in an integration, see:

- Implement Common Patterns Using the Oracle E-Business Suite Adapter
- Oracle E-Business Suite Adapter Samples
  - An Example of Using a Business Event as a Trigger (Source) in an Integration
  - An Example of Using an XML Gateway Message as a Trigger (Source) in an Integration
  - An Example of Using a PL/SQL REST Service as an Invoke (Target) Connection in an Integration

  - An Example of Using an Open Interface REST Service as an Invoke (Target) Connection in an Integration
  - Examples of Using a Java REST Service as an Invoke (Target) Connection in an Integration

Additionally, refer to the following documents for more information about the Oracle E-Business Suite Adapter:

- *Oracle E-Business Suite Adapter in Oracle Integration Frequently Asked Questions (FAQ)*, My Oracle Support Knowledge Document 2110687.1
- Oracle E-Business Suite Adapter Issues in *Known Issues for Oracle Integration 3*
- *What's New for Oracle Integration 3*

2

Set Up and Enable the Oracle E-Business Suite Adapter for Integrations

Before creating an Oracle E-Business Suite connection with the Oracle E-Business Suite Adapter, you must perform the setup tasks to ensure it works properly.

Topics:

- Setup Tasks for Enabling the Oracle E-Business Suite Adapter

  If your Oracle E-Business Suite environment is TLS enabled, perform the setup tasks to enable TLS. See: Setup Tasks for a TLS-Enabled Oracle E-Business Suite Environment.

- Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection

  If an XML Gateway message is used as a trigger (source) in an integration, you must perform additional post activation tasks once you activate the integration to ensure the message works properly in Oracle Integration. See: Post Activation Manual Steps for XML Gateway Messages as a Trigger.

Setup Tasks for Enabling the Oracle E-Business Suite Adapter

Perform the following steps to set up the Oracle E-Business Suite Adapter:

1. Configure Oracle E-Business Suite Integrated SOA Gateway REST services.

   Oracle E-Business Suite Integrated SOA Gateway is an essential component for the Oracle E-Business Suite Adapter in Oracle Integration. It is the path to access all Oracle E-Business Suite REST services that you can use in integrations in Oracle Integration.

   If you have not configured Oracle E-Business Suite Integrated SOA Gateway, perform the setup and configuration steps as described in the following documents:

   - For Oracle E-Business Suite Release 12.2

     Refer to Part A: Configuring Oracle E-Business Suite REST Services in My Oracle Support Knowledge Document 1311068.1, *Installing Oracle E-Business Suite Integrated SOA Gateway, Release 12.2*.

     Ensure that you apply the latest patches for REST services in Document 1311068.1.

   - For Oracle E-Business Suite Release 12.1.3

     Ensure that you configure Oracle E-Business Suite Integrated SOA Gateway to enable the REST service features. If Oracle E-Business Suite Integrated SOA Gateway is not configured, follow the setup tasks as described in My Oracle Support Knowledge Document 556540.1, *Installing Oracle E-Business Suite Integrated SOA Gateway, Release 12.1.3* to configure Oracle E-Business Suite Integrated SOA Gateway Release 12.1.3.

2. Configure access to Oracle E-Business Suite services.

   To access Oracle E-Business Suite services from Oracle Integration, Oracle E-Business Suite services must be accessible in either of the following ways:

- These services are deployed in an environment set up in a DMZ (DeMilitarized Zone) configuration so that Oracle E-Business Suite REST services are publicly accessible through the Internet.

  For DMZ configuration instructions in Oracle E-Business Suite, see My Oracle Support Knowledge Document 1375670.1, *Oracle E-Business Suite Release 12.2 Configuration in a DMZ*.

- If your Oracle E-Business Suite is not set up in a DMZ configuration, these services must be accessible through Oracle Integration agent framework.

  For information about the Oracle Integration connectivity agents, see Manage the Agent Group and the On-Premises Connectivity Agent in *Using Integrations in Oracle Integration 3*.

  Note that the on-premises connectivity agent should not be installed in an Oracle E-Business Suite instance. Instead, it should be installed on a separate machine.

3. Deploy the required REST services in Oracle E-Business Suite.

   To use Oracle E-Business Suite REST services for integrations, ensure that you have performed the following tasks:

   - Deploy the Metadata Provider/Integration Repository service

     The Metadata Provider/Integration Repository service is an API that fetches a list of services available for integration. To integrate these Oracle E-Business Suite services, you must deploy the "Metadata Provider" API as a REST service.

     You can search the "Metadata Provider" API from the Integration Repository, and then select the Metadata Provider API from the search results to display the interface details page.

     Please note that you must enter "**`provider`**" as the service alias name for the Metadata Provider API and select the **GET** HTTP method checkboxes for **ALL** the methods contained in the API before deploying it as a REST service.

     Important: If the Metadata Provider API is not deployed as a REST service with **GET** HTTP method and "**`provider`**" as the service alias, the Oracle E-Business Suite Adapter in Oracle Integration will not work as expected.

   - Deploy the Event Manager service

     To use business events from Oracle E-Business Suite as a trigger (source) in an integration in Oracle Integration, you must deploy the Event Manager API as a REST service.

     Similar to the Metadata Provider service, you can search the "Event Manager" API from the Integration Repository, and then deploy it as a REST service. Before the deployment, you must enter "**`subscription`**" as the service alias name and select the **POST** HTTP method checkboxes for **ALL** the methods contained in the API.

   - Deploy business function related APIs as Oracle E-Business Suite REST services

     If you want to integrate or use Oracle E-Business Suite integration interfaces in Oracle Integration, you must first deploy these interface definitions as Oracle E-Business Suite REST services.

     For example, to process a sales order in Oracle E-Business Suite, you must deploy the Sales Order Service (OE_INBOUND_INT) API as a REST service first before you can use this deployed Sales Order Service REST service from Oracle Integration through the Oracle E-Business Suite Adapter.

   For information on deploying REST services, see Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

4. Grant the required user privileges.

   To use Oracle E-Business Suite REST services through the Oracle E-Business Suite Adapter in Oracle Integration, ensure that an Oracle E-Business Suite user has the privileges to:

   - Access the Metadata Provider/Integration Repository service

     Allowing the access of the "Metadata Provider" API enables the user to browse Oracle E-Business Suite services in Oracle Integration through the Oracle E-Business Suite Adapter.

   - Access the Event Manager service

     This enables the user to use business events as a trigger in Oracle Integration when adding the Oracle E-Business Suite Adapter as a trigger (source) in an integration.

   - Access or execute desired Oracle E-Business Suite APIs and services

     To protect application data from unauthorized access or execution, you must grant the user the interface access privileges for the REST services provided through Oracle E-Business Suite Integrated SOA Gateway.

   The Oracle E-Business Suite user credentials should be used to create an Oracle E-Business Suite connection in Oracle Integration. For example, if you plan to use an Oracle E-Business Suite user **`hrmanager`** from Oracle Integration to "create employee" in Oracle E-Business Suite, you need to:

   - Create a security grant on all the methods contained in the Metadata Provider API to the **`hrmanager`** Oracle E-Business Suite user.
   - Create a security grant on all the methods contained in the Event Manager API to the **`hrmanager`** Oracle E-Business Suite user.
   - Create a security grant on the "Create Employee" method in the Employee API to the **`hrmanager`** Oracle E-Business Suite user.
   - Use the **`hrmanager`** user credentials while creating an Oracle E-Business Suite connection in Oracle Integration.

   At runtime, the username and password information provided through the Oracle E-Business Suite Adapter connection will be passed to Oracle E-Business Suite for user authentication for the service being invoked in an integration.

   For information on creating security grants for REST services, see Managing Grants for Interfaces with Support for SOAP and REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

   For information on creating a connection with Oracle E-Business Suite Adapter, see Create an Oracle E-Business Suite Adapter Connection.

Setup Tasks for a TLS-Enabled Oracle E-Business Suite Environment

If your Oracle E-Business Suite instance is TLS enabled, to access the Oracle E-Business Suite instance in Oracle Integration, import additional certificates into Oracle Integration.

Perform the following setup tasks for your TLS-Enabled Oracle E-Business Suite environment:

1. Export the Oracle E-Business Suite Certificates.

If Oracle E-Business Suite server certificate is not in the Oracle Integration trusted certificate list, perform the following steps to export the Oracle E-Business Suite certificates:

a. Access the Oracle E-Business Suite instance with the HTTPS URL from a web browser.

b. After the Oracle E-Business Suite page has been successfully loaded in a browser, use the following steps to export the certificates from your web browser menu:

   i. In Internet Explorer, select **Internet Options** from the **Tools** drop-down menu to open the Internet Options pop-up window.

   ii. In the Content tab, click **Certificates**.

   iii. In the Personal (or Other People) tab, select your certificates and click **Export**.

c. You can export or save the certificates either in DER encoded binary X.509 (`.crt`) or in Base64 encoded. For example, the exported certificate is named as `rootCA.crt`.

d. If the intermediate certificates mentioned in certificate chain is not present in the Oracle Integration trusted certificate list, you have to export the intermediate certificates in the sequence of `intCA1.crt`, `intCA2.crt`, `...` `intCAn.crt`.

2. Import the Oracle E-Business Suite Certificates to Oracle Integration.

   a. In the left navigation pane, click **Home** > **Settings** > **Certificates**.

   b. Click **Upload** at the top of the page.

   c. In the Upload certificate panel, enter a unique alias and optional description for this certificate.

   d. Select the certificate category as "Trust".

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

   f. Click **Upload**.

      Please note that you need to import the root CA certificate first, and then followed by intermediate certificates in sequence.

Additionally, refer to the following documents for more information:

- For information on uploading certificates, see Manage Security Certificates in *Using Integrations in Oracle Integration 3*.
- If your Oracle E-Business Suite environment is TLS enabled and if the Oracle E-Business Suite Adapter connection is configured to use the connectivity agent in Oracle Integration, you would have to import Oracle E-Business Suite certificates to the connectivity agent.

  See: Download and Install the Agent in *Using Integrations in Oracle Integration 3*.

Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection

To successfully use business events and XML Gateway messages as inbound integrations in Oracle Integration through the Oracle E-Business Suite Adapter, you must perform the following one-time setup tasks in Oracle E-Business Suite to enable the feature:

1. Store the Oracle Integration user credentials in Oracle E-Business Suite FND vault.

   Execute the PL/SQL script `$FND_TOP/sql/afvltput.sql` from Oracle E-Business Suite backend to upload and store the user credentials in Oracle E-Business Suite FND vault.

a. Connect to an Oracle E-Business Suite database:

```
sqlplus apps/apps_password
```

b. Execute the script to upload the Oracle Integration user name:

```
@$FND_TOP/sql/afvltput.sql FND REST_USERNAME <Oracle Integration user name>
```

Replace `<Oracle Integration user name>` with the user name used to log in to Oracle Integration, such as `oiuser`.

Ensure that this user has a necessary Oracle Integration user role to execute integrations in Oracle Integration.

c. Execute the script to upload the Oracle Integration user password:

```
@$FND_TOP/sql/afvltput.sql FND REST_PASSWORD Password
```

Replace *password* with the actual password value associated with the Oracle Integration user.

At runtime, the Oracle Integration user credentials are retrieved from Oracle E-Business Suite FND vault and are embedded in the HTTP request along with business event data to Oracle Integration. It is included based on the HTTP Basic Authentication scheme. Oracle Integration then authenticates the user credentials based on the HTTP Basic Authentication method and accepts the business event data.

2. Configure proxy host and port for XML Gateway messages.

> **Note:**
>
> This step may not apply if there is no proxy server configured. In this case, ensure that network firewall rules for egress allow communication from Oracle E-Business Suite to Oracle Integration instance.

a. Log in to Oracle E-Business Suite as a user who has the System Administrator responsibility.

Select **Oracle Applications Manager** from the navigation menu. Navigate to the **Site Map**.

b. Click **AutoConfig**.

c. In the Context Files page, click the **Edit Parameters** icon for the Applications tier context file.

d. In the Context File Parameters page, select the System tab.

Expand the `oa_web_server` node and update the values for the following AutoConfig variables:

Name	Variable	Value
OXTAOutUseProxy	s_oxta_proxy	true
OXTAOutProxyHost	s_oxta_proxyhost	<proxy host>
OXTAOutProxyPort	s_oxta_proxyport	<proxy port>

Save your work.

e. Run AutoConfig from the application tier.

Refer to *Using AutoConfig to Manage System Configurations in Release 12*, My Oracle Support Knowledge Document 387859.1.

Refer to the Oracle E-Business Suite Setup Guide, Release 12.2 for information on changing AutoConfig variables and executing AutoConfig in the application tier.

3. Configure proxy host and port at Concurrent Manger Tier JVM.

> **Note:**
>
> This step may not apply if there is no proxy server configured. In this case, ensure that network firewall rules for egress allow communication from Oracle E-Business Suite to Oracle Integration instance.

To access Oracle Integration from Oracle E-Business Suite on-premise which is behind the firewall, all outbound requests from Oracle E-Business Suite need to be routed through proxy host and port. Therefore, you need to configure and set up the proxy appropriately at the Concurrent Manger Tier JVM.

a. Log in to Oracle E-Business Suite as a user who has the System Administrator responsibility.

   Select **Oracle Applications Manager** from the navigation menu. Navigate to the **Site Map**.

b. Click **AutoConfig**.

c. In the Context Files page, click the **Edit Parameters** icon for the Applications tier context file.

d. In the Context File Parameters page, select the Environments tab. Expand the `oa_environments:adovars` node to locate the APPSJREOPTS (AutoConfig variable or OA_VAR "`s_appsjreopts`").

e. Enter the following additional JVM parameters:

   ```
   -Dhttp.proxyHost=<http proxy host>

   -Dhttp.proxyPort=<http proxy port>

   -Dhttps.proxyHost=<ssl proxy host>

   -Dhttps.proxyPort=<ssl proxy port>
   ```

   Save your work.

f. Run AutoConfig from the application tier.

   Refer to *Using AutoConfig to Manage System Configurations in Release 12*, My Oracle Support Knowledge Document 387859.1.

   Refer to the Oracle E-Business Suite Setup Guide, Release 12.2 for information on changing AutoConfig variables and executing AutoConfig in the application tier.

4. Apply patches and configure the environment for communication over TLS 1.2.

a. Apply the following patches for your Oracle E-Business Suite environment.

   - For Oracle E-Business Suite 12.2, apply Patch 22612527 with the prerequisite Patch 13866584 to the FMW home.
   - For Oracle E-Business Suite 12.1.3, apply Patch 22612527 to the 10.1.3.5 home.

b. Update Java.

Update JDK 7 under `$AF_JRE_TOP` with the Java Cryptography Extension (JCE) updates from the following page (`https://www.oracle.com/java/technologies/javase-jce7-downloads.html`). If you have a JAN-2016 Java version that already includes JCE, you can skip this step.

> **Note:**
>
> `JDK 1.7.0_131` is the minimum required version for JDK 7 in Oracle E-Business Suite. For AIX platform, the minimum required version is `JDK 1.7 SR10 FP1`.

c. Update the Oracle E-Business Suite context variables using Oracle Applications Manager.

   i. Log in to Oracle E-Business Suite as a user who has the **Workflow Administrator Web Applications** responsibility.

   ii. Select the **Oracle Applications Manager** link from the Navigator, and then select **AutoConfig**.

   iii. Select the application tier context file, and choose **Edit Parameters**.

   iv. Update the following context variables:

   - `s_afjsmarg =-Dhttps.protocols=TLSv1,TLSv1.1,TLSv1.2 or -Dhttps.protocols=TLSv1.2`
     - To enable TLS 1.2 with backward compatibility, add the following:

       ```
       s_afjsmarg = -Dhttps.protocols=TLSv1,TLSv1.1,TLSv1.2
       ```

     - To enable TLS 1.2 only, add the following:

       ```
       s_afjsmarg = -Dhttps.protocols=TLSv1.2
       ```

d. Run AutoConfig using the `adautocfg.sh` script in the application tier `$ADMIN_SCRIPTS_HOME` directory.

e. Use the `adstpall.sh/adstrtal.sh` script in the `$ADMIN_SCRIPTS_HOME` directory to stop and restart all services.

5. (Optional) Import the TLS certificates to `cacerts` in Oracle E-Business Suite.

   This step is required only if the Oracle Integration server certificate is not in the Oracle E-Business Suite trusted certificate list.

   Export the Oracle Integration Certificates

   Perform the following steps to export the Oracle Integration certificates:

   a. Access the Oracle Integration instance with the HTTPS URL from a web browser.

   b. After the Oracle Integration UI page has been successfully loaded in a browser, double click the **Lock** icon in the bottom right corner of the browser and export the certificates.

   > **Note:**
   >
   > Different browser versions may have different steps to export the TLS certificates.

- In Internet Explorer, double click the **Lock** icon, then select **Certificate Path**. Select the topmost CA and click **View Certificate**. Then select **Details**, and then **Copy to File**.
- In Mozilla Firefox, double click the **Lock** icon and then select **More Information** next to IC's secure connection information. Select the Security tab in Page Info pop-up window. Click **View Certificate** and then the Details tab. Select the topmost CA and then click **Export**.

Alternatively, you can use the browser menu to export the certificates using the following steps:

i. In Internet Explorer, select **Internet Options** from the **Tools** drop-down menu to open the Internet Options pop-up window.

ii. In the Content tab, click **Certificates**.

iii. In the Personal (or Other People) tab, select your certificates and click **Export**.

c. You can export or save the certificates either in DER encoded binary X.509 (`.crt`) or in Base64 encoded. For example, the exported certificate is named as `rootCA.crt`.

d. If the intermediate certificates mentioned in certificate chain is not present in the Oracle E-Business Suite trusted certificate list, you have to export the intermediate certificates in the sequence of `intCA1.crt`, `intCA2.crt`, `. . . intCAn.crt`.

Import the Oracle Integration Certificates to Oracle E-Business Suite

Perform the following steps to import the Oracle Integration certificates to Oracle E-Business Suite:

a. Navigate to the `$AF_JRE_TOP/lib/security` directory.

b. Back up the existing `cacerts` file.

c. Copy the Oracle Integration server's root certificate `rootCA.crt` imported earlier to the `security` directory.

d. Execute the following command to ensure that `cacerts` has the **write** permissions:

```
$ chmod u+w cacerts
```

e. Add the server's root certificate `rootCA.crt` to the `cacerts` file:

```
$ keytool -importcert -keystore cacerts -storepass -alias rootCA -file
rootCA.crt -v
```

Enter the keystore password when prompted. If the certificate already exists in the `cacerts` file, *keytool* will warn you and will allow you to cancel the import. Cancel the import.

Note: If the intermediate certificates need to be imported to the `cacerts` file, import them in the following sequence after importing the root certificate `rootCA.crt`:

```
$ keytool -importcert -keystore cacerts -storepass -alias intCA1 -file
intCA1.crt -v
$ keytool -importcert -keystore cacerts -storepass -alias intCA1 -file
intCA2.crt -v
 ...
$ keytool -importcert -keystore cacerts -storepass -alias intCA1 -file
intCAn.crt -v
```

f. When you have completed the modifications to the `cacerts` file, reset the permissions:

```
$ chmod u-w cacerts
```

g. Restart Oracle E-Business Suite application tier services. Use the `adstpall.sh` and `adstrtal.sh` scripts in the $ADMIN_SCRIPTS_HOME directory to stop and restart all services.

3

Create an Oracle E-Business Suite Adapter Connection

A connection is based on an adapter. You define connections to the specific cloud applications that you want to integrate.

> **Important:**
>
> Before establishing an Oracle E-Business Suite connection using the Oracle E-Business Suite Adapter in Oracle Integration, you must complete the required setup tasks and apply the latest patches for enabling the Oracle E-Business Suite REST services provided through Oracle E-Business Suite Integrated SOA Gateway. For the setup information, see Set Up and Enable the Oracle E-Business Adapter for Integrations.

Topics:

Create a Connection

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

> **Note:**
>
> You can also create a connection in the integration canvas. See why working with projects is preferred.

To create a connection in Oracle Integration:

1. Decide where to start:
   - Work in a project (see why working with projects is preferred).
     a. In the navigation pane, click **Projects**.
     b. Select the project name.
     c. Click **Integrations** .

d. In the **Connections** section, click **Add** if no connections currently exist or **+** if connections already exist. The Create connection panel opens.

- Work outside a project.

  a. In the navigation pane, click **Design**, then **Connections**.

  b. Click **Create**. The Create connection panel opens.

2. 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.
3. 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. **Note**: *Only* the roles supported by the adapter you selected are displayed for selection. Some adapters support all role combinations (trigger, invoke, or trigger and invoke). Other adapters support fewer role combinations. 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.

4. Click **Create**.

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

5. Follow the steps to configure a connection.
   The connection property and connection security values are specific to each adapter. Your connection may also require configuration with an access type such as a private endpoint or an agent group.

6. Test the connection.

Configure Connection Properties

Enter the information for your Oracle E-Business Suite Adapter connection:

1. Go to the **Properties** section.
2. In the **Connection URL** field, enter a URL (`http://<ebs host name>:<port>`) to connect to an Oracle E-Business Suite instance.

> **Note:**
>
> This URL address is where the Oracle E-Business Suite services are deployed and can be publicly accessible either through a DMZ configuration or the Oracle Integration agent framework. See the steps about configuring the access to Oracle E-Business Suite services, as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.

Configure Connection Security

Configure security for your Oracle E-Business Suite Adapter connection by selecting the security policy and security token.

1. Go to the **Security** section.
2. Enter your login credentials to access the Oracle E-Business Suite instance you specified earlier in the Properties section.

a. "Basic Authentication" is automatically displayed as the security policy. It is the only security policy supported in this release.

b. In the **Username** field, enter a valid user name.

> **Note:**
>
> The user name specified here should be granted the privileges to access and execute the Oracle E-Business Suite APIs and services. See the step about granting the required user privileges, as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.

c. In the **Password** field, enter the cooresponding password for the user name you entered.

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

1. Go to the **Access type** section.
2. Select the option for accessing your endpoint.

Option	This Option Appears If Your Adapter Supports ...
Public gateway	Connections to endpoints using the public internet.
Connectivity agent	Connections to on-premises endpoints through the connectivity agent. a. Click **Associate agent group**. The Associate agent group panel appears. b. 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

After creating an Oracle E-Business Suite connection with Oracle E-Business Suite Adapter, you can test the connection to ensure that it is successfully configured.

1. In the page title bar, click **Test**.
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, edit the configuration details you entered. Check for typos, verify the URL and credentials. Continue to test till the connection is successful.

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

Once you have successfully tested and established the connection to the Oracle E-Business Suite instance, a list of serviceable APIs or interfaces (such as XML Gateway maps or business events) from Oracle E-Business Suite licensed products and product families will be imported from the connected instance to Oracle Integration.

For information about error messages if occur while testing the connection, see Error Messages While Testing an Oracle E-Business Suite Connection.

4

Add the Oracle E-Business Suite Adapter Connection to an Integration

When you drag the Oracle E-Business Suite Adapter into the trigger or invoke areas of an integration, the Adapter Endpoint Configuration Wizard is invoked. This wizard guides you through configuration of the Oracle E-Business Suite Adapter endpoint properties.

These topics describe the wizard pages that guide you through configuration of the Oracle E-Business Suite Adapter as a trigger or an invoke in an integration.

Topics

Add the Oracle E-Business Suite Adapter as a Trigger Connection

When adding the Oracle E-Business Suite Adapter as a trigger (source) connection, the Oracle E-Business Suite Adapter Endpoint Configuration Wizard is invoked. Based on your selections in the wizard, the following pages can be displayed.

Topics:

Oracle E-Business Suite Adapter Trigger Basic Information Page

When you use the Oracle E-Business Suite Adapter as a trigger in an integration, you can have an option to use either a business event or an XML Gateway message as an inbound

integration in Oracle Integration. Enter a name, description, and desired interface type for each trigger connection.

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 dashes in the name. You cannot include the following: • Blank spaces (for example, `My Inbound 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: `Raise a business event.` or `Use XML Gateway message.`
What do you want to configure the endpoint for?	Select either one of the interface types that you want to configure for your integration: • Business Event - allows the selection of a business event in an integration. • XML Gateway Map - allows the selection of an XML Gateway message map in an integration.

Oracle E-Business Suite Adapter Configure Business Events Page

Select a business event for your integration by entering its associated product family and product information in the Configure Business Events page.

Element	Description
Product Family	Select a desired Oracle E-Business Suite application product family for your integration. For example, select **Order Management Suite** from the drop-down list. Note that the available product families for your selection are based on the Oracle E-Business Suite instance to which you are connecting.
Product	Select a desired product from the selected product family. For example, **Order Management**.

Element	Description
Business Event	Once you select a product, a list of business events including both Oracle seeded events and custom ones contained in the selected product is populated for your selection. Locate a desired business event through either of the following ways: • Select a desired event name from the drop-down list. For example, select **Event for OIP status update notification**. • Use the **Filter by Name** field to find your desired event. For example, enter `Oracle` in this field to find the event name starting with “Oracle”. **Note:** You can define custom business events to meet your needs. If required, annotate the custom events, and then upload them to the Integration Repository. For information on creating custom business events, see Creating Custom Integration Interfaces, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*. For information on uploading custom interfaces to the Oracle Integration repository residing in Oracle E-Business Suite Integrated SOA Gateway, see Generating ILDT Files and Uploading ILDT Files to Integration Repository, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.
Internal Name	Displays the internal name of the selected event, such as `oracle.apps.ont.oip.statuschange.update` for the selected event “Event for OIP status update notification”.
Status	Displays the corresponding event status for the selected business event. It can have either of the following values: • Enabled This indicates that the selected event has the associated event subscription created, and this event is ready to use in an integration. • Disabled If there is no event subscription created for the selected event, "Disabled" is shown. A warning message also appears indicating that this event is not ready to use in an integration. To use this event, you must enable it first from Oracle E-Business Suite. For information on enabling the event subscription, see the Defining Events, Managing Business Events chapter in the *Oracle Workflow Developer’s Guide*.
Description	Displays the event description information.

Click **Continue**.

The Summary page appears with the selected business event information.

For information on using business events as a trigger connection, see Use Oracle E-Business Suite Business Events to Trigger Integration Endpoint in Oracle Integration.

Oracle E-Business Suite Adapter Configure XML Gateway Maps Page

Enter XML Gateway message information that you plan to use as a trigger in your integration.

Element	Description
Product Family	Select a desired Oracle E-Business Suite application product family for your integration. For example, select “Applications Technology” from the drop-down list. Note that the available product families for your selection are based on the Oracle E-Business Suite instance to which you are connecting.
Product	Select a desired product from the selected product family. For example, “Service Suite”.
XML Gateway Map	Once you select a product, a list of XML Gateway messages including both Oracle seeded and custom messages contained in the selected product is populated for your selection. Locate a desired XML Gateway message through either of the following ways: • Select a desired XML Gateway message name from the drop-down list. For example, select “Add Salesorder”. • Use the **Filter by Name** field to find your desired XML Gateway message. For example, enter `Add` in this field to find the event name starting with “`Add`”. **Note:** You can define custom XML Gateway messages to meet your needs. If required, annotate the custom events, and then upload them to the Integration Repository. For information on creating custom XML Gateway messages, see Creating Custom Integration Interfaces, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*. For information on uploading custom interfaces to Oracle Integration Repository residing in Oracle E-Business Suite Integrated SOA Gateway, see Generating ILDT Files and Uploading ILDT Files to Integration Repository, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

Element	Description
IREP Name	Displays the corresponding Integration Repository name after you selected an XML Gateway message. For example, “XNB:SOO” is shown for the selected XML Gateway message “Add Salesorder”.
Internal Name	Displays the internal name of the selected XML Gateway message, such as “XNB_OM_SALESORDER_OAG72_OUT” for “Add Salesorder”.
Standard	Displays the integration standard information, such as “OAG 7.2”.
Description	Displays the description information of the selected XML Gateway message.

Click **Continue**.

The Summary page appears with the selected XML Gateway information.

For information on using XML Gateway message as a trigger connection, see Use Oracle E-Business Suite XML Gateway Messages to Trigger Integration Endpoint in Oracle Integration.

Oracle E-Business Suite Adapter Trigger Summary Page

You can review the trigger (source) endpoint configuration details on the Oracle E-Business Suite Adapter Trigger Endpoint Configuration Summary page.

Element	Description
Product Family	Displays the selected product family for your configuration, such as “Order Management Suite”.
Product	Displays the selected product for your configuration, such as “Order Management”.
Business Event (or **XML Gateway Map**)	Displays the internal name of the selected interface, either an event or XML Gateway message, such as “oracle.apps.ont.oip.statuschange.update” for an event or “itg_process_po_007_out” for a message.
Integration Pattern	Request only.
Instructions (for XML Gateway only)	If the selected interface is an XML Gateway message, this field appears. It displays a list of manual steps that you must perform for the integration with an XML Gateway message map. These tasks include activating the integration and configuring a desired trading partner in Oracle E-Business Suite. See Post Activation Manual Steps for XML Gateway Messages as a Trigger.

Click **Finish**.

Add the Oracle E-Business Suite Adapter as an Invoke Connection

When adding the Oracle E-Business Suite Adapter as an invoke (target) connection, you can integrate with an Oracle E-Business Suite REST service in an integration through the Oracle E-Business Suite Adapter Endpoint Configuration Wizard. The supported Oracle E-Business Suite REST services can be any of the following interface types:

- PL/SQL
- Concurrent Program
- Java
- Open Interface

Topics:

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.`

Oracle E-Business Suite Adapter Configure Web Services Page

Select a desired API or REST service that you plan to use in an integration by entering its associated product family, product, and interface type in the Configure Web Services page.

Element	Description
Product Family	Select a desired Oracle E-Business Suite application product family that you want to use for your integration. For example, select "Order Management Suite" from the drop-down list. Note that the available product families for your selection are based on the Oracle E-Business Suite instance you are connecting.
Product	Select a desired product from the selected product family. For example, "Order Management".

Element	Description
Interface Type	Select a desired interface type from the following values: • **All**: This value is selected by default. All the supported interfaces when adding the Oracle E-Business Suite Adapter as an invoke (target) connection will be listed in the API field for selection. These include interface types of PL/SQL APIs, Java APIs, concurrent programs, open interface tables, and open interface views. • **Concurrent Program**: This displays all concurrent program names in the API field for your selection. • **Open Interface**: This displays all open interface tables and open interface views in the API field for your selection. • **PL/SQL**: This displays all PL/SQL APIs in the API field for your selection. • **Java**: This displays all Java-based APIs including Java Bean Services, Application Module Services, and Business Service Objects in the API field for your selection.

Element	Description
API	Displays a list of API names based on your selected interface type including both Oracle seeded and custom interfaces contained in the selected product. For example, select “Sales Order Services” API. **Note:** If one or more of the methods contained in the selected API are deployed as REST services, after you click **Next**, the Operations page appears. However, if none of the methods within the selected API is deployed as a REST service, an error message is shown indicating that the associated REST service is not available. You must deploy the selected API as a REST service first before using it in your integration. For information on deploying REST services, see Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*. You can define custom PL/SQL APIs, Java-based APIs, and concurrent programs to meet your needs if required, annotate the custom interface based on the annotation standards, and then upload it to the Integration Repository. You can deploy the custom interface as a REST service from Oracle E-Business Suite Integrated SOA Gateway. The REST service will then be available to use for integrations from Oracle Integration. **Note:** Custom interface types of open interface tables and open interface views are not supported. • For information on creating custom interfaces, see Creating Custom Integration Interfaces, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*. • For information on annotating custom APIs, see Integration Repository Annotation Standards, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*. • For information on uploading custom interfaces to Oracle Integration Repository resided in Oracle E-Business Suite Integrated SOA Gateway, see Generating ILDT Files and Uploading ILDT Files to Integration Repository, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.
Internal Name	Displays the internal name of the selected interface, such as `OE_INBOUND_INT` for the “Sales Order Services” API.

Element	Description
Description	Displays the selected interface description information.

Oracle E-Business Suite Adapter Configure Operations Page

Enter REST service operation or method information that you plan to use as an invoke in your integration.

Element	Description
API	Displays the API name (such as "OE_INBOUND_INT") that you selected earlier in the Web Services page.
Methods	Select a desired method contained in the selected API. For example, select "PROCESS_ORDER" as the method from the "OE_INBOUND_INT" API. If the selected interface is an open interface (such as RAXMTR), a list of open interface tables contained in the selected open interface is displayed as the methods, along with the associated concurrent program submission method `SUBMIT_CP_<internal name of the associated concurrent program>` (such as "SUBMIT_CP_RAXMTR") shown as the last entry in the table.

Note:

`SUBMIT_CP_<internal name of the associated concurrent program>` is only displayed for an open interface. This method will not be shown if the selected interface is an open interface view.

Element	Description
Direction (for Open Interfaces only)	Appears only if the selected interface is an open interface table or open interface view. It displays a read-only value (**Inbound** or **Outbound**) for the selected method of an open interface table or view.

> **Note:**
>
> If the selected method is `SUBMIT_CP_<internal name of the associated concurrent program>`, **Direction** and **CRUD Operation** (described in the next row) are not shown in this page.

Element	Description
CRUD Operation (for Open Interfaces only)	Appears only if the selected interface is an open interface table or open interface view. • If the selected method is an open interface table with **Inbound** direction, the available operations for your selection are: – **Create** (default): Creates or adds new entries for the selected method in the open interface table. – **Read**: Reads, retrieves, searches, or views existing data for the selected method in the open interface table. – **Update**: Updates or edits existing entries for the selected method in the open interface table. – **Delete**: Deletes or removes existing entries for the selected method in the open interface table. **Note:** If the selected operation value is **Read**, **Update**, or **Delete**, the **Add Filter Conditions** link appears. Clicking this link allows you to optionally create filter conditions for the selected method if desired in the Add Filter Conditions page. See: Oracle E-Business Suite Adapter Operations — Add Filter Conditions Page. • If the selected method is an open interface table or view with **Outbound** direction, **Read** is the only available operation and is automatically selected by default. • If the selected method is `SUBMIT_CP_<internal name of the associated concurrent program>`, this field is not shown.

Element	Description
Operation (for Java APIs only)	Appears only if the selected interface is a Java API. The available options for your selection are: • **Create** (default): Performs the HTTP “POST” action to the selected method in the Java API. • **Read**: Performs the HTTP “GET” action to the selected method in the Java API. By default, you cannot perform the **Read** operation on all Java methods. Only if HTTP “GET” is enabled for a desired method first, you can deploy that method with the GET option in Oracle E-Business Suite and then can use the **Read** operation from the Oracle E-Business Suite Adapter for an integration. Otherwise, you can use the **Create** operation for the same method if it is deployed as a REST operation in Oracle E-Business Suite. For information on deploying a Java API as a REST service with desired HTTP verbs, see: • Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide* • "Annotations for Application Module Services" and "Annotations for Java Bean Services" in Java Annotations, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*
Service Status	Displays the corresponding REST service status for the selected method. • **Ready to Use** This indicates that the selected method is deployed as a REST service and it is ready to use for your integration. • **Not Deployed** If the selected method is not deployed as a REST service, then **Not Deployed** is shown as the service status instead. Additionally a warning message appears, indicating that you must deploy the method as a REST service first before using it for your integration. To deploy the selected method as a REST service, you need to log in to Oracle E-Business Suite as a user who has the Integration Administrator role. Select the **Integrated SOA Gateway** responsibility and the **Integration Repository** link from the navigation menu. Search and locate the selected interface from the Integration Repository, and then deploy it as a REST service. Only when the REST service is available in Oracle E-Business Suite, you can then proceed to the process of adding Oracle E-Business Suite as a target connection. For information on deploying REST services, see Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

Element	Description
Description	Displays the selected method description information.

Oracle E-Business Suite Adapter Operations — Add Filter Conditions Page

You can optionally create filter conditions for a selected open interface in your integration if the selected **CRUD Operation** value for a method is **Read**, **Update**, or **Delete**. Use this feature to add conditions to only allow certain data to be passed in your integration.

Element	Description
Element	Select a desired open interface table or view column from the drop-down menu. This returns the elements filtered by the text you selected. For example, select “QUANTITY_ORDER” as the filter text. Then only the column names with “QUANTITY_ORDER” will be retrieved.
Operator	Select an appropriate operator for your filter condition. The available operation options are: • **Equals** (default) • **Not Equals** • **Less Than** • **Less or Equal To** • **Greater Than** • **Greater or Equal To** • **In** • **Not In** For example, select “**Greater Than**” for the filter element “QUANTITY_ORDER”.
Value	Enter a literal value or a parameter in this field. For example, enter `1` for the filter element “QUANTITY_ORDER”. If the value is a parameter or variable, add `:` (colon) before the parameter name as a prefix. For example, `:BATCH_NUM` would be a parameter whose value is determined at runtime. Please note that the `:BATCH_NUM` parameter specified here will be available for mapping later at the design time and will be part of the input parameters in the schema (`xsd`) file generated for this integration.
AND/OR	If there are more than one filter conditions listed in the table, specify desired logical operator values (`AND` and `OR`) to associate with these conditions in the table.

To update an existing condition, select a desired condition that you want to edit first. The entered values become editable. To remove a filter condition entered earlier in the table, click the `X` icon next to the condition you want to remove. Click **Detach** to manage the filter conditions in a separate Detached Table page. Click **Clear All** to remove all the filter conditions listed in the table.

Click **Continue** to save the filter conditions and return back to the Operations page. See: Oracle E-Business Suite Adapter Configure Operations Page.

Oracle E-Business Suite Adapter Invoke Summary Page

You can review the invoke (target) endpoint configuration details on the Oracle E-Business Suite Adapter Invoke Endpoint Configuration Summary page.

Element	Description
Product Family	Displays the selected product family for your configuration, such as “Financial Receivables Suite”.
Product	Displays the selected product for your configuration, such as “Receivables”.
Web Service	Displays the internal name of the selected interface, such as “RAXMTR”.
Method	Displays the selected method or operation name, such as “RA_INTERFACE_LINES_ALL”.
Direction (for Open Interface only)	Displays either “Inbound” or “Outbound” for the selected open interface table or open interface view.
CRUD Operation (for Open Interface only)	Displays selected operation value for the open interface table or open interface view.
Operation (for Java API only)	Displays selected operation value for the Java method.
Status	Displays the service status of the selected method or operation, such as “Ready to Use”.
Integration Pattern	Synchronous

Click **Finish**.

5

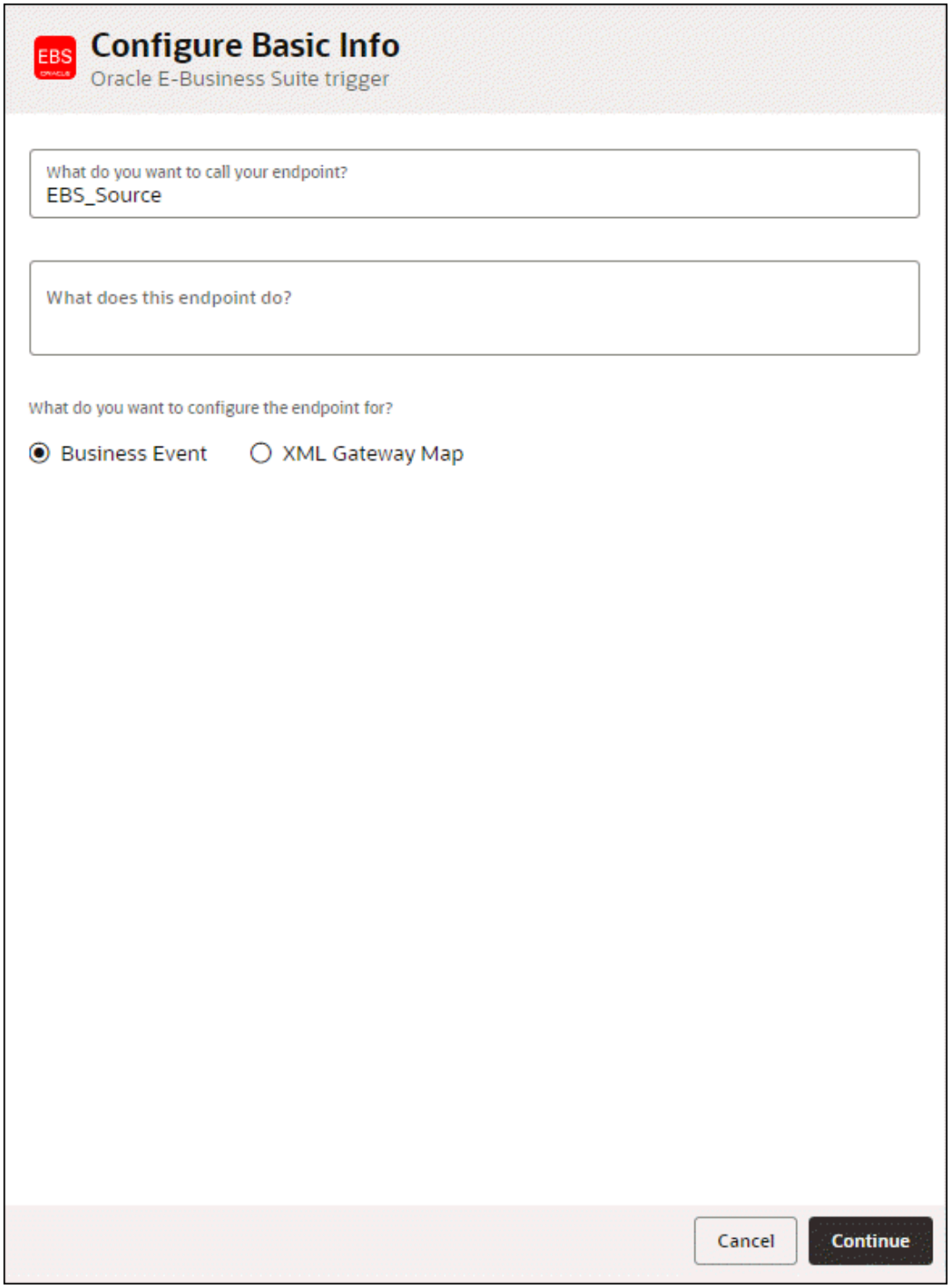
Implement Common Patterns Using the Oracle E-Business Suite Adapter

The Oracle E-Business Suite Adapter supports both inbound and outbound integrations in Oracle Integration. You can use the Oracle E-Business Suite Adapter as a trigger or as an invoke connection in an integration.

- **For Inbound Integration from Oracle E-Business Suite to Oracle Integration**

  When adding the Oracle E-Business Suite Adapter as a trigger (source) connection, you can use either of the following interface types to trigger an inbound integration in Oracle Integration:

  - Business Event
  - XML Gateway Message

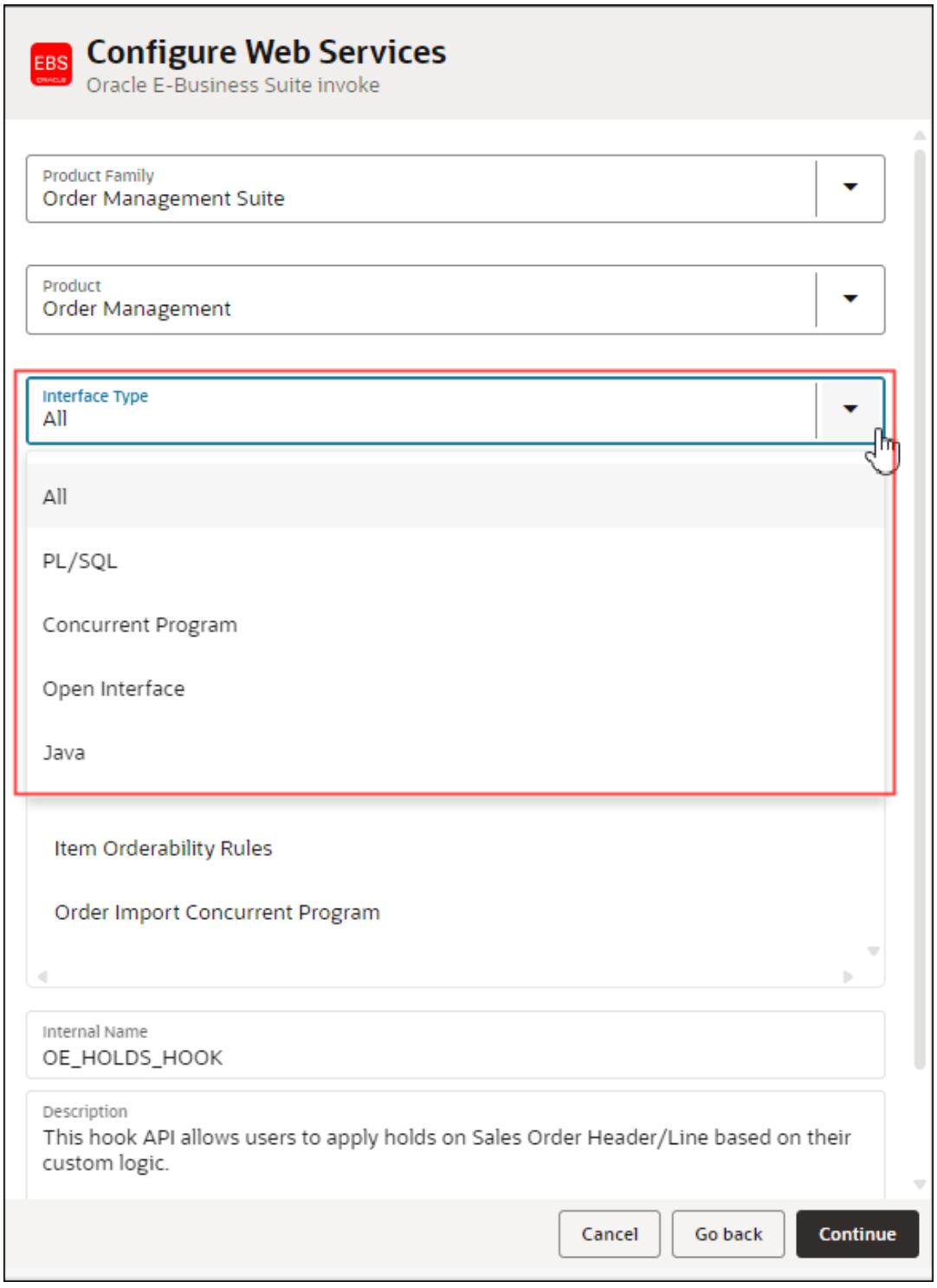


- **For Outbound Integration from Oracle Integration to Oracle E-Business Suite**

  When adding the Oracle E-Business Suite Adapter as an invoke (target) connection, you can use an Oracle E-Business Suite REST service to invoke an outbound integration from Oracle Integration. The available interface types that support this integration pattern are:

  – PL/SQL
  – Concurrent Program
  – Open Interface Table and View

– Java API

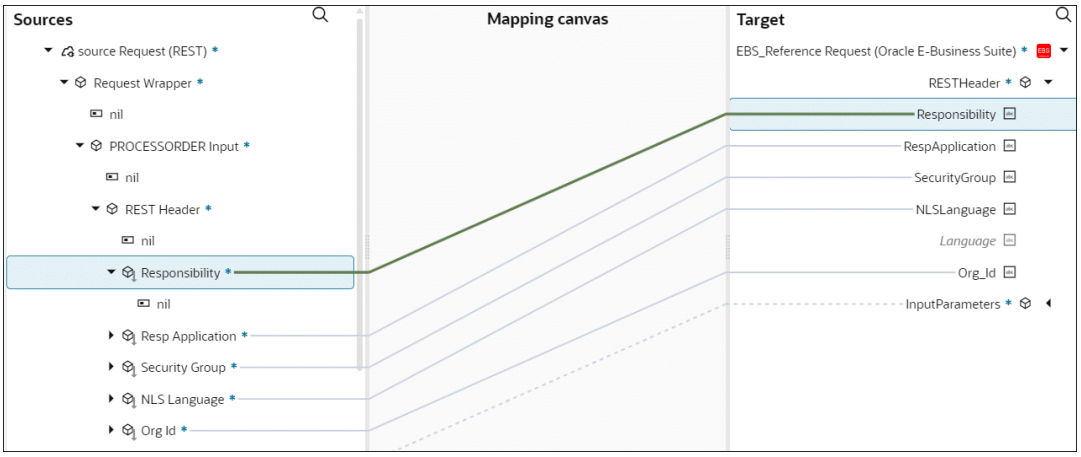


REST Header Mapping

This type of integration requires the following `RESTHeader` elements to be passed as part of the input parameters in invoking Oracle E-Business Suite services. These header elements are used to set applications context values which are required in the API used in an integration for service invocation.

- `Responsibility`: It represents `responsibility_key` (such as "SYSTEM_ADMINISTRATOR").
- `RespApplication`: It represents Application Short Name (such as "FND").
- `SecurityGroup`: It represents Security Group Key (such as "STANDARD").
- `NLSLanguage`: It represents NLS Language (such as "AMERICAN").
- `Org_Id`: It represents Org Id (such as "202").

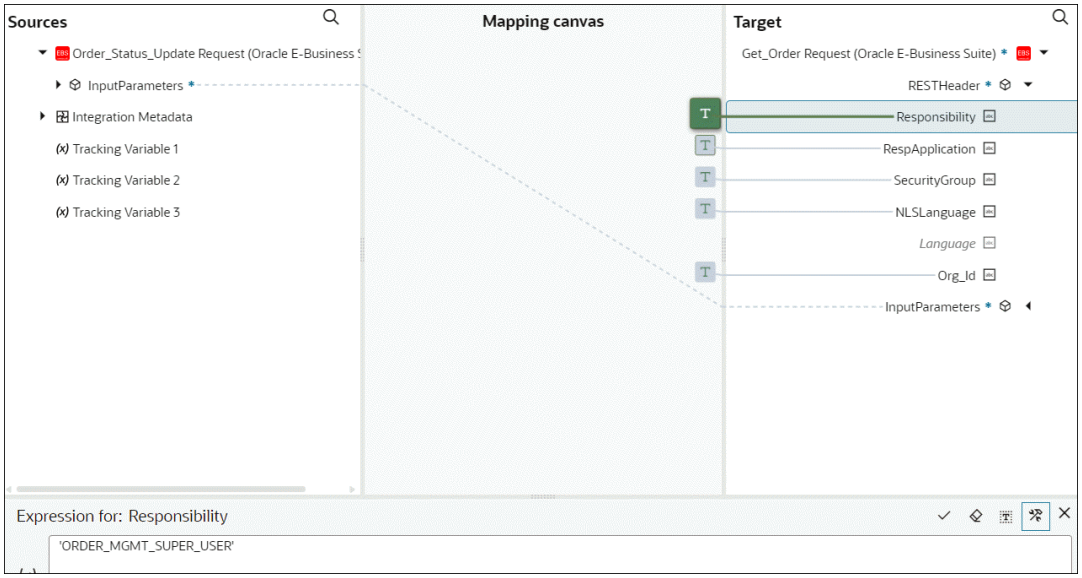
At design time, you need to map each of these `RESTHeader` elements from the Source section to the corresponding elements in the Target section while creating a mapping.



Additionally, you assign appropriate values to these elements if required in your mapping to pass application context values for invoking an Oracle E-Business Suite service. For example, you can assign the following values for each element listed in the table required to invoke a REST service.

Element	Value
Responsibility	'ORDER_MGMT_SUPER_USER'
RespApplication	'ONT'
SecurityGroup	'STANDARD'
NLSLanguage	'AMERICAN'
Org_Id	'204'

After assigning each value listed above for the `RESTHeader` elements, you can find a box in the Mapping Canvas section displayed for each assigned target `RESTHeader` element.



For information about `RESTHeader` mapping, see the “Creating Mappings” section described in the following examples:

– An Example of Using a PL/SQL REST Service as an Invoke (Target) Connection in an Integration

– An Example of Using an Open Interface REST Service as an Invoke (Target) Connection in an Integration

– An Example of Using a Java REST Service as an Invoke (Target) Connection in an Integration

Topics:

- Use Oracle E-Business Suite Business Events to Trigger Integration Endpoint in Oracle Integration
- Use Oracle E-Business Suite XML Gateway Messages to Trigger Integration Endpoint in Oracle Integration
- Invoke Oracle E-Business Suite PL/SQL APIs from Oracle Integration
- Invoke Oracle E-Business Suite Concurrent Programs from Oracle Integration
- Invoke Oracle E-Business Suite Open Interfaces from Oracle Integration
- Invoke Oracle E-Business Suite Java APIs from Oracle Integration

Use Oracle E-Business Suite Business Events to Trigger Integration Endpoint in Oracle Integration

> **Important:**
>
> Before adding the Oracle E-Business Suite Adapter as a trigger (source) connection for an inbound integration in Oracle Integration, ensure that you have performed the required setup tasks to enable this feature. See Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection.

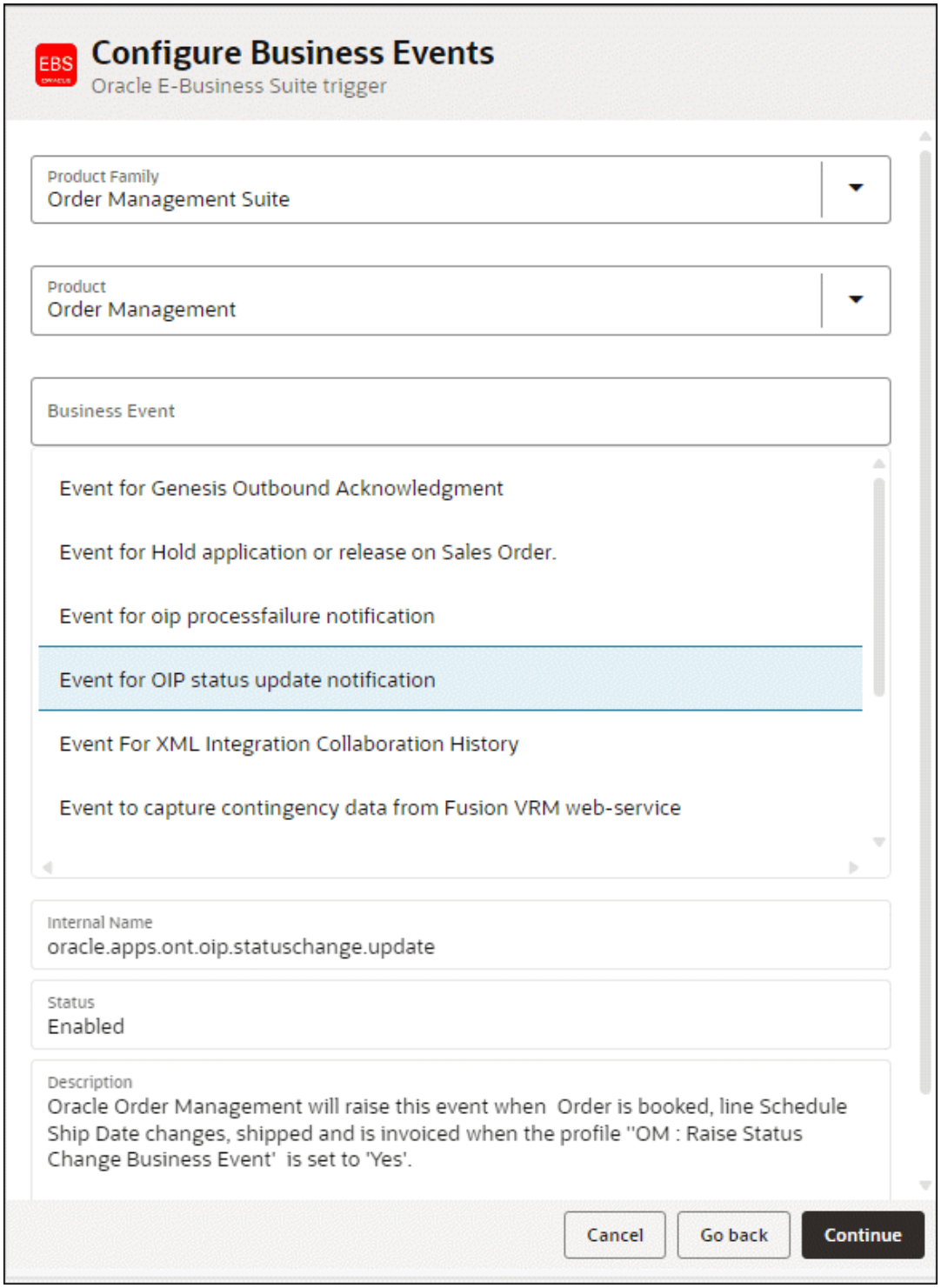
A business event is an occurrence in Oracle E-Business Suite that may trigger the next business process or action. An example of a business event can be a purchase order status change which may trigger an notification to be sent to the parties who have subscribed to the event. Oracle E-Business Suite provides various business events for use in integrations. To leverage the business event and event subscription features, you can configure the Oracle E-Business Suite Adapter with business events to invoke an integration endpoint in Oracle Integration.

You can locate a desired business event based on selected product family and product for your integration. When the selected business event is raised in Oracle E-Business Suite at runtime, the Oracle E-Business Suite Adapter will propagate the event information from Oracle E-Business Suite to Oracle Integration to trigger the integration.

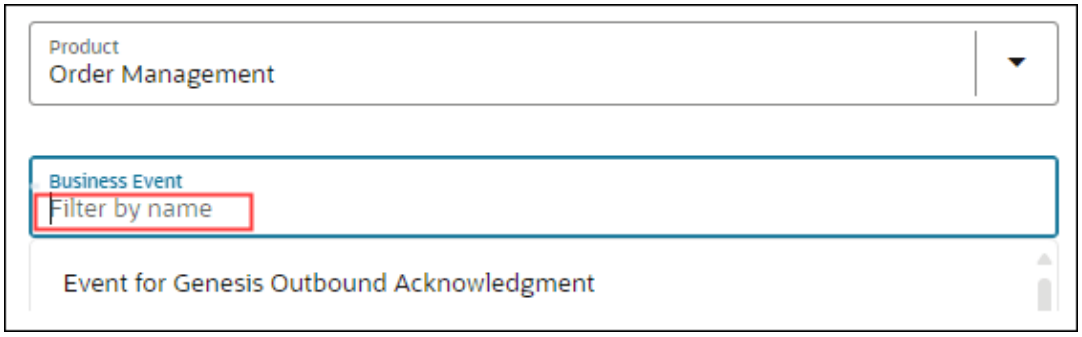
> **Note:**
>
> You can define custom business events to meet your needs if required, annotate the custom events, and then upload them to the Integration Repository. Additionally, make sure that these custom events are enabled (with "Enabled" event status) in the Oracle Workflow Business Event System with the **Workflow Administrator Web Applications** responsibility.
> To use these custom events for integrations, you need to log in to Oracle Integration and locate the Oracle E-Business Suite connection you plan to use for integrations. Click the **Actions** menu icon and then select **Refresh Metadata**.
>
> For information on creating custom business events, see Creating Custom Integration Interfaces, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*. For information on uploading custom interfaces to Oracle Integration Repository resided in Oracle E-Business Suite Integrated SOA Gateway, see Generating ILDT Files and Uploading ILDT Files to Integration Repository, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

When adding a business event in an integration, you can locate an event through either of the following ways in the Configure Business Events page of the Oracle E-Business Suite Adapter wizard:

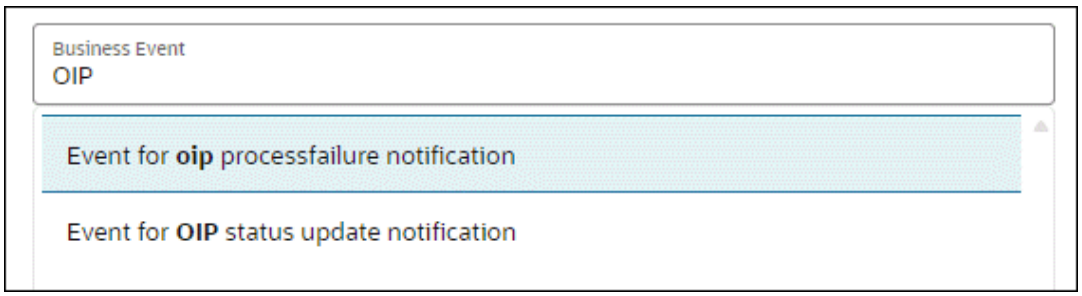
- Select a desired event name from the drop-down list. For example, select "Event for OIP status update notification".



- Use the **Filter by name** field to find your desired event.



For example, enter an event partial name "`OIP`" in this field to search the event names containing "OIP".



After you selected an event, if the event status is “Disabled” indicating that there is no event subscription created for the event, to use that event for an integration, you must enable it first from Oracle E-Business Suite. For information on enabling the event subscription, see Subscribing to Business Events, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

- For an integration example of configuring the Oracle E-Business Suite Adapter with a business event, see An Example of Using a Business Event as a Trigger (Source) in an Integration.
- For information about error messages if occur while adding the Oracle E-Business Suite Adapter as a trigger (source) connection in an integration, see Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration.

Use Oracle E-Business Suite XML Gateway Messages to Trigger Integration Endpoint in Oracle Integration

> **Tip:**
>
> Before adding the Oracle E-Business Suite Adapter as a trigger (source) connection for an inbound integration in Oracle Integration, ensure that you have performed the required setup tasks to enable this feature. See: Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection.

Oracle E-Business Suite provides various XML Gateway interfaces for use in integrations with trading partners and third party applications. By leveraging these XML Gateway interfaces and messages, Oracle E-Business Suite Adapter can be configured to support an easy integration

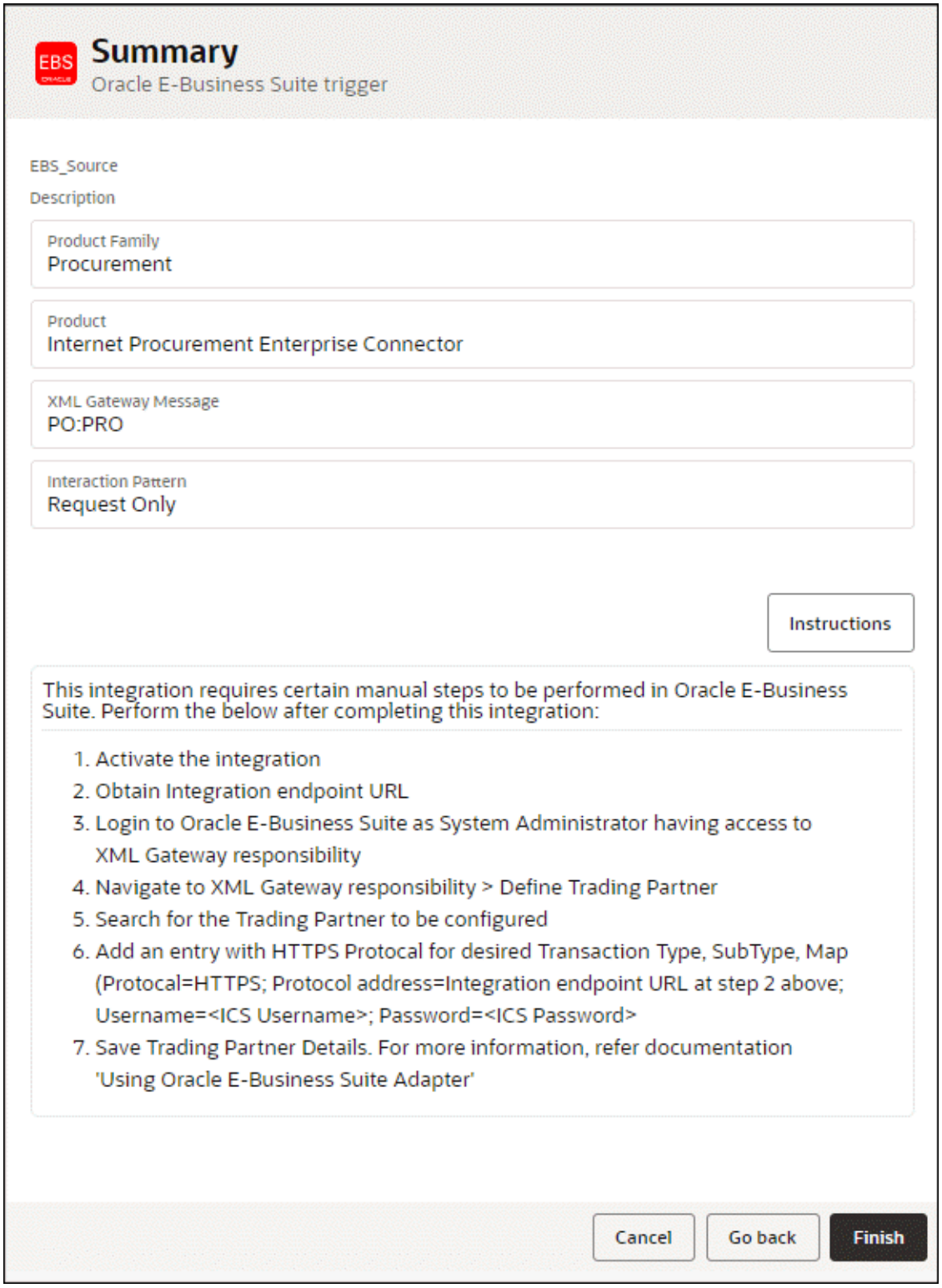
between Oracle E-Business Suite and Oracle Integration through standard-based XML messaging. This integration pattern is an ideal solution when you need to interact with third party applications that use open standards. Moreover, it is also suitable for scenarios where trading partners change frequently.

Similar to business events, you can use outbound XML Gateway messages from Oracle E-Business Suite to trigger inbound integrations in Oracle Integration when adding the Oracle E-Business Suite Adapter as trigger (source) connections.

When an XML Gateway outbound transaction occurs in Oracle E-Business Suite at runtime, this message is enqueued to the ECX_OUTBOUND queue as an existing XML Gateway processing. Oracle Transport Agent (OTA) from Oracle XML Gateway will fetch the message from the queue and post it to Oracle Integration.

> **Note:**
>
> You can define custom XML Gateway message maps to meet your needs if required.

After you completed the configuration with an XML Gateway message through the Oracle E-Business Suite Adapter, to successfully use the selected message map in Oracle Integration, you must perform required manual tasks after you activate the integration. These manual steps are included in the **Instructions** section as part of the Summary page.



For information on how to perform these manual steps, see Post Activation Manual Steps for XML Gateway Messages as a Trigger.

- For more information on using XML Gateway messages in integrations, see An Example of Using an XML Gateway Message as a Trigger (Source) in an Integration.

- For information about error messages if occur while adding the Oracle E-Business Suite Adapter as a trigger (source) connection in an integration, see Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration.

Post-Activation Manual Steps for XML Gateway Messages as a Trigger

After you create an integration with an XML Gateway message from Oracle E-Business Suite in Oracle Integration, you must manually perform the following tasks:

1. Activate a desired integration that contains an XML Gateway message.
2. Obtain the integration endpoint URL by clicking **Actions** ⋮ and then select **Run details** for the integration. Record the endpoint URL information in the following format:

   `https://<Oracle Integration Host>:<Port>/ic/api/integration/v1/flows/ebusiness/<integration>/1.0/metadata`.

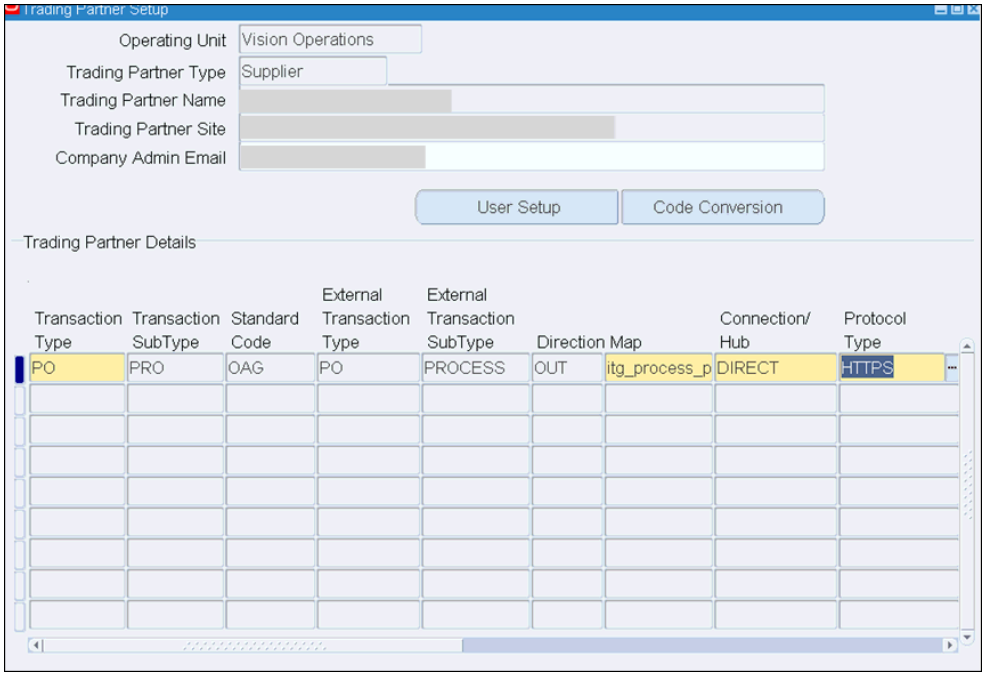
   The URL will be used later as the protocol address when configuring a trading partner in Oracle XML Gateway.

   Note: `<integration>` indicates the alias name for a deployed REST service, such as "PROCESS_PO" in this sample.
3. Configure a desired trading partner in Oracle E-Business Suite by specifying the communication protocol and address as well as the user credentials for the XML message specified in an integration.
   a. Log in to Oracle E-Business Suite as a user (such as sysadmin) who has the XML Gateway responsibility.
   b. Select the XML Gateway responsibility and then select **Define Trading Partners** from the navigator. The Define Trading Partner Setup form appears.
   c. Search and locate a desired trading partner to be configured.
   d. In the Trading Partner Details region, add the following information for the trading partner:
      - Transaction Type: A desired transaction type for your XML Gateway message, such as PO
      - Transaction Subtype: A desired subtype for your XML Gateway message, such as PRO
      - Map: A desired XML Gateway message, such as itg_process_po_007_out
      - Connection/Hub: DIRECT
      - Protocol: HTTPS
      - Protocol address: https://<Oracle Integration Host>:<Port>/ic/api/integration/v1/flows/ebusiness/<integration>/1.0/

        Enter the integration endpoint URL (without metadata at the end) you recorded earlier.
      - Username: <Oracle Integration user name>

        Enter the Oracle Integration user credentials used to execute integrations in Oracle Integration.
      - Password: *Password*

        Replace *password* with the actual password value of the associated Oracle Integration user.



e. Save your work.

For more information on setting up trading partners, see Trading Partner Setup, *Oracle XML Gateway User's Guide*.

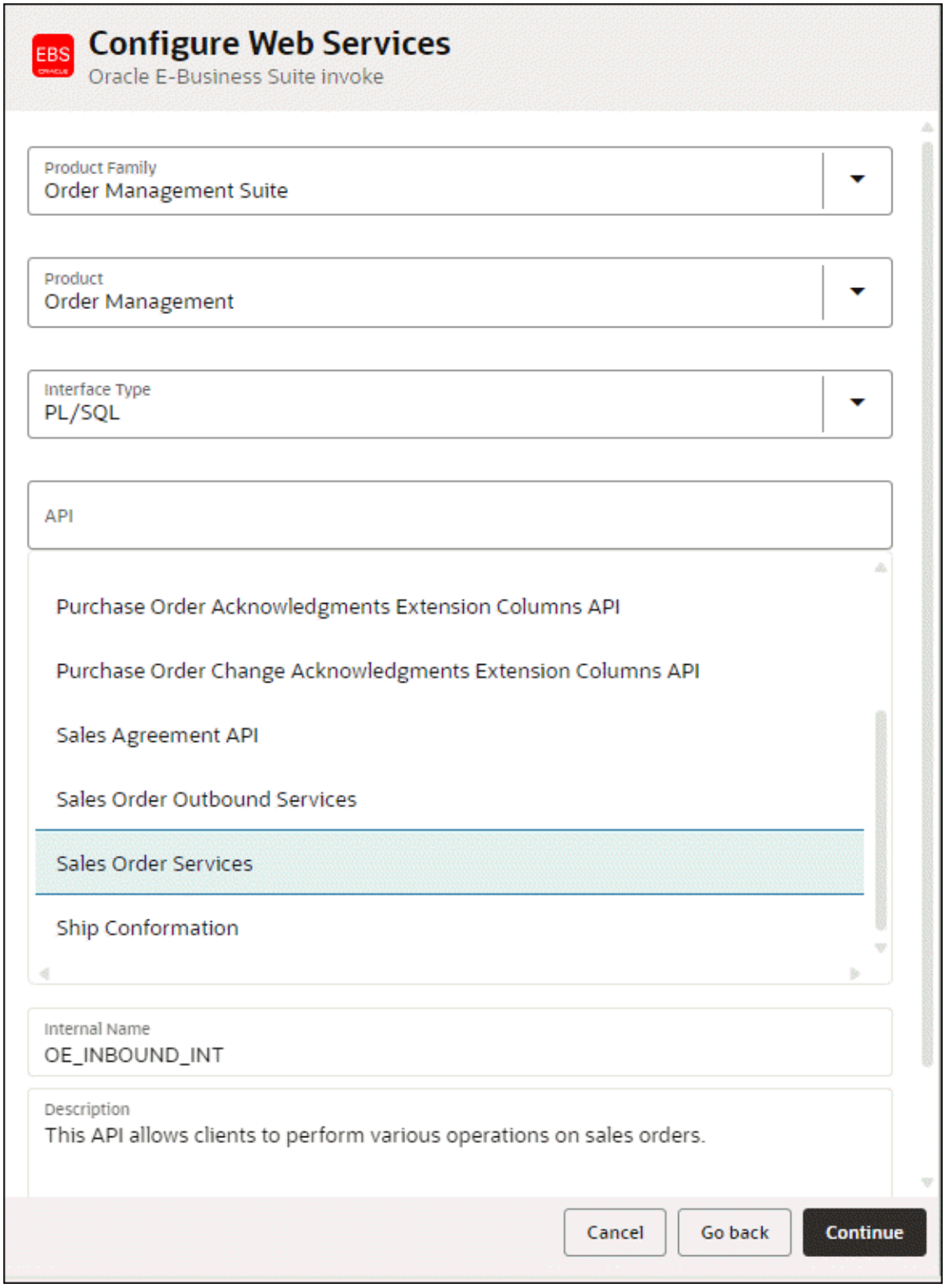
Invoke Oracle E-Business Suite PL/SQL APIs from Oracle Integration

Oracle E-Business Suite contains numerous interface integration endpoints which can be exposed as REST services through Oracle E-Business Suite Integrated SOA Gateway. To leverage and use these Oracle E-Business Suite REST services to access Oracle E-Business Suite application data, you need to configure the Oracle E-Business Suite Adapter as invoke (target) connections.

PL/SQL REST services are one of the available interfaces for use in outbound integrations from Oracle Integration. In response to a request in an integration, a PL/SQL REST service can be invoked to access or update Oracle E-Business Suite application data to fulfill the integration needs.

> **Note:**
>
> In addition to Oracle seeded PL/SQL APIs, you can use custom PL/SQL APIs or REST services for your integration needs.

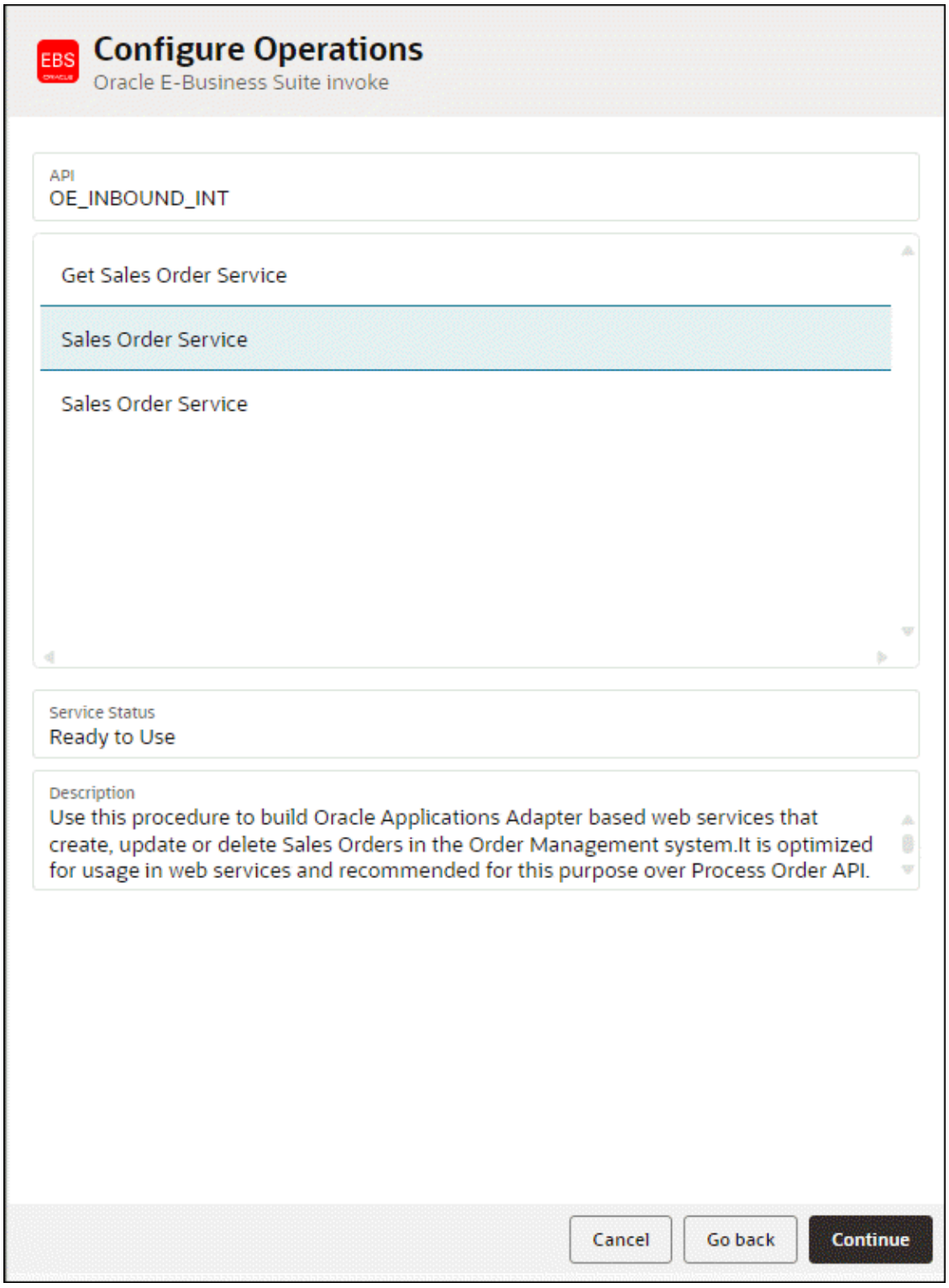
For example, select "Sales Order Services" PL/SQL API in the Configure Web Services page of the Oracle E-Business Suite Adapter Endpoint Wizard. The corresponding interface information is automatically populated. This includes the interface internal name (OE_INBOUND_INT) and description.



If one or more methods contained in the selected interface are deployed as REST service operations, after you click **Continue**, the Configure Operations page appears. If none of the methods in the selected interface is deployed as a REST service operation, then an error message appears. See: Undeployed REST Service Error Message.

In the Configure Operations page of the Oracle E-Business Suite Adapter Endpoint Wizard, the selected interface internal name OE_INBOUND_INT is automatically populated. You need to

select a desired method name, such as "Sales Order Service" method, that will be used in an integration.



For more information about using PL/SQL REST services in an integration, refer to:

- For an integration example of using PL/SQL REST services, see An Example of Using a PL/SQL REST Service as an Invoke (Target) Connection in an Integration.

- For troubleshooting information while creating an integration with the Oracle E-Business Suite Adapter as an invoke (target) connection in Oracle Integration, see Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration.

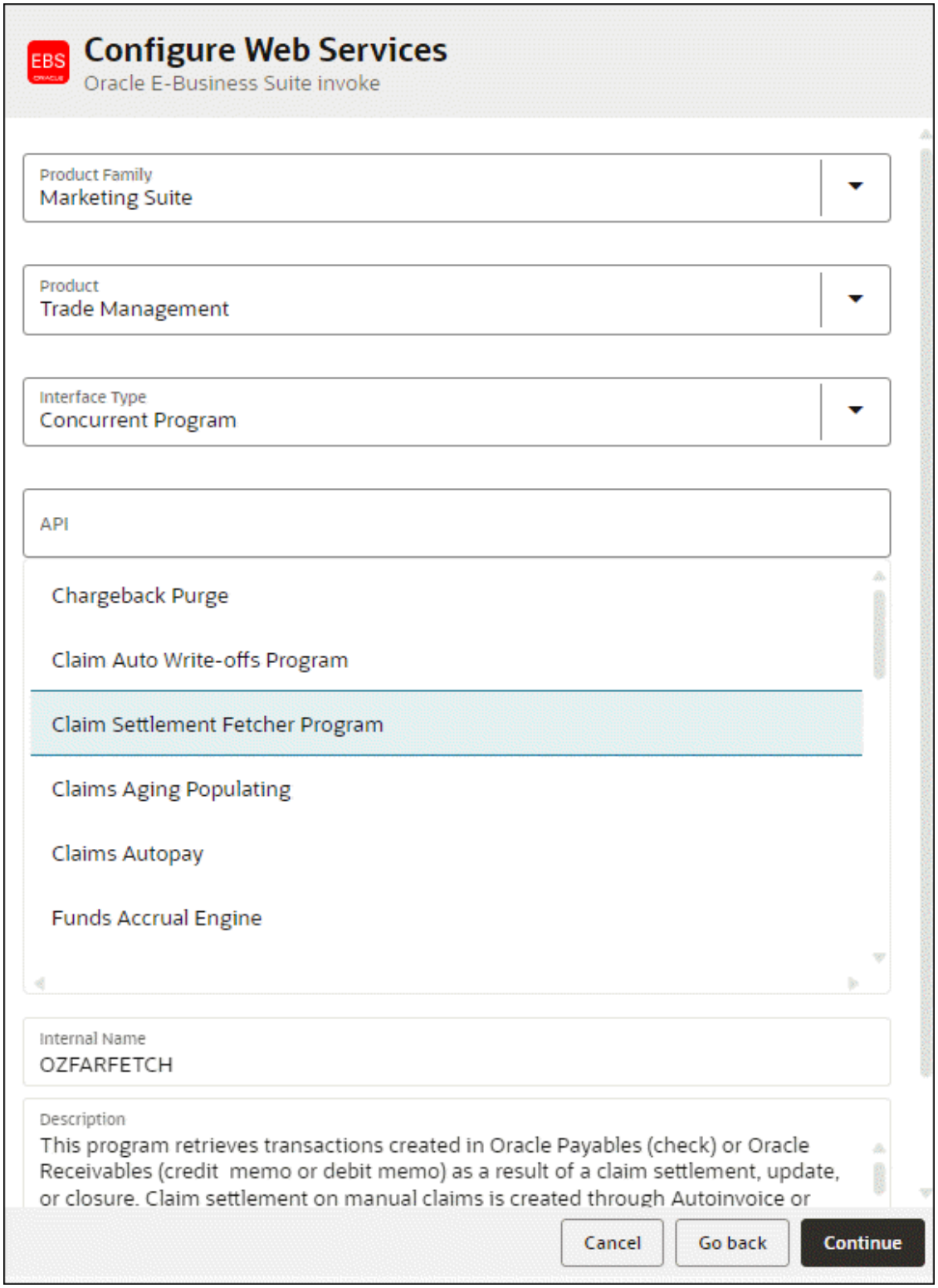
Invoke Oracle E-Business Suite Concurrent Programs from Oracle Integration

In addition to using PL/SQL REST services as explained earlier, you can access and update Oracle E-Business Suite data through the use of concurrent program REST services.

A concurrent program runs as a concurrent process that executes multiple programs running in the background. To leverage the functionality provided by concurrent programs for Oracle E-Business Suite applications, you can configure the Oracle E-Business Suite Adapter to invoke a desired concurrent program REST service as an outbound integration from Oracle Integration.

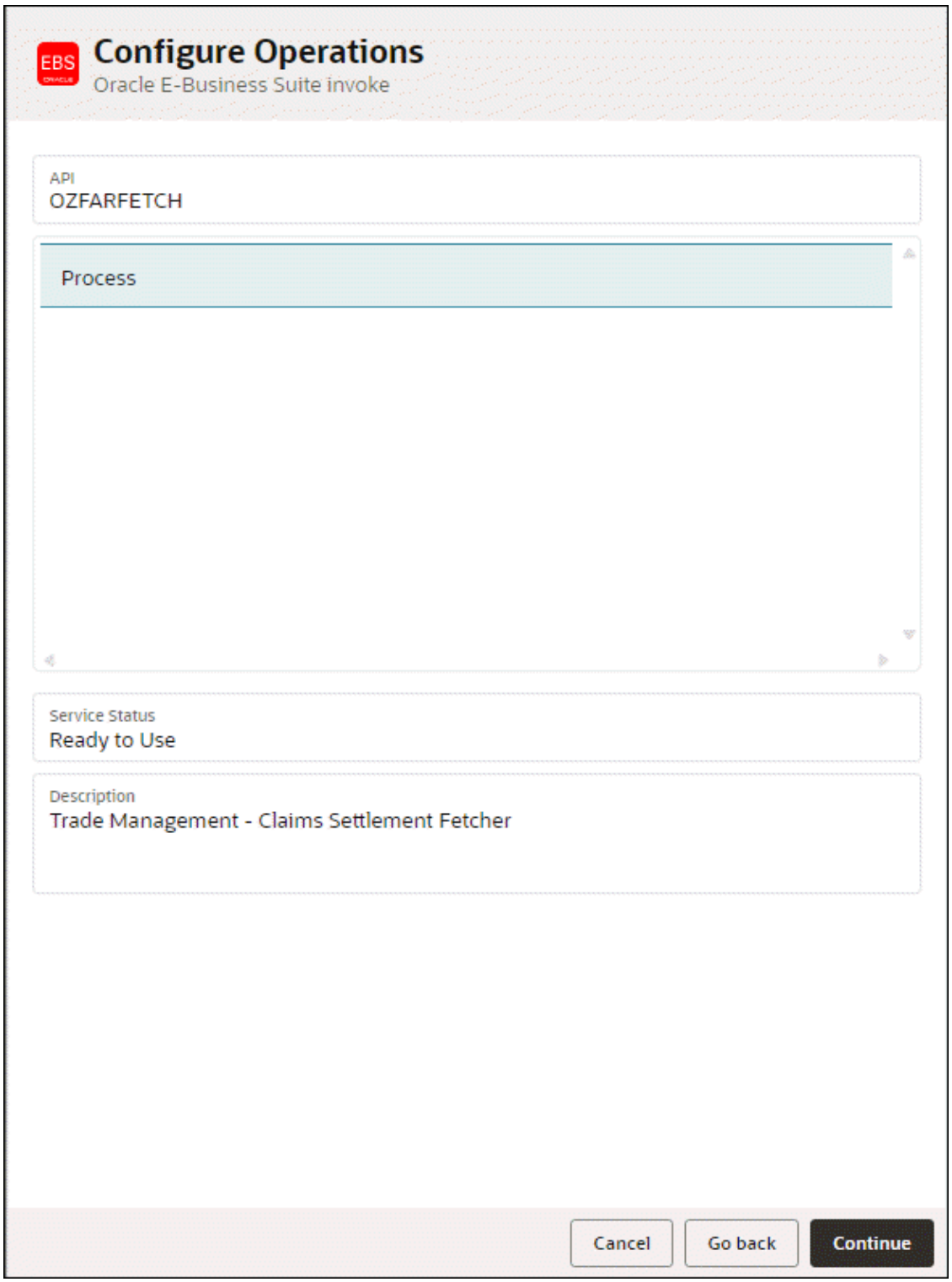
> **Note:**
>
> Similar to PL/SQL APIs, you can define and use custom concurrent programs in integrations in Oracle Integration.

When adding the Oracle E-Business Suite Adapter as an invoke (target) connection, in the Configure Web Services page of the Oracle E-Business Suite Adapter Endpoint Configuration Wizard, you can navigate to a desired product family, such as “Marketing Suite”, and select “Trade Management” as the product name to locate a concurrent program called “Claim Settlement Fetcher Program” for your integration.



If one or more methods contained in the selected “Claim Settlement Fetcher Program” interface are deployed as REST service operations, after you click **Continue**, the Configure Operations page appears. If none of the methods in the selected interface is deployed as a REST service operation, then an error message appears. See: Undeployed REST Service Error Message.

In the Configure Operations page of the Oracle E-Business Suite Adapter Endpoint Configuration Wizard, you can then select a desired service operation, such as “Process” as the method name for your integration.



For more information about using concurrent program REST services in an integration, refer to:

- For more information on configuring the Oracle E-Business Suite Adapter with concurrent program REST services, see Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection.
- For information about error messages if occur while creating an integration with the Oracle E-Business Suite Adapter as an invoke (target) connection in Oracle Integration, see Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration.

Invoke Oracle E-Business Suite Open Interfaces from Oracle Integration

This pattern allows you to directly interact with the Oracle E-Business Suite application data stored in a desired open interface table. When you add the Oracle E-Business Suite Adapter as invoke (target) connections, open interface table and open interface view REST services are available for outbound integrations from Oracle Integration.

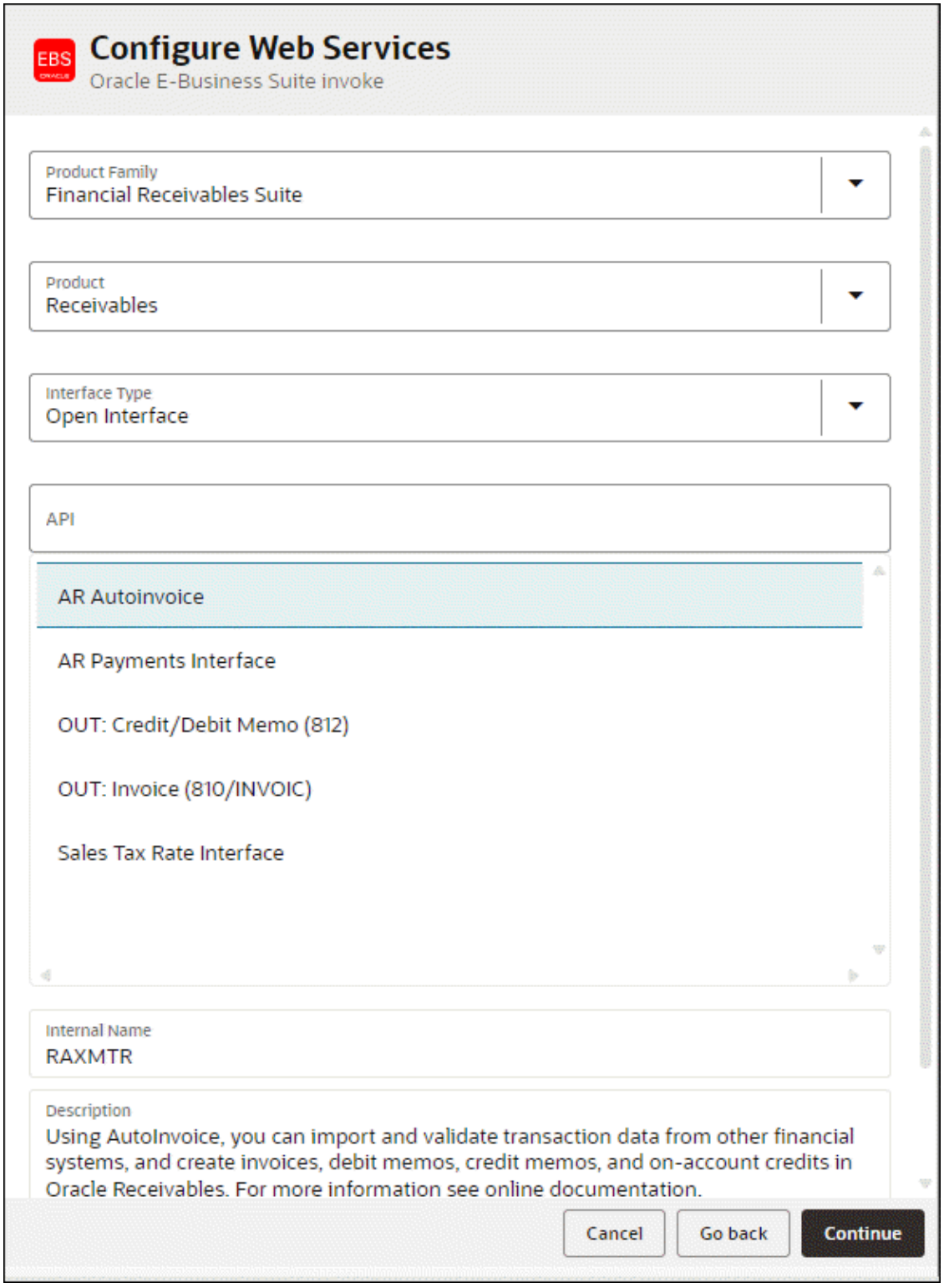
Depending on the direction of a selected open interface table in an integration, you can perform various actions to manage the data.

- You can use an open interface table with `Inbound` direction to **read**, **insert**, **update**, or **remove** data stored in an open interface table.
- You can use an open interface table with `Outbound` direction to only **read** the data stored in the table.

Open interface views are database objects that make data from Oracle E-Business Suite products available for selection. If you use an open interface view in an integration, you can only read the data stored in the selected open interface view.

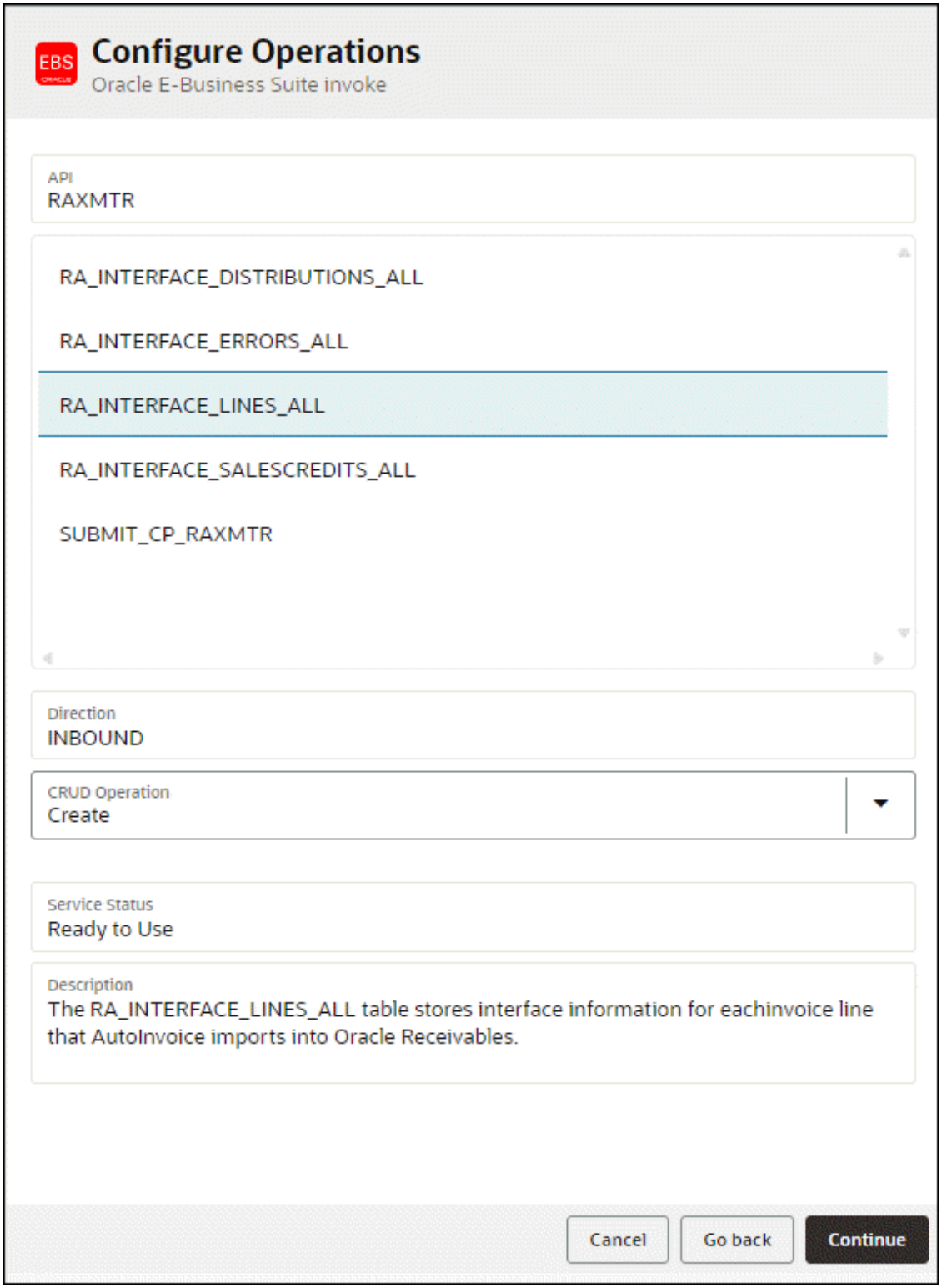
> **Note:**
>
> Custom interface types of open interface tables and open interface views are not supported.

For example, in the Configure Web Services page of the Oracle E-Business Suite Adapter Endpoint Configuration Wizard, select "AR Autoinvoice" open interface from the drop-down list. Its internal name is that of the associated concurrent program (such as “RAXMTR”), and the description is the full description of the associated concurrent program as well.



In the Configure Operations page of the wizard, a list of tables contained in the selected open interface “RAXMTR” is displayed as the methods, along with the associated concurrent program submission `SUBMIT_CP_<internal name of the associated concurrent program>` (such as `SUBMIT_CP_RAXMTR`) shown in the last entry of the list.

> **Note:**
>
> `SUBMIT_CP_<internal name of the associated concurrent program>` is only displayed for an open interface table. This method will not be shown if the selected interface is an open interface view. If the `SUBMIT_CP_RAXMTR` method in this example is selected, then the **Direction** and **CRUD Operation** fields (shown in the screenshot below) are not displayed in this page.



CRUD Operation

- If the selected method is an open interface table with `Inbound` direction, you can select a desired operation (**Create**, **Read**, **Update**, or **Delete**) for that method.

  For information on each CRUD operation, see Oracle E-Business Suite Adapter Configure Operations Page.

Note:

If you select **Read**, **Update**, or **Delete** as its value, you can optionally create filter conditions for the selected method by clicking **Add Filter Conditions** link.

See Create Filters in the Add Filter Conditions Page (Optional).

- If the selected method is an open interface table or view with `Outbound` direction, **Read** is the only available operation and is automatically selected by default.
- If the selected method is `SUBMIT_CP_<internal name of the associated concurrent program>`, this field is not shown.

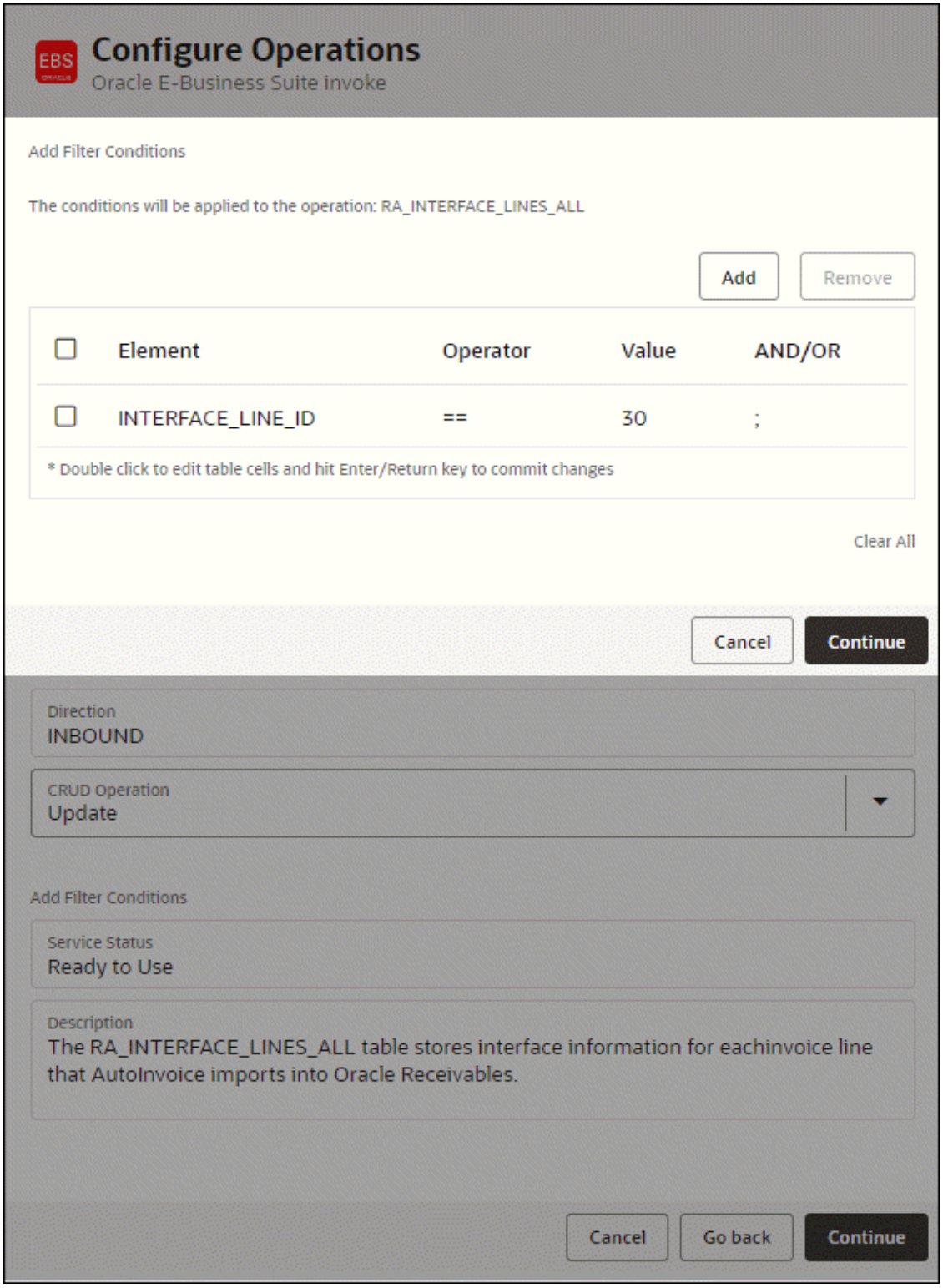
For more information on using open interface tables and open interface views in an integration, refer to:

- For an integration example of using open interface REST services, see An Example of Using an Open Interface REST Service as an Invoke (Target) Connection in an Integration.
- For troubleshooting information while creating an integration with the Oracle E-Business Suite Adapter as an invoke (target) connection in Oracle Integration, see Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration.

Create Filters in the Add Filter Conditions Page (Optional)

If the selected CRUD Operation value for an open interface table or view method is **Read**, **Update**, or **Delete**, you can optionally click the **Add Filter Conditions** link to create conditions to filter the endpoint data before it is passed to the associated REST service for your integration at runtime.

Use the Add Filter Conditions page to specify conditions for your integration.



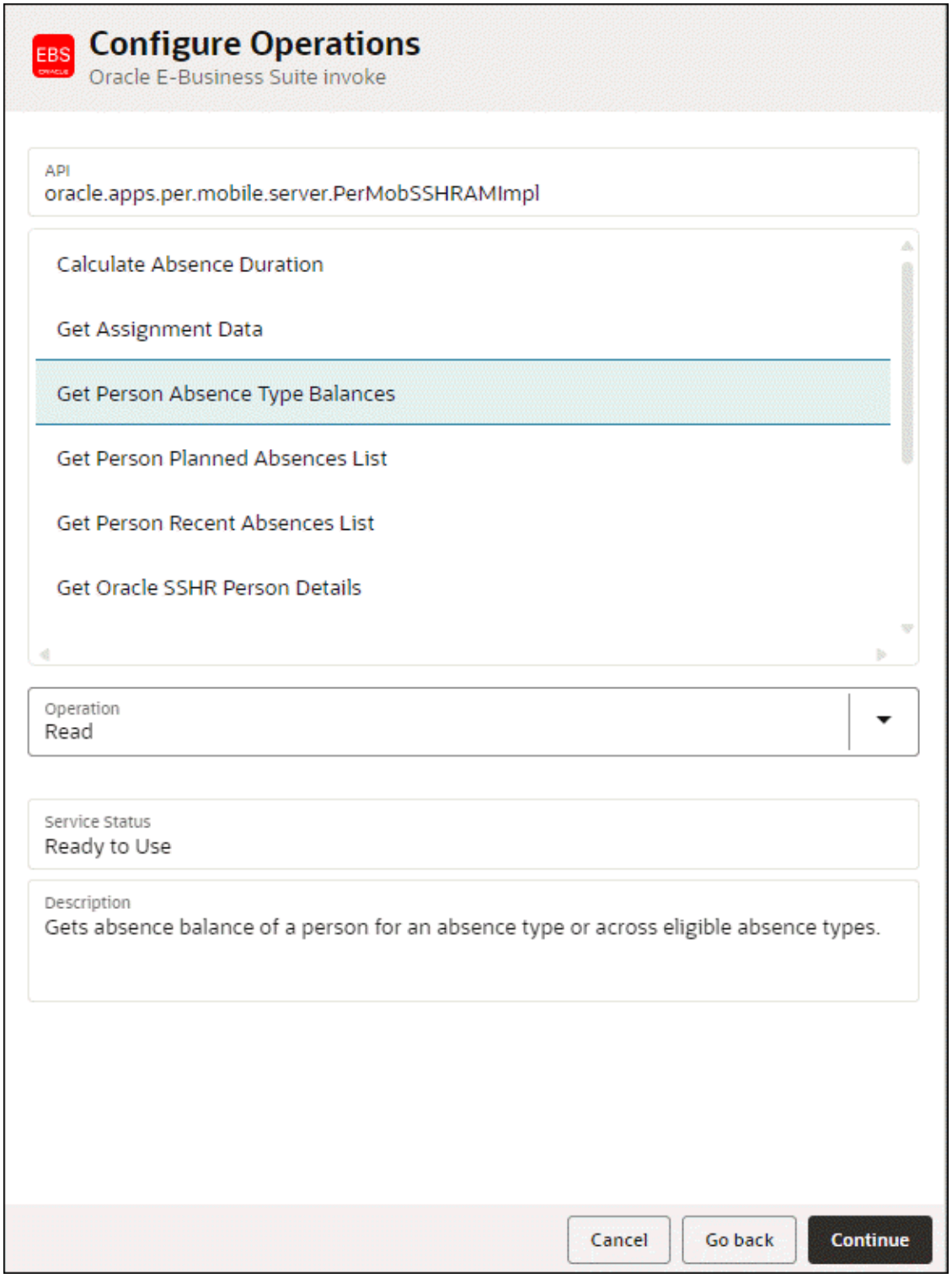
For more information on creating filter conditions, see Oracle E-Business Suite Adapter Operations — Add Filter Conditions Page.

Invoke Oracle E-Business Suite Java APIs from Oracle Integration

When you use the Oracle E-Business Suite Adapter as invoke connections, Java REST services including Java Bean Services, Application Module Services, and Business Service Object subtypes are available for outbound integrations from Oracle Integration. You can use a Java-based REST service to access Oracle E-Business Suite application data to add new entries or fetch existing records to meet your integration needs.

> **Note:**
>
> In addition to Oracle seeded Java APIs, you can use custom Java APIs or REST services for your integration needs.

For example, you can select "Self-Service HR" Java API in the Configure Web Services page of the Oracle E-Business Suite Adapter Endpoint Configuration Wizard, and then select "Get Person Absence Type Balances" as the method in the Configure Operations page of the wizard.



Note that the Operation field appears only if the selected interface is a Java API.

Java REST services support the **Create** (default) and **Read** operations.

For information on how to use these two operations, see Oracle E-Business Suite Adapter Configure Operations Page.

> **Note:**
>
> By default, you cannot perform the **Read** (using the "GET" HTTP verb) operation on all Java methods when using the Oracle E-Business Suite Adapter. Only if HTTP “GET” is enabled for a desired method first, you can deploy that method with the GET option in Oracle E-Business Suite and then can use the **Read** operation from the Oracle E-Business Suite Adapter for an integration. Otherwise, you can use the **Create** operation for the same method if it is deployed as a REST operation in Oracle E-Business Suite. For information on deploying a Java API as a REST service with desired HTTP verbs, see:
>
> - Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*
> - “Annotations for Application Module Services” and “Annotations for Java Bean Services” in Java Annotations, *Oracle E-Business Suite Integrated SOA Gateway Developer's Guide*

For more information on using Java APIs in an integration, refer to:

- For integration examples of using Java REST services, see:
  - Use a Java REST Service of Application Module Service Subtype as an Invoke (Target) Connection
  - Use a Java REST Service of Business Service Object Subtype as an Invoke (Target) Connection
- For troubleshooting information while creating an integration with the Oracle E-Business Suite Adapter as an invoke (target) connection in Oracle Integration, see Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration.

6

Oracle E-Business Suite Adapter Samples

This chapter incudes examples of using the Oracle E-Business Suite Adapter in an integration in Oracle Integration.

Topics:

An Example of Using a Business Event as a Trigger (Source) in an Integration

Sample Business Scenario

A business event "Event for OIP status update notification" (`oracle.apps.ont.oip.statuschange.update`) is used in this example to explain using the Oracle E-Business Suite Adapter to trigger an integration in Oracle Integration.

In this example, when a sales order is booked as part of the business flow, Oracle Order Management raises the event `oracle.apps.ont.oip.statuschange.update`, and a draft invoice is created in Oracle Accounts Receivables.

At the design time, you need to create an integration called "Order to Invoice" with Oracle E-Business Suite Order Management as a trigger (source) connected through the Oracle E-Business Suite Adapter and Oracle E-Business Suite Accounts Receivables as an invoke (target) connected through a generic REST Adapter. The "Order to Invoice" integration will subscribe to this business event.

During the runtime, when the status of the sales order is changed in the order header, the business event `oracle.apps.ont.oip.statuschange.update` is raised in Oracle E-Business Suite Order Management which triggers the integration. If the status of the sales order is "Booked", the order details information is fetched from Oracle E-Business Suite Order Management. The Oracle E-Business Suite Adapter prepares and propagates the order details as event payload from Order Management to invoke the integration endpoint in Oracle Integration. As a result, the draft invoice is created in Oracle Accounts Receivables.

Assumption

- Assume that REST services are directly accessible from Oracle Integration; therefore, the Oracle Integration connectivity agent is not used in this example.

- Oracle E-Business Suite Order Management and Oracle E-Business Suite Accounts Receivables are two different instances used in this example.

Based on the integration scenario, the sample tasks for using an Oracle E-Business Suite business event in an integration are included in the Topics section:

Topics:

1. Prepare the Oracle E-Business Suite Instances
2. Establish Oracle E-Businss Suite Connections
3. Create an Integration
4. Add the Oracle E-Business Suite Adapter (Trigger) and the REST Adapter (Invoke) to the Integration
5. Create Mappings
6. Assign a Business Identifier for Tracking
7. Activate and Test the Integration
8. Sample XSD for the Oracle E-Business Suite Adapter as a Trigger with a Business Event Example

Prepare the Oracle E-Business Suite Instances

Before adding Oracle E-Business Suite connections, you must prepare the following Oracle E-Business Suite instances to ensure the required setup or configuration is in place.

- Prepare the Order Management Instance
- Prepare the Oracle Accounts Receivables Instance

Prepare the Order Management Instance

Perform the following tasks to ensure the required setup and configuration for Oracle E-Business Suite Order Management is ready for integrations in Oracle Integration:

1. Ensure that you perform the required setup tasks to enable the Oracle E-Business Suite Adapter.

   These tasks include configuring Oracle E-Business Suite REST services, configuring the access to these services, deploying required REST services in Oracle E-Business Suite, and granting the user privileges to these services.

   Specifically, ensure that you deploy the following REST services and have grants for the **operations** user:

   - Metadata Provider REST service
     - Deploy the Metadata Provider API with "**provider**" as the service alias name
     - Deploy the Metadata Provider API with **GET** HTTP method for **all** the methods contained in the API
     - Grant the access privileges for **all** the methods contained in the API to the **operations** user
   - Event Manager REST service
     - Deploy the Event Manager API with "**subscription**" as the service alias name

- Deploy the Event Manager API with **POST** HTTP method for **all** the methods contained in the API
- Grant the access privileges for **all** the methods contained in the API to the **operations** user

For detailed instructions on these tasks, see: Setup Tasks for Enabling the Oracle E-Business Suite Adapter.

2. Ensure that you perform the required setup tasks to enable the inbound (trigger or source) integrations.

   These tasks include storing the Oracle Integration user credentials in Oracle E-Business Suite FND vault, setting up proxy URLs in Oracle E-Business Suite, and importing TLS certificates to Oracle E-Business Suite. For detailed instructions, see: Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection.

3. Deploy the Order Management API, OE_ORDER_PUB (Process Order), as a REST service and grant the method access privileges to the **operations** user.

   In this example, only grant the "Get Order" method contained in the API to the **operations** user.

4. Ensure that the profile option "OM: Raise Status Change Business Event" is set to Yes.

Prepare the Oracle Accounts Receivables Instance

Perform the following tasks to ensure the required setup and configuration for Oracle E-Business Suite Accounts Receivables is ready to use in an integration in Oracle Integration:

1. Configure Oracle E-Business Suite Integrated SOA Gateway REST services.

   Follow the setup tasks as described in My Oracle Support Knowledge Document 556540.1 to configure Oracle E-Business Suite Integrated SOA Gateway Release 12.1.3 and apply the REST service patches to enable the REST service feature. For more information, see step 1, as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.

2. Deploy the Invoice Creation API as a REST service with the following requirements and grant the desired method access privilege to the **`operations`** user:

   - Deploy the Invoice Creation API with "**`invoice`**" as the service alias name
   - Deploy the Invoice Creation API with **`POST`** HTTP method only for the "`Create Single Invoice`" method contained in the API

     Note: PL/SQL APIs can be exposed as REST services only with POST HTTP method.
   - Grant the access privilege only for the `Create Single Invoice` method contained in the API to the **`operations`** user

   For information on deploying REST services, see Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

   For information on creating security grants for REST services, see Managing Grants for Interfaces with Support for SOAP and REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

Establish Oracle E-Business Suite Connections

Before creating an integration, you need to establish the following connections that will be used later in this example:

- Create the Connection for Oracle E-Business Suite Order Management

- Create the Connection for Oracle E-Business Suite Accounts Receivables

Create the Connection for Oracle E-Business Suite Order Management

This section describes how to create a connection for the Oracle E-Business Suite Order Management instance by using the Oracle E-Business Suite Adapter. This connection will be added later as a trigger (source) in an integration.

Perform the following steps to establish the connection for Oracle E-Business Suite Order Management in Oracle Integration:

1. In the navigation pane, click **Design**, then **Connections**.
2. On the Connections page, click **Create**.
3. In the Create connection panel, locate the Oracle E-Business Suite Adapter by entering a full or partial name to locate "Oracle E-Business Suite". For example, enter "Oracle E-Business Suite" in the Search field. The Oracle E-Business Suite Adapter is filtered from a list of adapters.

   Click Oracle E-Business Suite Adapter to enter the connection details.
4. In the Create connection panel, enter the following information for the Oracle E-Business Suite Order Management connection:
   - **Name:** Enter "Order Management".
   - **Identifier:** Accept the default populated identifier such as, ORDER_MANAGEMENT".
   - **Role:** Select the "Trigger and Invoke" role for this connection.
   - **Keywords:** Enter "Order Management".
   - **Description:** Enter "Create an Oracle E-Business Suite Order Management connection" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

   Click **Create** to create the connection.
5. The Connection details page is displayed for the "Order Management" connection you just created. Enter additional connection details by specifying the following information:
   - In the Properties section, enter a URL (`http://<Oracle E-Business Suite host name>:<port>`) to connect to an Oracle E-Business Suite Order Management instance.
   - In the Security section, enter **`operations`** as the user name and its associated password to access the Oracle E-Business Suite

     Order Management instance you specified earlier in the Properties section.
6. Click **Test** to test the "Order Management" connection you just specified.
7. When complete, click **Save**.

The Oracle E-Business Suite connection "Order Management" now appears.

Create the Connection for Oracle E-Business Suite Accounts Receivables

As described earlier that Oracle E-Business Suite Order Management and Accounts Receivables are two different instances used in this example, you need to create a connection for the Oracle Accounts Receivables instance by using the REST Adapter. This connection will be added later as an invoke (target) to an integration.

1. In the navigation pane, click **Design**, then **Connections**.
2. Click **Create**.
3. In the Create connection panel, enter "REST" in the Search field. The REST Adapter is filtered from a list of adapters.

   Click "REST" for the REST Adapter.
4. In the Create connection panel, enter the following information for the Oracle E-Business Suite Accounts Receivables connection:
   - **Name:** Enter "Receivables" as the connection name.
   - **Identifier:** Accept the default populated identifier such as "RECEIVABLES".
   - **Role:** Select the "Trigger and Invoke" role for this connection.
   - **Keywords:** Enter "Receivables".
   - **Description:** Enter "Create a connection for Oracle E-Business Suite Receivables" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

   Click **Create** to create the connection.
5. The Connection details page is displayed for the "Receivables" connection you just created. Enter additional connection details by specifying the following information:
   - In the Properties section, enter the following information:
     - **Connection Type:** Select "REST API Base URL".
     - **Connection URL:** Enter a connection URL (`http://<Oracle E-Business Suite host name>:<port>/webservices/rest/invoice`) for the Invoice Creation REST service with `invoice` alias name that you deployed earlier while preparing the Receivables instance.
   - In the Security section, accept the "Basic Authentication" as the default security policy.

     Enter **operations** as the user name and its associated password to access the Invoice Creation REST service you specified earlier in the Properties section.
6. Click **Test** to test the connection you just specified for Oracle E-Business Suite Accounts Receivables.
7. When complete, click **Save**.

The Oracle E-Business Suite connection "Receivables" now appears.

Create an Integration

Based on the business scenario described earlier, you need to create an integration called "Order to Invoice" with the Application pattern. This pattern allows you to orchestrate trigger, invoke, and switch activities if required into a process diagram in an integration. You can also add mappings on switch branches later if needed.

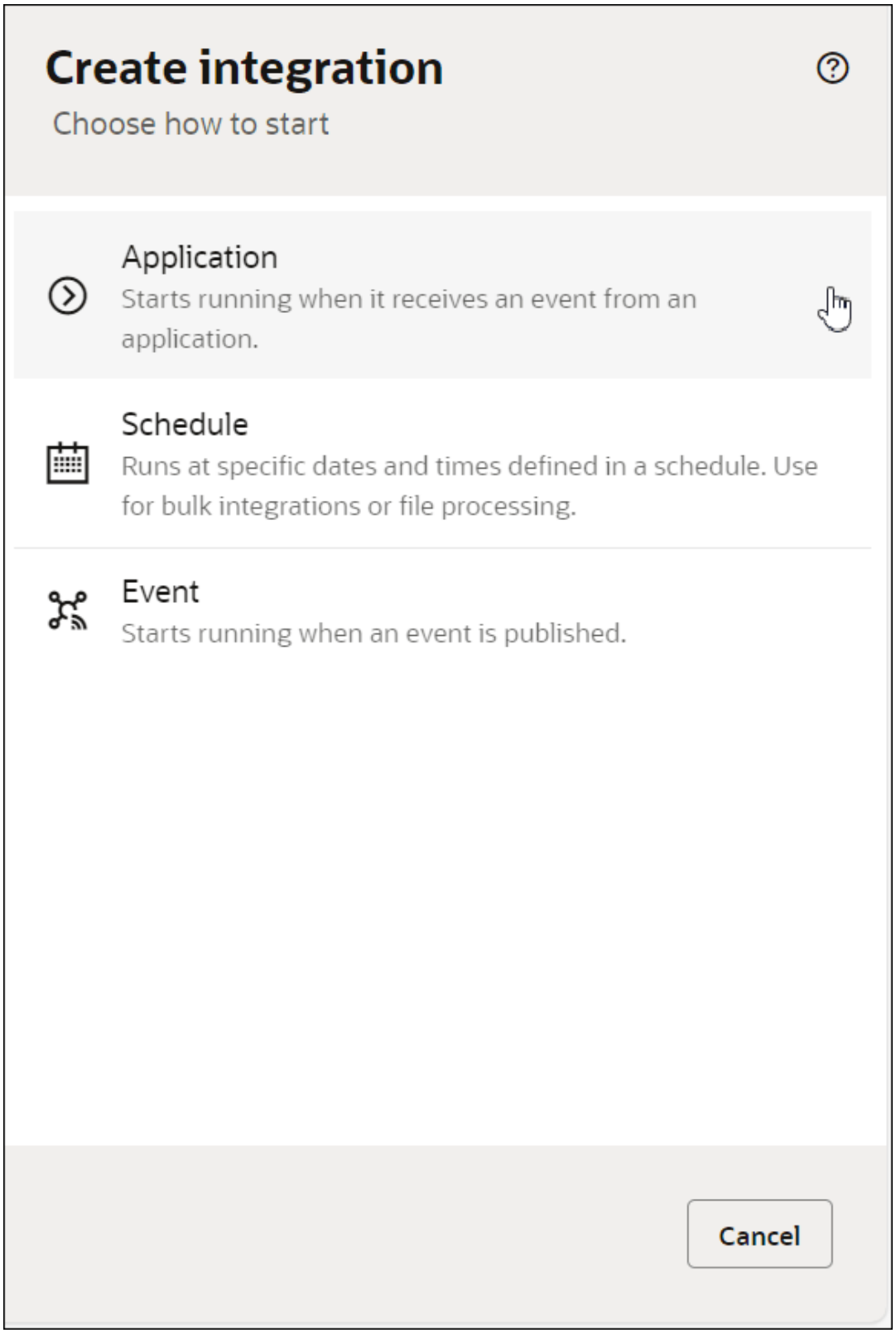
This section describes how to create an integration with the Application pattern. Information on adding each activity in the diagram is explained later in this chapter.

Perform the following steps to create an integration:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, click **Create**.

The Create integration panel opens.

3. Select the "Application" integration pattern for use in this example and click **Create**.



4. Enter the following information:
   - **Name**: Enter a meaningful name for your integration, such as "Order to Invoice".
   - **Identifier**: Accept the default identifier value "ORDER_TO_INVOICE".
   - **Version**: Accept the default version number.
   - **Documentation URL**: Leave this blank.
   - **Keywords**: Leave this blank.
   - **Package**: Leave this blank.
   - **Description**: Enter "Create an integration for order to invoice" as the description for this integration.
   - **Available to other projects**: Do *not* select this checkbox in this example so that this integration is only used within the same project. It will not be available to other projects.
5. Click **Create**. An empty canvas is displayed.

To complete the integration:

- Add the desired connections to the integration you just created.

  See: Add the Oracle E-Business Suite Adapter (Trigger) and the REST Adapter (Invoke) to the Integration.
- Add mappings in the integration.

  See: Create Mappings.
- Assign business identifiers for tracking.

  See: Assign a Business Identifier for Tracking.

Add the Oracle E-Business Suite Adapter (Trigger) and the REST Adapter (Invoke) to the Integration

In this example, the orchestration flow diagram created for this integration includes the following activities:

- The Oracle E-Business Suite Adapter as a trigger activity called "Order_Status_Update" for the Oracle E-Business Suite Order Management instance

  This trigger activity uses the business event `oracle.apps.ont.oip.statuschange.update` through the Oracle E-Business Suite Adapter. When the status of a sales order is updated, Oracle Order Management raises this event.

  See: Add the Oracle E-Business Suite Adapter as a Trigger with a Business Event.
- A switch added with two branches
  - The defined branch called "Booked Order" is the major orchestration flow for the integration.
  - The Otherwise branch is not used in this example.

  See: Add a Switch with Two Branch Rules.
- Mappings defined for "Get_Order"

  It allows you to map and pass the order related parameters to the "Get_Order" activity to invoke the GET_ORDER REST Service.

See: Create Mappings.

- The Oracle E-Business Suite Adapter as an invoke activity called "Get_Order" for the Oracle E-Business Suite Order Management instance.

  This invoke activity uses the GET_ORDER operation of the Process Order (OE_ORDER_PUB) REST service when adding the Oracle E-Business Suite Adapter as an invoke. This service retrieves the sales order information.

  See: Add the Oracle E-Business Suite Adapter as an Invoke for the "Get_Order" Activity.

- Mappings defined for "Create_Invoice"

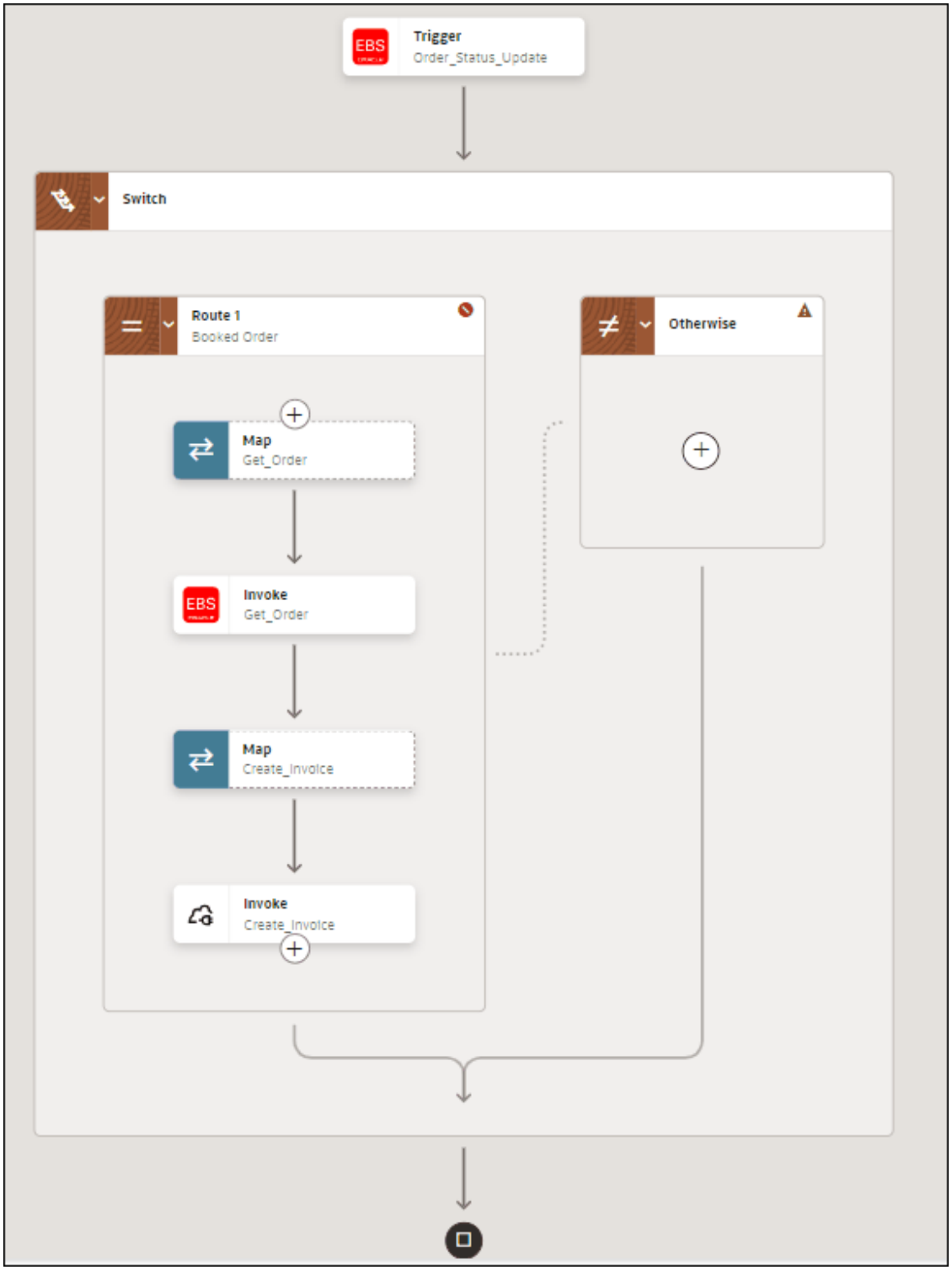
  This activity assigns the sales order related elements from the "Get_Order" activity to the Invoice related elements in the "Create_Invoice" activity.

  See: Create Mappings.

- The REST Adapter as an invoke activity called "Create_Invoice" for the Oracle E-Business Suite Accounts Receivables instance

  This activity configures a request payload using the XML schema file type and then creates an invoice in Oracle Accounts Receivables through the invocation of the CREATE_SINGLE_INVOICE REST service.

  See: Add the REST Adapter as an Invoke for the "Receivables" Activity.



Topics:

- Add the Oracle E-Business Suite Adapter as a Trigger with a Business Event
- Add a Switch with Two Branch Rules
- Create Mappings
- Add the Oracle E-Business Suite Adapter as an Invoke for the "Get_Order" Activity

- Add the REST Adapter as an Invoke for the "Receivables" Activity

Add the Oracle E-Business Suite Adapter as a Trigger with a Business Event

Perform the following steps to add the first activity called "Order_Status_Update" for the Oracle E-Business Suite Order Management connection:

1. In the "Order to Invoice" integration canvas, click the **+** sign in the integration canvas or click **Triggers** on the side of the canvas. A list of trigger connections appears.
2. Search the Oracle E-Business Suite connection called "Order Management" from the list of selection. The Oracle E-Business Suite Adapter Endpoint Configuration Wizard appears.
3. Enter the following information in the Configure Basic Info page:
   - **What do you want to call your endpoint?** - Enter "Order_Status_Update" as the endpoint name.
   - **What does this endpoint do?** - Enter the description of this integration endpoint.
   - **What do you want to configure the endpoint for?** - Select **Business Event**.

   Click **Continue** to proceed with the rest of the configuration.
4. In the Configure Business Events page, specify the following information for your connection:
   - **Product Family:** Select "Order Management Suite" from the drop-down list.
   - **Product:** Select "Order Management" from the drop-down list.
   - **Business Event:** Select "Event for OIP status update notification" from the populated list.

     After you select an event name, the corresponding event information, including internal name (`oracle.apps.ont.oip.statuschange.update`), event status “Enabled”, and description, is automatically populated in this page.

   Click **Continue**.
5. The Summary page appears with the selected event information. The Oracle E-Business Suite Adapter source endpoint configuration is successfully created with the selected event.

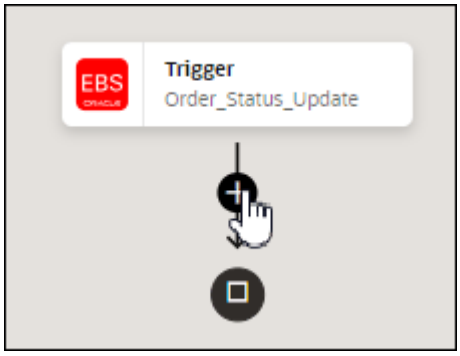
   Click **Finish**.

   The "Order_Status_Update" endpoint now appears as a trigger in the integration flow.

Add a Switch with Two Branch Rules

Perform the following steps to add a Switch:

1. Hover over the line between the Order_Status_Update element and an End icon to display a **+** sign. Click the **+** sign.



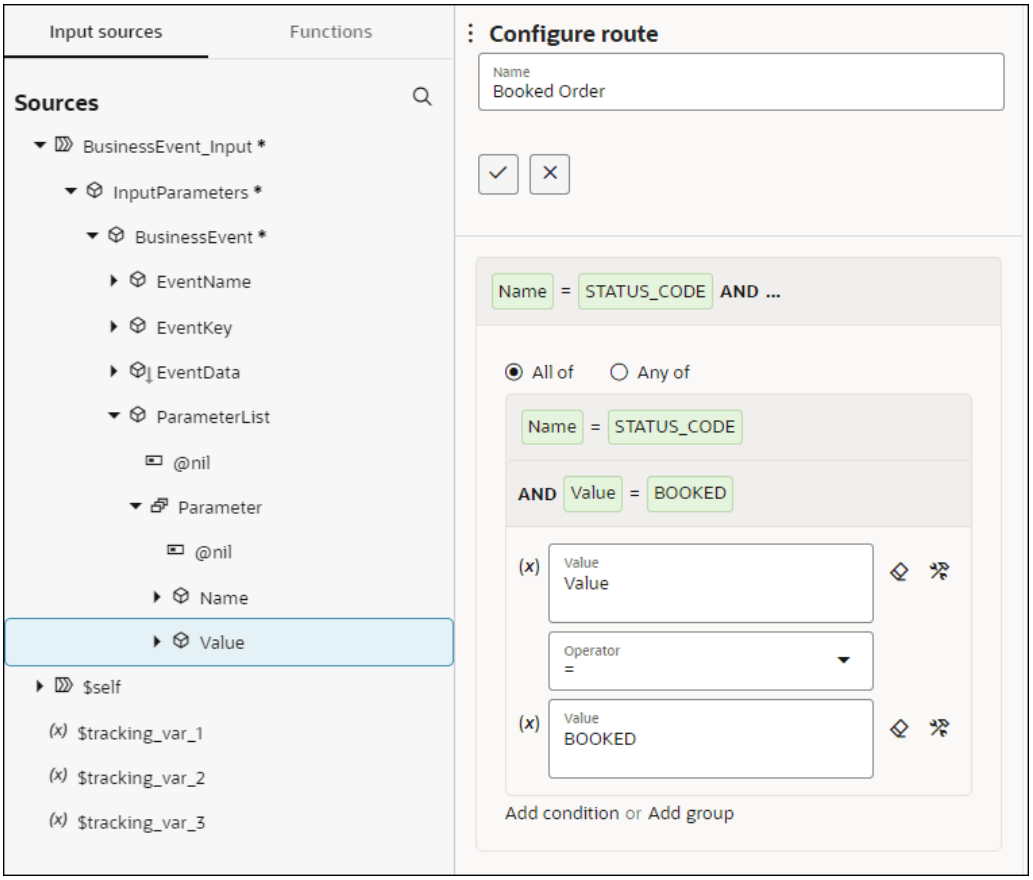
Select the **Actions** tab, then **Switch** from a menu option. This adds the **Switch** icon to the integration right after the Order_Status_Update activity.

Note that you can also create a Switch action by clicking **Actions** and drag the **Switch** action from the right side of the canvas to the integration right after the Order_Status_Update activity.

2. In the Switch action, click the **Actions** icon (…), then select **Add**, and then **Otherwise** to display two branches.
3. From the Route 1 branch, click the **Actions** icon (…), then select **edit**. This invokes the **Input Sources** tree and the Configure route panel.
4. In the Configure route panel, enter the following information to create the condition: `All of Name = 'STATUS_CODE'` and `Value = 'BOOKED'`:
   - Enter "Booked Order" as the Name.
   - In Source section of the **Input Sources** tree, expand the **BusinessEvent_Input** node, then the **InputParameters** node, then the **BusinessEvent** node, then the **ParameterList** node, and then the **Parameter** node.
     a. Drag and drop the **Name** element from the tree to the upper **Value** field in the Configure Route panel.
        – Select = from the drop-down list.
        – Enter `'STATUS_CODE'` in the lower **Value** field as the condition value.

        Click **Add Condition**.
     b. Drag and drop the **Value** element from the tree to the upper **Value** field in the Configure Route panel.
        – Select = from the drop-down list.
        – Enter `'BOOKED'` in the lower **Value** field as the condition value.

        Click **Add Condition**.
   - Select **All of** as the match list.



Click **Apply** and then **Save** to save your work.

Add the Oracle E-Business Suite Adapter as an Invoke for the "Get_Order" Activity

Perform the following steps to add the Oracle E-Business Suite Adapter as an invoke connection:

1. Click the + sign right after the Booked Order rule you created earlier. Locate the Oracle E-Business Suite connection "Order Management" from the Trigger section.

   The Oracle E-Business Suite Adapter Endpoint Configuration Wizard appears.

2. In the Configure Basic Info page, enter the following information:
   - **What do you want to call your endpoint?** - Enter "Get_Order" as the endpoint name.
   - **What does this endpoint do?** - Enter the description of this integration endpoint, such as "Get an order in Oracle E-Business Suite".

   Click **Continue**.

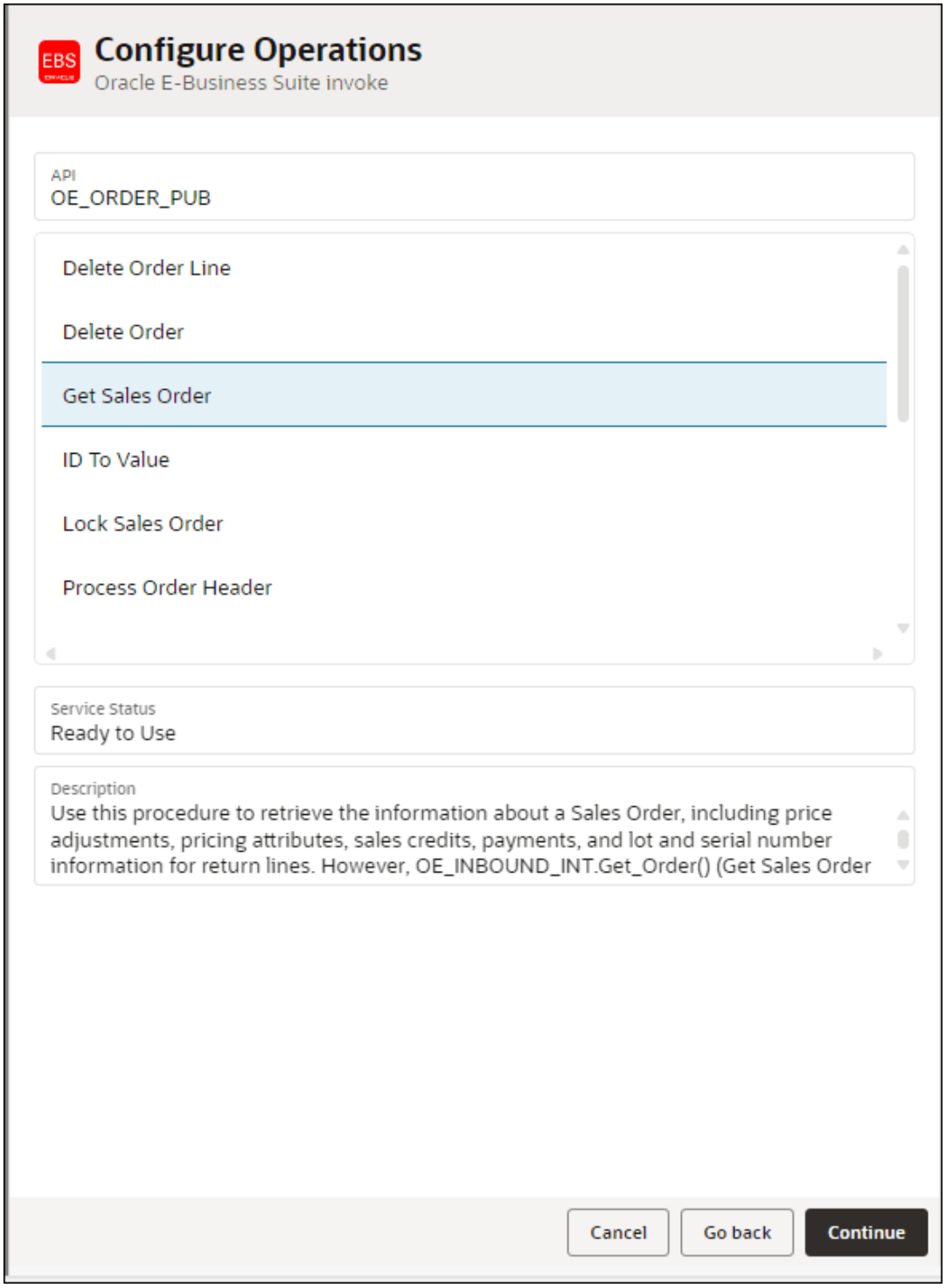
3. In the Configure Web Services page, specify the following information for your target connection:
   - **Product Family:** Select "Order Management Suite" from the drop-down list.
   - **Product:** Select "Order Management".
   - **Interface Type:** Select "PL/SQL".
   - **API:** Select "Process Order API" from the populated list for this example.

The corresponding API internal name (OE_ORDER_PUB) and description are automatically populated.

Click **Continue**.

4. In the Configure Operations page, select a desired method name contained in the selected API (OE_ORDER_PUB). For example, select "GET_ORDER". The corresponding service status value "Ready to Use" is displayed in this page, along with the description information.

> **Note:**
>
> The Service Status of the selected method GET_ORDER should be "Ready to Use".



Click **Continue**.

5. The Summary page displays the selected API information. This includes the selected product family name (Order Management Suite), product name (Order Management), web service name (OE_ORDER_PUB), integration pattern (Synchronous), operation name (GET_ORDER), and the operation status (Ready to Use).

   Click **Finish**.

The "Get_Order" activity for Order Management now appears as part of the integration flow, along with the "Get_Order" map icon where you can define the mapping later. See: Create Mappings.

Add the REST Adapter as an Invoke for the "Receivables" Activity

Perform the following steps to add the REST Adapter as an invoke connection:

1. Hover your cursor over the lines after the "Get_Order" activity that you just created, and then click the **+** sign. A list of invoke connections appears. Select the Oracle E-Business Suite connection "Receivables" from the list of selection.

   The Oracle REST Adapter Endpoint Configuration Wizard appears. Enter the following information in the Configure Basic Info page:

   - **What do you want to call your endpoint?** - Enter the name of this endpoint, such as "Create_Invoice".
   - **What does this endpoint do?** - Enter the usage of this endpoint, such as "Provide REST endpoint with input payload for invoice creation".
   - **Select to configure multiple resources or verbs (maximum 11)?** - Leave this field unchecked.

   Click **Continue**.

2. In the Configure Resource Configuration page, enter the following information:

   - **What does this operation do?** - Enter the usage of this operation, such as "Provide REST endpoint with input payload for invoice creation".
   - **What is the endpoint's relative resource URI?** - Enter "`/create_single_invoice/`".
   - **What action do you want to perform on the endpoint?** - Select "POST" from the drop-down list.
   - **Configure a request payload for this endpoint** - Select this checkbox indicating that a request payload is required in this activity.

3. In the Configure Request page, perform the following tasks:

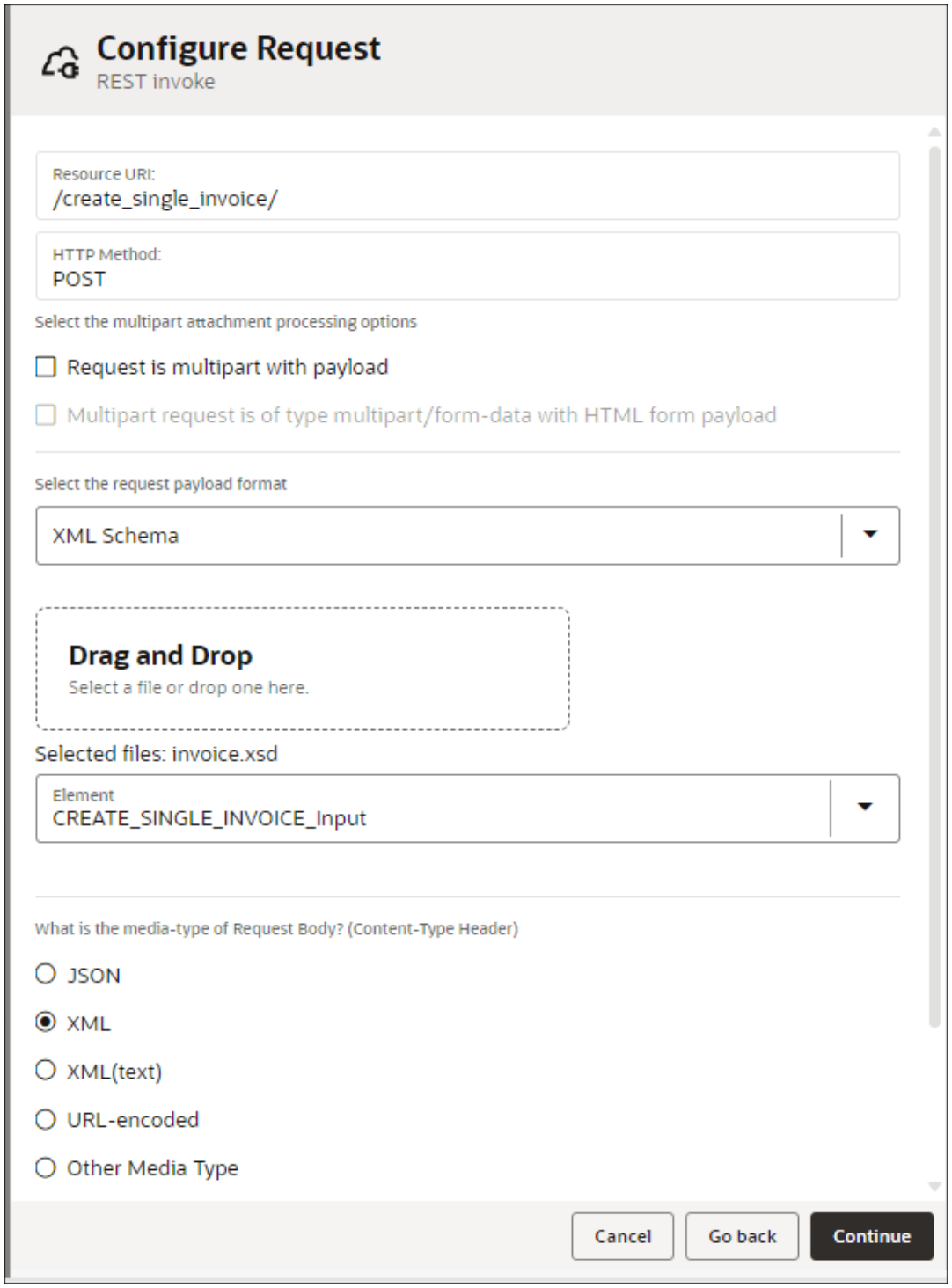
   - In the "Select the request payload file" section, select the **XML schema** radio button.

     Please note that the request payload file type can be either XML schema or JSON format.

   - Browse and select the sample XSD for the Create Invoice REST service.

     For the sample XSD information, see Sample XSD for the Oracle E-Business Suite Adapter as a Trigger with a Business Event Example.

   - In the Element field, select "CREATE_SINGLE_INVOICE_Input" from the drop-down list.
   - In the "Select the type of payload with which you want the endpoint to receive" section, select the **XML** button as the payload type.



In this example, we do not need to configure this endpoint to receive Response.

4. Click **Continue**. This displays the Summary page with the following REST service information that you specified earlier. Click **Finish**.

   The "Create_Invoice" activity appears in the integration flow, listed as the last activity in the Booked Order rule.

   Similar to the "Get_Order" activity, the "Create_Invoice" map icon also appears (along with the "Create_Invoice" activity) where you can define the mapping later. See: Create Mappings.

Save the integration.

At the end of this step, the integration flow contains the activities added in this section.

Create Mappings

Oracle E-Business Suite Business Event is defined by the `WF_EVENT_T` data structure. After adding the required connections to the integration, you need to create the following mappings to pass the required parameter values to the subsequent REST services:

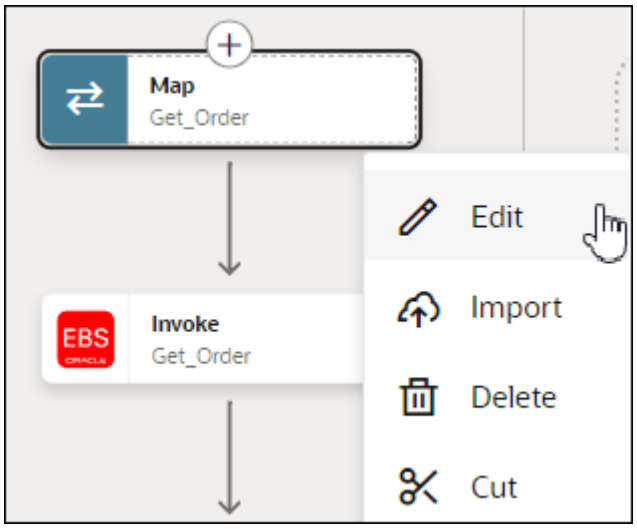
- Define mappings for `Get_Order`
- Define mappings for `Create_Invoice`

Create Mappings for `Get_Order`

In this example, a sales order Header Id is available as one of the business event parameters. In `WF_EVENT_T`, event parameters are available as `Name-Value` pair in repeating Parameter element. To obtain the value of the Header Id parameter and pass it to the subsequent `Get_Order` service call, you need to create mappings for `Get_Order`.

1. In the `Order_Status_Update` integration flow, click **edit** for the `Map to Get_Order` icon.

   The mapper is displayed.



2. In the mapper, the business event related elements are displayed in the Source section, whereas the `Get_Order` related parameters are listed in the Target area. To obtain the value of the sales order Header Id (`P_HEADER_ID`) included as part of the event parameters and pass it to the subsequent `Get_Order` REST service, you need to define the XSL expression for the `P_HEADER_ID` parameter.
3. Define the XSL expression for the P_HEADER_ID parameter by performing the following tasks:
   a. In the Target section, expand the **GET_ORDER Request (Oracle E-Business Suite)** node, and then the **InputParameters** node. Click the **P_HEADER_ID** element to open the Build Mappings page.
   b. In the Mapping area of the Build Mappings page, notice that the **P_HEADER_ID** element is displayed as the Target element.

c. In Source section of the Build Mappings page, expand the **BusinessEvent_Input** node, then the **InputParameters** node, then the **BusinessEvent** node, then the **ParameterList** node, and then the **Parameter** node.

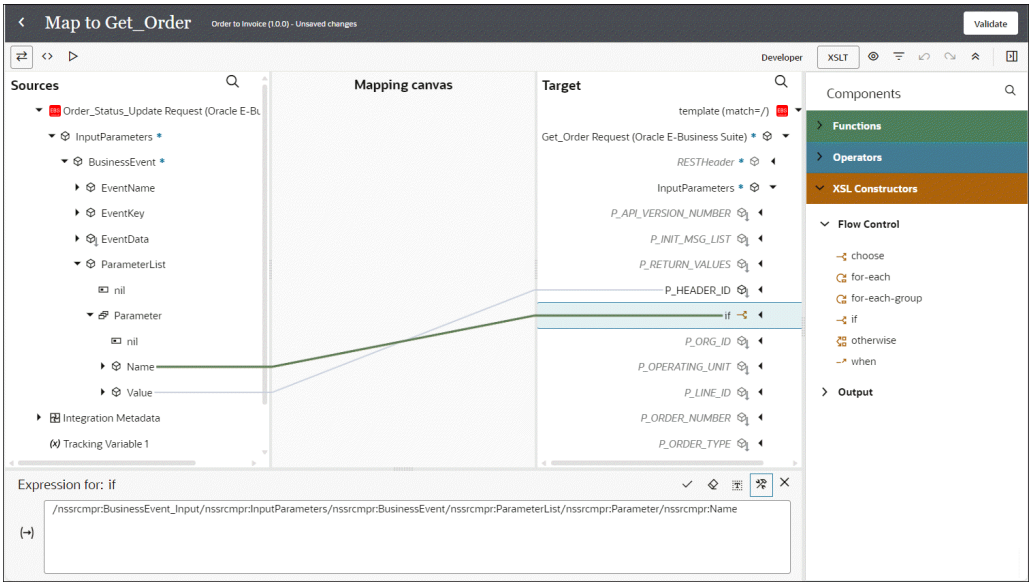
d. Drag and drop the **Value** element from the Source section to the Mapping section as the value for the **P_HEADER_ID** element.

e. Right-click the **P_HEADER_ID** element and select **Create Target Node** from the drop-down menu. Click **Toggle functions** and then **XSLT**. Expand **XSLT Constructors**. Drag and drop the XSL element "`if`" to the **P_HEADER_ID** element. Drag and drop the **Name** element from the Source section to the `if` element to define the XSL expression `<xsl:if test="nssrcmpr:Name='HEADER_ID'">`.

f. Similarly, drag and drop the XSL element "`for-each`" from the Source section to the Target section to define the XSL expression `<xsl:for-each select="/nssrcmpr:BusinessEvent_Input/nssrcmpr:InputParameters/nssrcmpr:BusinessEvent/nssrcmpr:ParameterList/nssrcmpr:Parameter">`.

g. Save your work.

Expand the nodes to ensure that the P_HEADER_ID parameter is included as part of the structure.



4. Perform the following tasks to assign constant values to the target elements:

a. In the Target section, expand the **GET_ORDER Request (Oracle E-Business Suite)** node, and then the **RESTHeader** node.

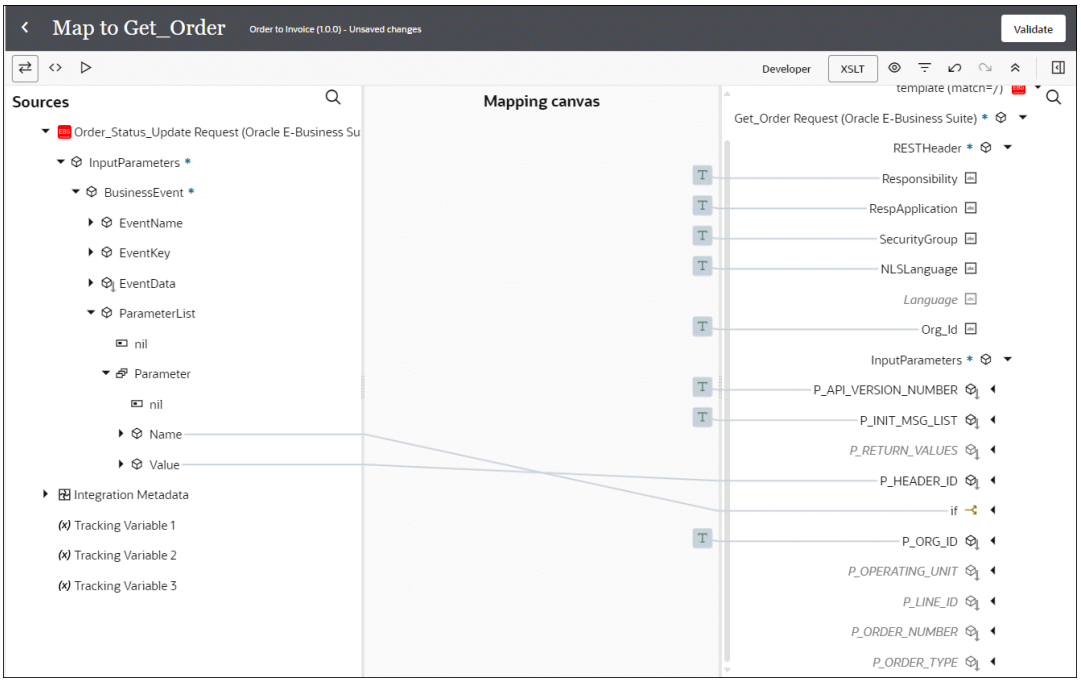
Right-click the **Responsibility** element and then select **Create Target Node** from the drop-down menu.

b. In the Expression Builder at the bottom of the page, click the "Switch to Developer View" icon and then enter `'ORDER_MGMT_SUPER_USER'` for the **Responsibility** element. A **function** icon is added to the Mapping Canvas section for the target **Responsibility** element node.

Similarly, use the same approach to assign appropriate values to the target elements listed in the following table:

Path	Element	Value
GET_ORDER Request (Oracle E-Business Suite)/RESTHeader	RespApplication	'ONT'
GET_ORDER Request (Oracle E-Business Suite)/RESTHeader	SecurityGroup	'STANDARD'
GET_ORDER Request (Oracle E-Business Suite)/RESTHeader	NLSLanguage	'AMERICAN'
GET_ORDER Request (Oracle E-Business Suite)/RESTHeader	Org_Id	'204'
GET_ORDER Request (Oracle E-Business Suite)/ InputParameters	P_API_VERSION_NUMBER	'1.0'
GET_ORDER Request (Oracle E-Business Suite)/ InputParameters	P_INIT_MSG_LIST	'F'
GET_ORDER Request (Oracle E-Business Suite)/ InputParameters	P_ORG_ID	'204'

After you complete the mappings for `Get_Order`, the function icons should appear in the Mapping Canvas section for the corresponding target element nodes.



5. Click **Validate** and then **Save** to save your changes when prompted.

Create Mappings for `Create_Invoice`

Perform the following steps to create the mappings:

1. In the Order_Status_Update integration flow, click **edit** for the **`Map to Create_Invoice`** icon.

   The mapper appears.

2. Assign constant values to the target elements.

a. In the Target section, expand the **Create_Invoice Request (REST)** node, then the **CREATESINGLEINVOICE Input** node, and then the **RESTHeader** node.

   Right-click the **Responsibility** element and then select **Create Target Node** from the drop-down menu.

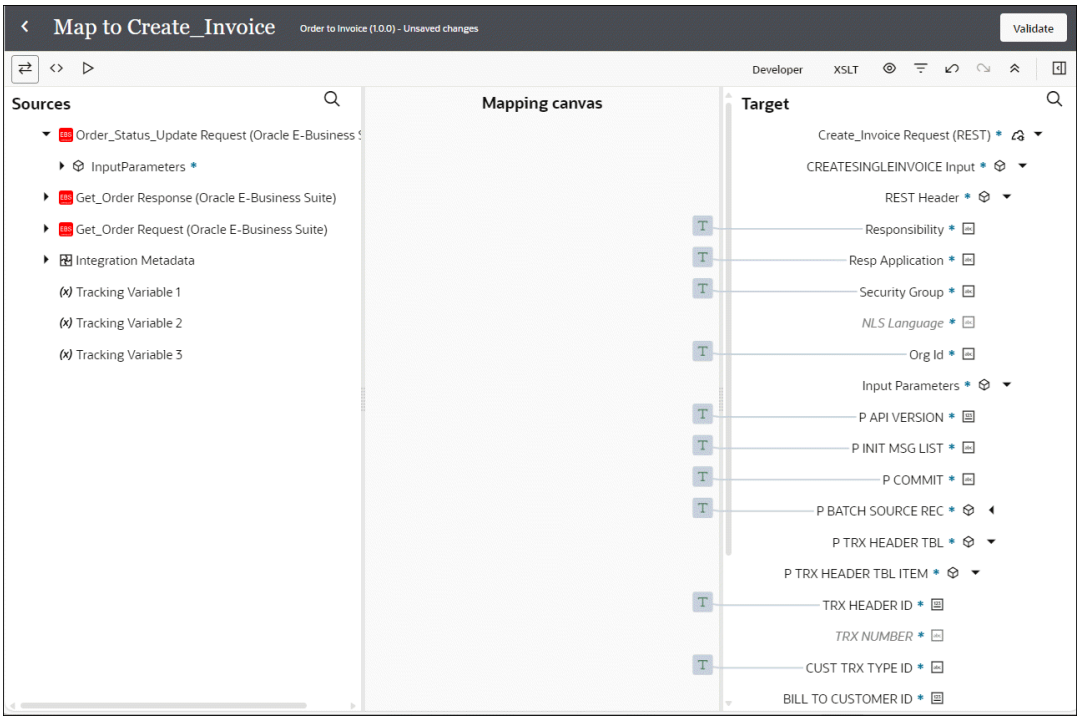
b. In the Expression Builder at the bottom of the page, click the "Switch to Developer View" icon and then enter `'RECEIVABLES_VISION_OPERATIONS'` for the **Responsibility** element.
   A **function** icon is added to the Mapping Canvas section for the target **Responsibility** element node.

Similarly, use the same approach to assign appropriate values to the target elements listed in the following table:

Path	Element	Value
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/RESTHeader	RespApplication	'AR'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/RESTHeader	SecurityGroup	'STANDARD'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/RESTHeader	NLSLanguage	'AMERICAN'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/RESTHeader	Org_Id	'204'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters	P_API_VERSION	'1.0'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters	P_INIT_MSG_LIST	'T'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters	P_COMMIT	'T'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters/ P_BATCH_SOURCE_REC	BATCH_SOURCE_ID	'1188'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters/ P_TRX_HEADER_TBL/ P_TRX_HEADER_TBL_ITEM	TRX_HEADER_ID	'101'

Path	Element	Value
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters/ P_TRX_HEADER_TBL/ P_TRX_HEADER_TBL_ITEM	CUST_TRX_TYPE_ID	'1684'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters/ P_TRX_HEADER_TBL/ P_TRX_HEADER_TBL_ITEM	BILL_TO_CUSTOMER_ID	'1290'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters/ P_TRX_HEADER_TBL/ P_TRX_HEADER_TBL_ITEM	SHIP_TO_CUSTOMER_ID	'1290'
Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/InputParameters/ P_TRX_HEADER_TBL/ P_TRX_HEADER_TBL_ITEM	COMMENTS	'Invoice created via ICS integration for booked Sales Order in Order Management'

After you complete this step, the function icons should appear in the Mapping Canvas section for the corresponding target element nodes.



3. Add the following mapping for the header:
   - In the **Source** section, enter `HEADER_ID` in the **Search** field to locate this parameter.

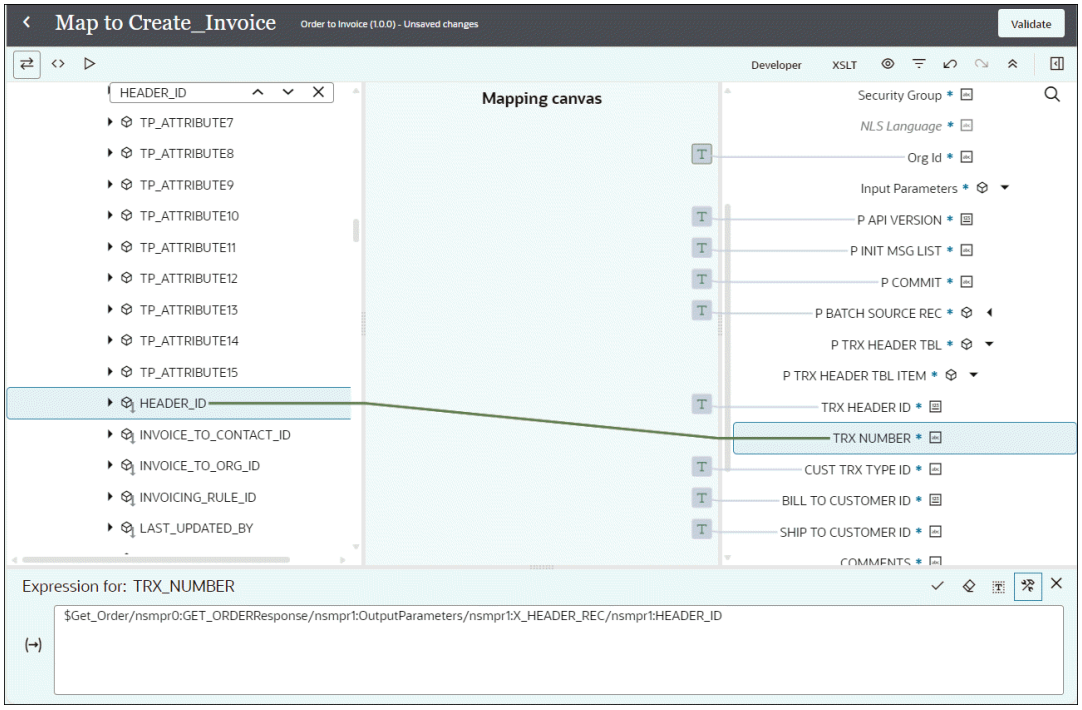
Select the **HEADER_ID** element from the **X_HEADER_REC** node.

- In the Target section, expand the **Create_Invoice Request (REST)** node, then the **CREATESINGLEINVOICE Input** node, then the **InputParameters** node, then the **P_TRX_HEADER_TBL** node, and then the **P_TRX_HEADER_TBL_ITEM** node.

  Select the **TRX_NUMBER** element.

Drag the **HEADER_ID** element from the Source section to the **TRX_NUMBER** element in the Target section to map the data.

The mapped source element **HEADER_ID** and **TRX_NUMBER** target element are connected in a blue line.



4. Use the same approach, as described in the previous step, to add the following sets of mappings for the line items:

Source Path	Source Element	Target Path	Target Element
Get_Order Response (Oracle E-Business Suite) / GET_ORDERResponse/OutputParameters/ X_LINE_TBL/ X_LINE_TBL_ITEM	LINE_NUMBER	Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/ InputParameters/ P_TRX_LINES_TBL/ P_TRX_LINES_TBL_ITEM	LINE_NUMBER
Get_Order Response (Oracle E-Business Suite) / GET_ORDERResponse/OutputParameters/ X_LINE_TBL/ X_LINE_TBL_ITEM	ORDERED_ITEM	Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/ InputParameters/ P_TRX_LINES_TBL/ P_TRX_LINES_TBL_ITEM	DESCRIPTION

Source Path	Source Element	Target Path	Target Element
Get_Order Response (Oracle E-Business Suite) / GET_ORDERResponse/OutputParameters/ X_LINE_TBL/ X_LINE_TBL_ITEM	ORDERED_QUANTITY	Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/ InputParameters/ P_TRX_LINES_TBL/ P_TRX_LINES_TBL_ITEM	QUANTITY_ORDERED
Get_Order Response (Oracle E-Business Suite) / GET_ORDERResponse/OutputParameters/ X_LINE_TBL/ X_LINE_TBL_ITEM	ORDERED_QUANTITY	Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/ InputParameters/ P_TRX_LINES_TBL/ P_TRX_LINES_TBL_ITEM	QUANTITY_INVOICED
Get_Order Response (Oracle E-Business Suite) / GET_ORDERResponse/OutputParameters/ X_LINE_TBL/ X_LINE_TBL_ITEM	UNIT_SELLING_PRICE	Create_Invoice Request (REST)/ CREATESINGLEINVOICE Input/ InputParameters/ P_TRX_LINES_TBL/ P_TRX_LINES_TBL_ITEM	UNIT_SELLING_PRICE

5. Assign the following values:

   - In the **Target** section, expand the **Create_Invoice Request (REST)** node, then the **CREATESINGLEINVOICE Input** node, then the **InputParameters** node, and then the **P_TRX_DIST_TBL** node.

     Right-click the **P_TRX_DIST_TBL_ITEM** element and select **Create Target Node** from the drop-down menu.

     In the Expression Builder at the bottom of the page, click the "Switch to Developer View" icon and then enter `'<nsmpr1:P_TRX_DIST_ID/>'` for the **P_TRX_DIST_TBL_ITEM** element.

     A **function** icon is added to the Mapping Canvas section for the target **P_TRX_DIST_TBL_ITEM** element node.

   - In the Target section, expand the **Create_Invoice Request (REST)** node, then the **CREATESINGLEINVOICE Input** node, then the **InputParameters** node, and then the **P_TRX_SALESCREDITS_TBL** node.

     Right-click the **P_TRX_SALESCREDITS_TBL_ITEM** element and select **Create Target Node** from the drop-down menu.

     In the Expression Builder at the bottom of the page, click the "Switch to Developer View" icon and then enter

     `'<nsmpr1:P_TRX_SALESCREDITS_ID/>'` for the **P_TRX_SALESCREDITS_TBL_ITEM** element.

     A **function** icon is added to the Mapping Canvas section for the target **P_TRX_SALESCREDITS_TBL_ITEM** element node.

Click **Validate** to exit the mapper and then click **Save** to save your changes when prompted.

Assign a Business Identifier for Tracking

Perform the following steps to track payload fields in messages during runtime:

1. In the navigation pane, click **Design**, then **Integrations**.
2. Click the "Order to Invoice" integration created in this example.
3. Click **Business Identifiers** (I).
   The Business identifiers panel appears.
4. From the **Sources** section, expand the **BusinessEvent_Input** node, then the **InputParameters** node, and then the **BusinessEvent** node.

   Drag and drop the **Event Key** element to the **Business identifier field** as the primary key. A checkmark to the left of the **Event Key** element indicates that this is the primary business identifier.
5. Save your work.

Activate and Test the Integration

Perform the following steps to activate the integration:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, hover your cursor over the **Order to Invoice** integration, then click **Activate**.
3. The Activate integration panel opens. Select the level of tracing appropriate to your integration. Click **Activate** to confirm this action.

   Notice that a status message is displayed in the banner at the top of the Integrations page.

Test the Integration at Runtime

1. Log in to Oracle E-Business Suite as the `operations` user who has the **Order Management Super User, Vision Operations (USA)** responsibility.
2. Select **Order, Returns**, and then **Sales Order** from the navigation menu to open the Sales Orders form.
3. In the Sales Orders form, select the Order Information tab.
4. Create a new Sales Order for customer "Example Inc." with the following information:
   - Customer: Example Inc.
   - Operation Unit: Vision Operations
   - Order Type: Mixed
   - Ship To Location: 401 Island Parkway Redwood Shores, CA 94065
   - Bill To Location: 401 Island Parkway Redwood Shores, CA 94065
   - Price List: Corporate
   - Currency: USD
5. Select the Line Items tab to add the following line item:
   - Ordered Item: AS54888

- Quantity: 1
- Item Type: STANDARD
- UOM: Each
- Unit Price: Accept the populated unit price.
- Request Date: Accept the populated date (such as 14-MAY-2022)

6. Save this new order.

   This order is created with "Entered" status.

7. Click **Book Order**.

   The order status is now updated to "Booked". It internally raises a business event `oracle.apps.ont.oip.statuschange.update` which will trigger the integration.

In the design time, the "Order to Invoice" integration created earlier in Oracle Integration will subscribe to this business event. At runtime, since the order status is changed to "Booked", Oracle Order Management will raise the business event which triggers the integration in Oracle Integration. The order details information is fetched from Oracle E-Business Suite Order Management and passed as event payload to create the invoice in Oracle Accounts Receivables.

Monitor the Result in Oracle Integration

1. Log in to Oracle Integration.
2. In the navigation pane, click **Observability**, then **Instances**.
3. On the Instances page, click the instance created for the "Order to Invoice" integration to monitor the result.
4. Click "Event Key" to display the flow diagram of the integration instance.

   This page provides the instance tracking information. Notice that the status of this instance is "Completed" indicating that the integration is executed successfully. You can verify if there is any error occurred if desired.

Validate the Result in Oracle E-Business Suite Accounts Receivables

Log in to Oracle Accounts Receivables as the `operations` user who has the Receivables, Vision Operations (USA) responsibility. Select **Transactions** and then **Transactions** from the navigation menu.

Locate the invoice transaction for the "Example Inc." customer by selecting **Query for Transaction**. The invoice should be created in Oracle Accounts Receivables.

Sample XSD for the Oracle E-Business Suite Adapter as a Trigger with a Business Event Example

The following information shows the sample xsd used for the Create Invoice REST service. This service is added through the REST Adapter for the business event example described earlier. For information on how to use this sample xsd in an integration, see: Add the Oracle E-Business Suite Adapter (Trigger) and the REST Adapter (Invoke) to the Integration.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified" attributeFormDefault="unqualified">
<xs:element name="CREATE_SINGLE_INVOICE_Input">
```

```
<xs:complexType>
<xs:sequence>
<xs:element name="RESTHeader">
<xs:complexType>
<xs:sequence>
<xs:element name="Responsibility" type="xs:string"></xs:element>
<xs:element name="RespApplication" type="xs:string"></xs:element>
<xs:element name="SecurityGroup" type="xs:string"></xs:element>
<xs:element name="NLSLanguage" type="xs:string"></xs:element>
<xs:element name="Org_Id" type="xs:string"></xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="InputParameters">
<xs:complexType>
<xs:sequence>
<xs:element name="P_API_VERSION" type="xs:int"></xs:element>
<xs:element name="P_INIT_MSG_LIST" type="xs:string"></xs:element>
<xs:element name="P_COMMIT" type="xs:string"></xs:element>
<xs:element name="P_BATCH_SOURCE_REC">
<xs:complexType>
<xs:sequence>
<xs:element name="BATCH_SOURCE_ID" type="xs:int"></xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="P_TRX_HEADER_TBL">
<xs:complexType>
<xs:sequence>
<xs:element name="P_TRX_HEADER_TBL_ITEM">
<xs:complexType>
<xs:sequence>
<xs:element name="TRX_HEADER_ID" type="xs:int"></xs:element>
<xs:element name="TRX_NUMBER" type="xs:string"></xs:element>
<xs:element name="CUST_TRX_TYPE_ID" type="xs:string"></xs:element>
<xs:element name="BILL_TO_CUSTOMER_ID" type="xs:int"></xs:element>
<xs:element name="SHIP_TO_CUSTOMER_ID" type="xs:string"></xs:element>
<xs:element name="COMMENTS" type="xs:string"></xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="P_TRX_LINES_TBL">
<xs:complexType>
<xs:sequence>
<xs:element name="P_TRX_LINES_TBL_ITEM">
<xs:complexType>
<xs:sequence>
<xs:element name="TRX_HEADER_ID" type="xs:int"></xs:element>
<xs:element name="TRX_LINE_ID" type="xs:string"></xs:element>
<xs:element name="LINE_NUMBER" type="xs:string"></xs:element>
<xs:element name="DESCRIPTION" type="xs:int"></xs:element>
<xs:element name="QUANTITY_ORDERED" type="xs:string"></xs:element>
<xs:element name="QUANTITY_INVOICED" type="xs:int"></xs:element>
```

```
<xs:element name="UNIT_SELLING_PRICE" type="xs:string"></xs:element>
<xs:element name="LINE_TYPE" type="xs:int"></xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="P_TRX_DIST_TBL">
<xs:complexType>
<xs:sequence>
<xs:element name="P_TRX_DIST_TBL_ITEM">
<xs:complexType>
<xs:sequence>
<xs:element name="TRX_DIST_ID"></xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="P_TRX_SALESCREDITS_TBL">
<xs:complexType>
<xs:sequence>
<xs:element name="P_TRX_SALESCREDITS_TBL_ITEM">
<xs:complexType>
<xs:sequence>
<xs:element name="TRX_SALESCREDIT_ID"></xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:schema>
```

An Example of Using an XML Gateway Message as a Trigger (Source) in an Integration

Sample Business Scenario

When a purchase order is approved in the Oracle E-Business Suite Purchasing application, a process purchase order XML message should be sent from Oracle E-Business Suite to Oracle Integration.

In this example, an XML Gateway message "Purchase Order XML message" from Oracle Purchasing is used as a trigger (source) to explain using the Oracle E-Business Suite Adapter to trigger an integration in Oracle Integration. The Oracle E-Business Suite Adapter is used to

connect to the Oracle Purchasing instance. Additionally, you need to configure the trading partner in Oracle XML Gateway to send the outbound XML message from Oracle E-Business Suite to the integration endpoint in Oracle Integration.

At runtime, when an order is approved, if the supplier or trading partner is configured to receive the outbound XML message for Process Purchase Order, Oracle E-Business Suite Purchasing will trigger the integration and initiate XML Gateway outbound processing to send the process order XML message from Oracle E-Business Suite to Oracle Integration.

Based on the integration scenario, the sample tasks for using an Oracle E-Business Suite XML Gateway message in an integration are included in the Topics section:

Topics:

1. Prepare the Oracle E-Business Suite Purchasing Instance
2. Establish an Oracle E-Businss Suite Connection for Publishing XML Gateway Messages
3. Create an Integration
4. Add the Oracle E-Business Suite Adapter as a Trigger (Source) Connection
5. Assign a Business Identifier for Tracking
6. Activate the Integration
7. Configure Trading Partner Information for Post Integration
8. Test and Validate the Integration

Prepare the Oracle E-Business Suite Purchasing Instance

This example uses the Oracle E-Business Suite Purchasing application to approve a purchase order. Before creating a connection, you must prepare the Oracle E-Business Suite Purchasing instance to ensure the required setup or configuration is in place.

1. Configure Oracle E-Business Suite REST services provided through Oracle E-Business Suite Integrated SOA Gateway.

   Follow the setup tasks, as described in My Oracle Support Knowledge Document 556540.1, to configure Oracle E-Business Suite Integrated SOA Gateway Release 12.1.3 and apply the REST service patches to enable the REST service feature. For more information, see step 1, as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.

2. (Optional) Import TLS certificates of Oracle Integration to Oracle E-Business Suite if required.

   For information on importing TLS certificates, refer to step 4 as described in Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection.

3. (Optional) Set up proxy URLs in Oracle E-Business Suite if required.

   For information on the proxy setup, refer to step 2 as described in Setup Tasks for Using the Oracle E-Business Suite Adapter as a Trigger (Source) Connection.

4. Deploy the Metadata Provider API as a REST service with the following requirements and grant the method access privileges to the **`operations`** user:

   - Deploy the API with "**`provider`**" as the service alias name
   - Deploy the API with **GET** HTTP verb for **all** the methods contained in the API
   - Grant the access privileges for **all** the methods contained in the Metadata Provider API to the **`operations`** user

For information on deploying REST services, see Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

For information on creating security grants for REST services, see Managing Grants for Interfaces with Support for SOAP and REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

Establish an Oracle E-Business Suite Connection for Publishing XML Gateway Messages

Perform the following steps to establish the connection for Oracle E-Business Suite in Oracle Integration:

1. In the navigation pane, click **Design**, then **Connections**.
2. On the Connections page, click **Create**.
3. In the Create connection panel, locate the Oracle E-Business Suite Adapter by entering a full or partial name to locate "Oracle E-Business Suite" from a list of adapters.

   Click "Oracle E-Business Suite". The Create connection panel appears for Oracle E-Business Suite Adapter.
4. Enter the following information for your Oracle E-Business Suite Adapter connection:
   - **Name:** Enter "Purchasing" as the connection name.
   - **Identifier:** Accept the default identifier for your Oracle E-Business Suite connection, such as "PURCHASING".
   - **Role:** Select the "Trigger and Invoke" role for this connection.
   - **Keywords:** Leave this blank.
   - **Description:** Enter description information for your connection, such as "Create an Oracle E-Business Suite Purchasing connection".
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

   Click **Create** to create the connection. The Connection details page is displayed for the "Purchasing" connection.
5. Enter additional connection details by specifying the following information:
   - In the Properties section, enter a URL (`http://<Oracle E-Business Suite host name>:<port>`) to connect to an Oracle E-Business Suite instance.
   - In the Security section, "Basic Authentication" is automatically shown as the security policy.

     Enter **`operations`** as the user name and its associated password to access the Oracle E-Business Suite Purchasing instance you specified earlier in the Properties section.
6. Click **Test** to test the "Purchasing" connection you just specified.
7. When complete, click **Save**.

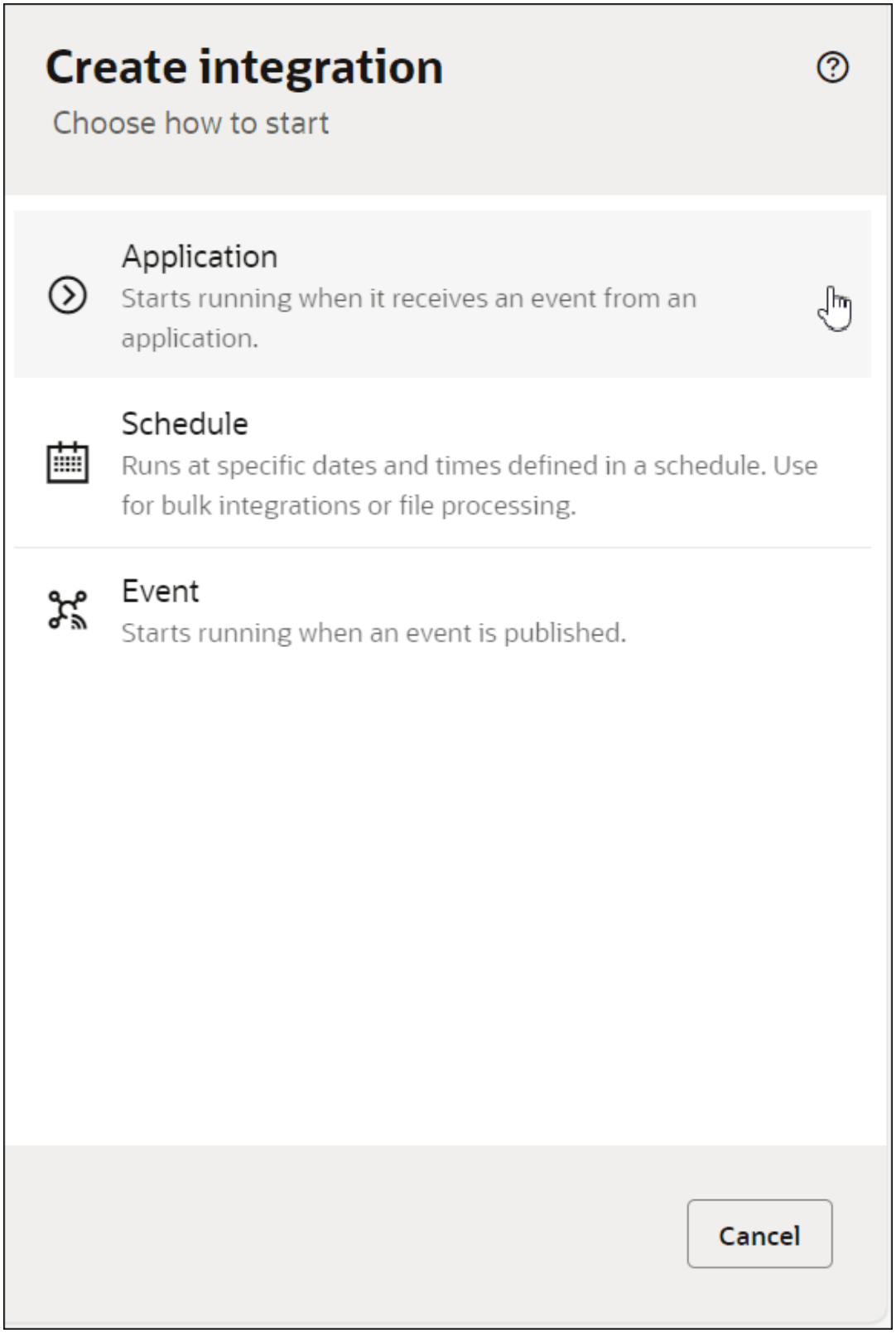
Create an Integration

This section provides the instructions on creating an integration called "PROCESS PO" with the "Application" integration pattern. This pattern allows you to add the Oracle E-Business Suite Purchasing connection specified earlier as a trigger in the integration.

Perform the following steps to create an integration:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, click **Create**.

   The Create integration panel appears.



3. When adding the Oracle E-Business Suite Adapter as a trigger (source) connection, select the "Application" pattern.

   Click **Create**.

4. Enter the following information:
   - **Name**: Enter "PROCESS PO" as the integration name.
   - **Identifier**: Accept the default identifier value, such as "PROCESS_PO".
   - **Version**: Accept the default version number.
   - **Documentation URL**: Leave this blank.
   - **Keywords**: Leave this blank.
   - **Package**: Leave this blank.
   - **Description**: Enter appropriate description for this integration, such as "Create an integration for processing a purchase order in Oracle Purchasing".
   - **Available to other projects**: Do *not* select this checkbox in this example so that this integration is only used within the same project. It will not be available to other projects.
5. Click **Create**. An empty canvas is displayed.

To complete the integration, you need to add the following tasks that are described in the next few sections:

- Add the desired connections to the integration you just created.

  See: Add the Oracle E-Business Suite Adapter as a Trigger (Source) Connection.
- Assign business identifiers for tracking.

  See: Assign a Business Identifier for Tracking.

Add the Oracle E-Business Suite Adapter as a Trigger (Source) Connection

Once the "PROCESS PO" integration is created, you can add the "Purchasing" connection that you just created by using the Oracle E-Business Suite Adapter as a trigger (source).

Perform the following steps to add the Oracle E-Business Suite Adapter as a trigger in the integration:

1. In the "PROCESS PO" integration canvas, click the **+** sign in the integration canvas or click **Triggers** on the side of the canvas. A list of trigger connections appears.
2. Search and select the "Purchasing" connection that you created earlier from a menu of available trigger connections. The Oracle E-Business Suite Adapter Endpoint Configuration Wizard appears.
3. Enter the following information in the Configure Basic Info page:
   - **What do you want to call your endpoint?** - Enter "EBS_Source" as the endpoint name.
   - **What does this endpoint do?** - Enter "Process a purchase order in Oracle E-Business Suite".
   - **What do you want to configure the endpoint for?** - Select **XML Gateway Map**.

   Click **Continue** to proceed with the rest of the configuration for your integration.
4. In the Configure XML Gateway Maps page, specify the following information for your trigger (source) connection:
   - **Product Family:** Select "Procurement" from the product family.

- **Product:** Select "Internet Procurement Enterprise Connector" from the list of product names.
- **XML Gateway Map:** Select a desired XML Gateway message name from the drop-down list. For example, select "Purchase Order XML message".

  After you select the message map, the corresponding information is automatically populated in this page. This includes the Integration Repository name (`PO:PRO`), internal name (`itg_process_po_007_out`), integration standard (`OAG 7.2`) and the message map description.

Click **Continue**.

5. The Summary page appears with the selected XML Gateway message information that you specified. This includes the XML Gateway message name `itg_process_po_007_out` from the selected "Procurement" product family and the "Internet Procurement Enterprise Connector" product, as well as the "Request Only" interaction pattern.

   The Oracle E-Business Suite Adapter Source Endpoint configuration is successfully created with the selected XML Gateway message.

   Click **Finish**.

   The trigger connection for Oracle E-Businses Suite (called "Purchasing" in this example) now appears in the canvas.

Assign a Business Identifier for Tracking

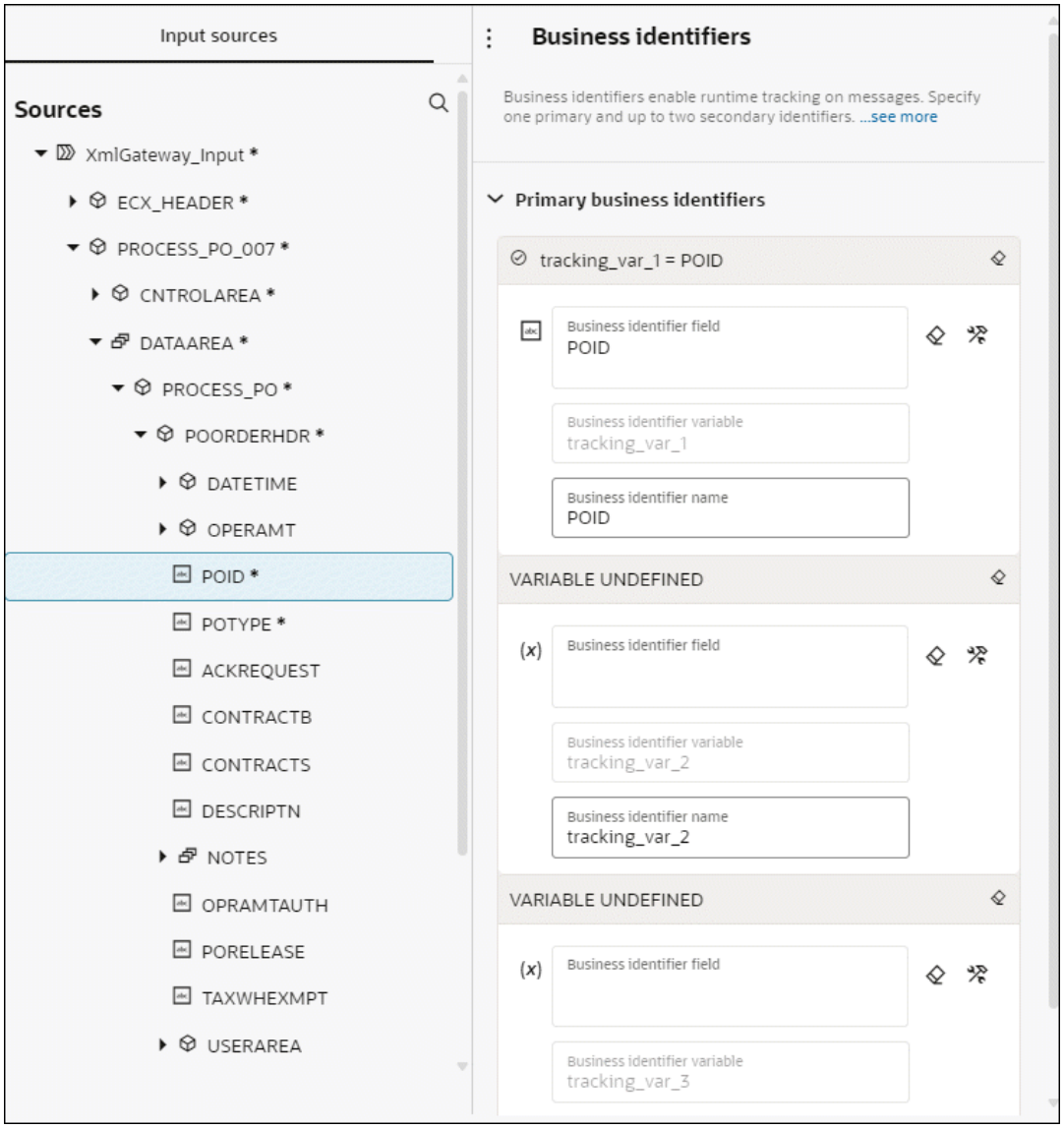
Perform the following steps to track payload fields in messages during runtime:

1. In the "PROCESS PO" integration canvas, click **Business Identifiers** (I).

   The Business identifiers panel appears.

2. From the **Sources** section, expand the **XmlGateway_Input** node, then the **PROCESS_PO_007** node, then the **DATAAREA** node, then the **PROCESS_PO** node, and then the **POORDERHDR** node.

   Drag and drop the **POID** element to the **Primary business identifiers** as the primary key. A checkmark to the left of the **POID** element indicates that this is the primary business identifier.



3. Save your work.

Activate the Integration

Activate the Integration

After you complete the integration with a desired XML Gateway message, you can activate the integration.

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, hover your cursor over the **PROCESS PO** integration, then click **Activate** ⏻.
3. The Activate integration panel appears. Select the level of tracing appropriate to your integration. Click **Activate** to confirm the action.

   Notice that the status of the "PROCESS PO" integration changes to **ACTIVE**.

Record the Integration Endpoint in Oracle Integration

After activating the integration, you need to obtain the integration endpoint URL by clicking **Actions** ⋮ and then selecting **Run** for the "PROCESS PO" integration. Record the endpoint URL information.

In this example, the endpoint URL should be like:

```
https://<Oracle Integration Host>:<Port>/ic/api/integration/v1/flows/ebusiness/
PROCESS_PO/1.0/metadata
```

This recorded integration endpoint URL (without the `metadata` at the end) will be used as the protocol address value when defining a trading partner in the post integration configuration, as described in Configure Trading Partner Information for Post Integration.

Configure Trading Partner Information for Post Integration

After you activate the integration, you must perform manual tasks to configure the trading partner ("Example Inc." in this example) for the outbound transaction message selected in the integration. This includes specifying the communication protocol and address as well as the user credentials in Oracle E-Business Suite.

Additionally, obtain the integration endpoint URL you recorded earlier, such as `https://<Oracle Integration Host>:<Port>/ic/api/integration/v1/flows/ebusiness/PROCESS_PO/1.0/metadata`.

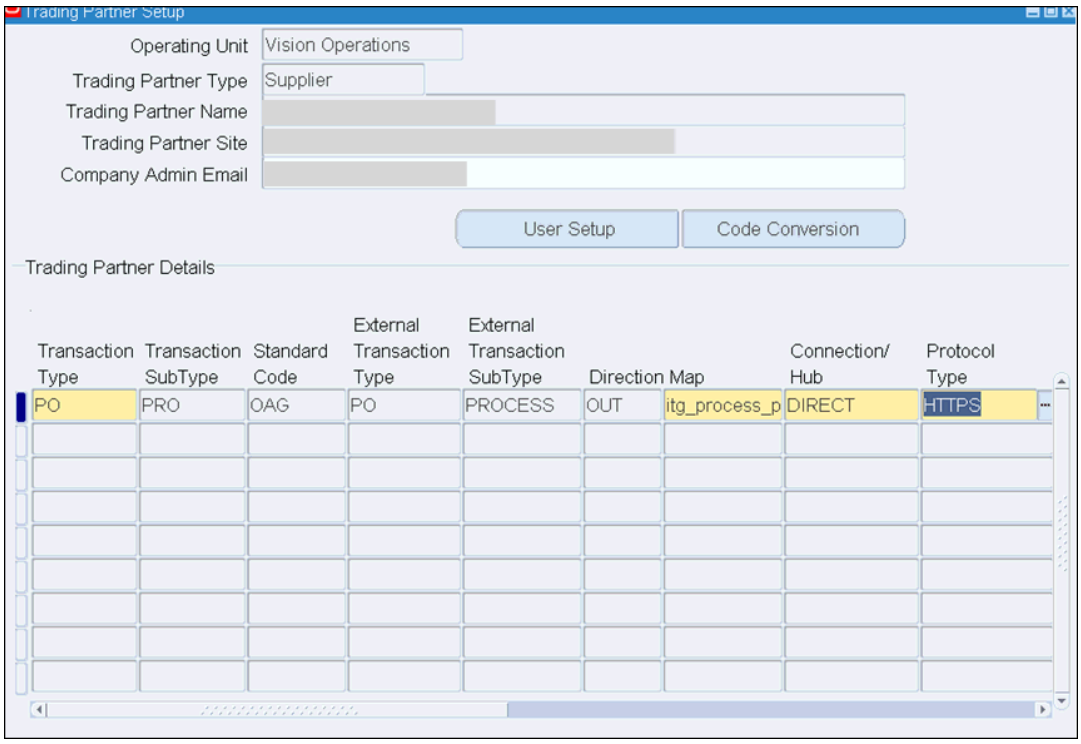
Perform the following steps to configure the trading partner in Oracle E-Business Suite:

1. Log in to Oracle E-Business Suite as a user (such as `sysadmin`) who has the **XML Gateway** responsibility.
2. Select the XML Gateway responsibility and then select **Define Trading Partners** from the navigation menu. The Define Trading Partner Setup form appears.
3. In the Trading Partner Setup form, search and locate the desired trading partner called "Example Inc.".
4. In the Trading Partner Details region, add the following information for the trading partner:
   - Transaction Type: PO
   - Transaction Subtype: PRO
   - Standard Code: OAG
   - External Transaction Type: PO
   - External Transaction Subtype: PROCESS
   - Direction: OUT
   - Map: itg_process_po_007_out
   - Connection/Hub : DIRECT
   - Protocol: HTTPS
   - Protocol address:`https://<Oracle Integration Host>:<Port>/ic/api/integration/v1/flows/ebusiness/PROCESS_PO/1.0/`

     Enter the integration endpoint URL (without `metadata` at the end) you recorded earlier.
   - Username: `<Oracle Integration user name>`

     Enter the Oracle Integration user credentials used to execute integrations in Oracle Integration.
   - Password: *`password`*

Replace *password* with the actual password value of the associated Oracle Integration user.



5. Save your work.

Test and Validate the Integration

Based on the example scenario, once a purchase order is approved in the Oracle E-Business Suite Purchasing application, Oracle Purchasing will initiate XML Gateway outbound processing and publish the XML message to Oracle Integration. Therefore, you need to create a purchase order first and then approve the order to trigger the outbound processing from Oracle E-Business Suite.

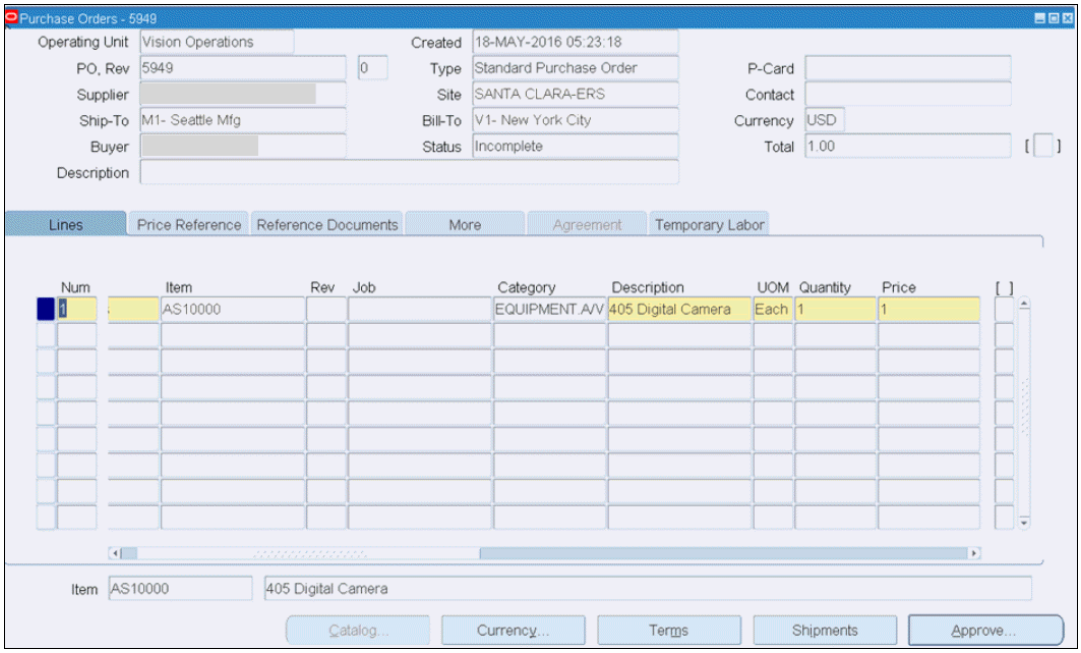
Perform the following steps to create and approve a new purchase order:

1. Log in to the Oracle E-Business Suite Purchasing instance as the `operations` user who has the **Purchasing, Vision Operations (USA)** responsibility.

   Select **Purchase Orders** and then **Purchase Orders** from the navigation menu.

2. In the Purchase Orders form, create a new purchase order for the configured trading partner or supplier called "Example Inc." with the following information:
   - Supplier: Example Inc.
   - Type: Standard Purchase Order
   - Site: SANTA CLARA-ERS
   - Ship-To: M1- Seattle Mfg
   - Bill-To: V1- New York City
3. In the Line tab, add one line item:

- Num: 1
- Item: AS10000
- Description: 405 Digital Camera
- UOM: Each
- Quantity: 1
- Price: 1
- Freight: Accept the default value
- FOB: Accept the default value
- Promised Date: Enter a desired date
- Need By Date: Enter a desired date



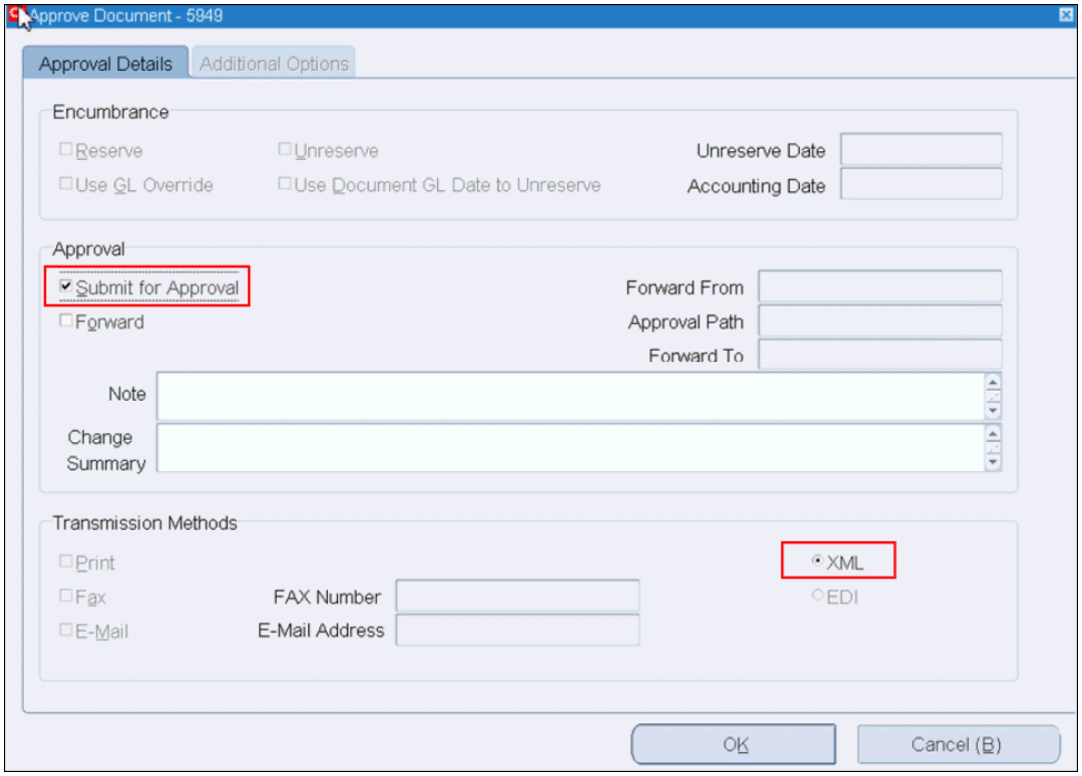
4. Click **Save**.

   Purchase order is created with "Incomplete" status.

5. Click **Approve**.

   The Approve Document form appears.

6. In the Approval Details tab, select the "Submit for Approval" checkbox and ensure that the **XML** button is selected in the Transmission Method region.



Click **OK**. The order status is now updated from "Incomplete" to "Approved".

This status change will internally trigger the XML Gateway engine for outbound transactions. Additionally, it will trigger the "PROCESS PO" integration you created in Oracle Integration.

Monitor the Result in Oracle Integration

1. Log in to Oracle Integration.
2. In the navigation pane, click **Observability**, then **Instances**.
3. On the Track Instances page, click the instance created for the "PROCESS PO" integration to monitor the result.

An Example of Using a PL/SQL REST Service as an Invoke (Target) Connection in an Integration

To better understand how to use Oracle E-Business Suite services in Oracle Integration, this chapter describes an integration example through the use of Oracle E-Business Suite Adapter as an invoke (target) connection.

Sample Business Scenario

Take a PL/SQL API called Sales Order Services (OE_INBOUND_INT) as an example to explain the integration between the Oracle E-Business Suite Adapter and a trigger (source) connection in Oracle Integration.

In this example, the Oracle E-Business Suite Adapter is used as an invoke (target) connection for service invocation, and the REST Adapter is used as a trigger (source) connection to provide a REST request. When the Oracle E-Business Suite Adapter receives the request

message with input payload for order creation from the trigger (source) connection, the OE_INBOUND_INT REST service in Oracle E-Business Suite is invoked to create the order.

Once the integration is successfully executed at runtime, a sales order will be created in Oracle E-Business Suite.

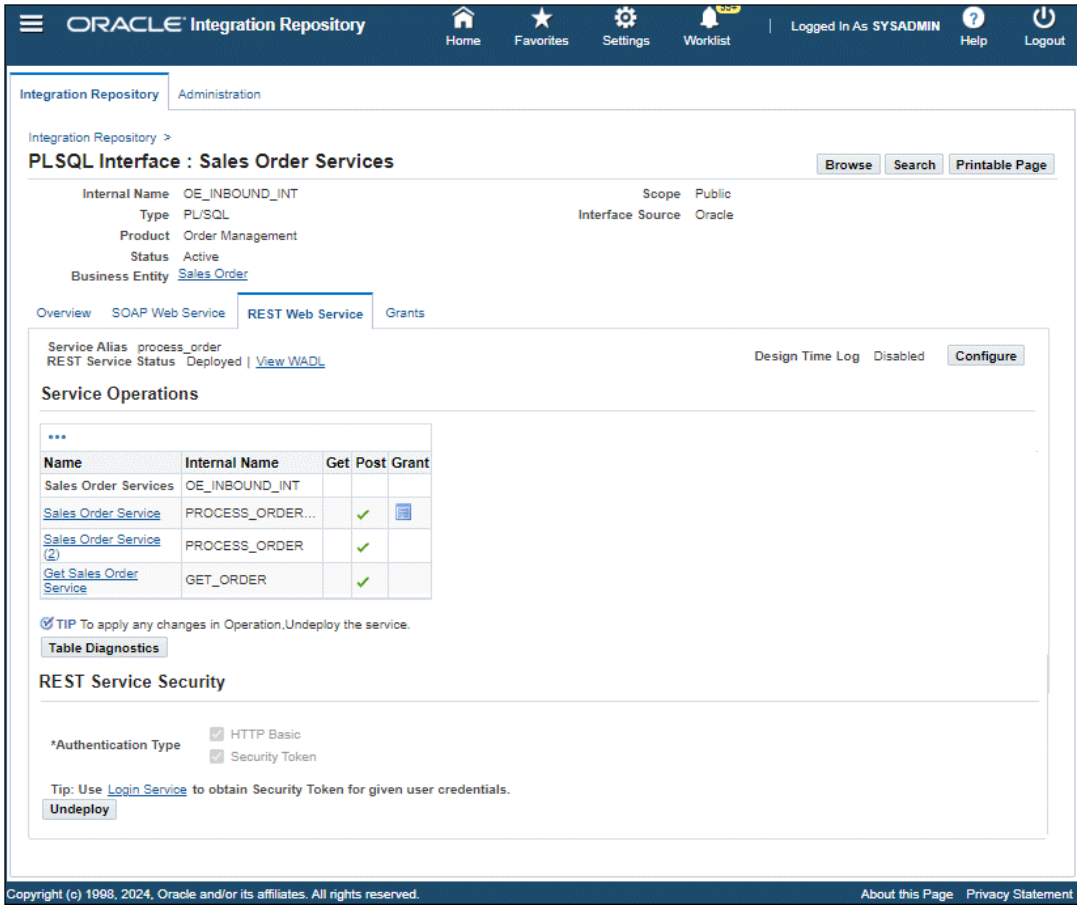
> **Note:**
>
> Any application adapters can be used as trigger (source) connections to create integrations for your business needs. In this example, the REST Adapter is used as a trigger (source) connection.

Prerequisites:

Before creating the integration in Oracle Integration, you need to ensure the following tasks are in place:

- The "Sale Order Service (PROCESS_ORDER)" service operation contained in the Sales Order Services (OE_INBOUND_INT)" PL/SQL API is deployed as a REST service with alias `process_order`.

  For information on deploying REST services, see Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.



Record the following REST service endpoint from the WADL:

`https://<host>:<port>/webservices/rest/<alias>/PROCESS_ORDER/`

Replace `<alias>` with `process_order` in this example. You will use this service endpoint later when you create a REST connection in Oracle Integration.

- Security grants are created for the `operations` user.

  For information on creating security grants for REST services, see Managing Grants for Interfaces with Support for SOAP and REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*.

Based on the integration scenario, the sample tasks for using an Oracle E-Business Suite PL/SQL REST service in an integration are included in the Topics section:

Topics:

1. Establish the Connections for Oracle E-Business Suite and REST Services
2. Create an Integration
3. Add the REST Adapter as a Trigger (Source) Connection
4. Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection
5. Create Mappings
6. Assign a Business Identifier for Tracking
7. Activate and Test the Integration
8. Sample JSON Payloads for the Oracle E-Business Suite Adapter as an Invoke Example for a PL/SQL REST Service

Establish the Connections for Oracle E-Business Suite and REST Services

Before creating an integration, you need to create the following two connections:

- Connection for Oracle E-Business Suite

  Once the connection to an Oracle E-Business Suite instance is successfully established, you can add the Oracle E-Business Suite Adapter as an invoke (target) connection later in an integration.

- Connection for REST services

  Similar to the Oracle E-Business Suite connection using the Oracle E-Business Suite Adapter, once the connection to REST services is established, you can use it as a trigger (source) connection later in an integration.

Create an Oracle E-Businss Suite Connection with Oracle E-Business Suite Adapter

Perform the following steps to establish the connection for Oracle E-Businss Suite in Oracle Integration:

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

   In the Create connection panel, scroll down and select "Oracle E-Business Suite" from a list of adapters. This creates a connection through the Oracle E-Business Suite Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the Oracle E-Business Suite Adapter.

3. In the Create connection panel, enter the following information for your connection:
   - **Name:** Enter "EBS122".

- **Identifier:** Accept the default populated identifier, such as "EBS122".
- **Role:** Select the "Trigger and Invoke" role for this connection.
- **Keywords:** Leave this blank.
- **Description:** Enter "Use the Oracle E-Business Suite Adapter connection in an integration" as the description.
- **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

Click **Create** to create the connection.

4. Enter additional connection details by specifying the following information:
   - In the Properties section, enter a URL (`http://<Oracle E-Business Suite host name>:<port>`) to connect to an Oracle E-Busiess Suite instance.
   - In the Security section, Basic Authentication is automatically displayed as the security policy.
     Enter **`operations`** as the user name and its associated password to access the Oracle E-Business Suite instance you specified earlier in the Properties section.
   - In the Access type section, select **Connectivity agent** and then click **Associate agent group**.
     Select a desired agent group such as "EBS" to use with the Oracle E-Business Suite Adapter, and click **Use** to enable the selection.
5. Click **Test** to test the connection you just specified for Oracle E-Business Suite.
6. When complete, click **Save**.

The Oracle E-Business Suite connection "EBS122" now appears in the Connections page.

Create an Connection for REST Services

Perform the following steps to create an connection for REST APIs:

1. On the Connections page, click **Create**.

   The Create connection panel appears.
2. Scroll down and select "REST" from a list of adapters. This displays the Create connection panel for REST Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the REST Adapter from the list.
3. In the Create connection panel, enter the following information:
   - **Name:** Enter "GenericREST" as the connection name.
   - **Identifier:** Accept the default populated identifier such as "GENERICREST".
   - **Role:** Select the "Trigger" role for this connection.
   - **Keywords:** Leave this field blank.
   - **Description:** Enter "The sample source REST endpoint" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.
4. Click **Create** to create the connection.
5. The Connection details page is displayed for the "GenericREST" connection you just created. Enter additional connection details by specifying the following information:

- In the Properties section, enter the following information:
  - **Connection Type:** Select "REST API Base URL".
  - **Connection URL:** Enter a connection URL (`http://<Oracle E-Business Suite host name>:<port>/webservices/rest/process_order`) for the "PROCESS_ORDER" REST service operation with `process_order` alias name that you deployed earlier as part of the prerequisites mentioned earlier in An Example of Using a PL/SQL REST Service as an Invoke (Target) Connection in an Integration.
- In the Security section, accept the "Basic Authentication" as the default security policy.

  Enter **`operations`** as the user name and its associated password to access the "PROCESS_ORDER" REST service you specified earlier in the Properties section.

6. Click **Test** to test the connection you just specified for REST services.
7. Click **Save**.

The "GenericREST" connection for REST services appears in the Connections page, along with the Oracle E-Business Suite connection "EBS122" that you created earlier.

Create an Integration

Perform the following steps to create an integration between REST services and Oracle E-Business Suite:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, click **Create**.

   The Create integration panel appears.
3. When adding the Oracle E-Business Suite Adapter as an invoke (target) connection, you select the "Application" integration pattern.

   Click **Create**.
4. Enter the following information:
   - **Name**: Enter "Create Order" as the name.
   - **Identifier**: Accept the default identifier value such as "CREATE ORDER".
   - **Version**: Accept the default version number.
   - **Documentation URL**: Leave this blank.
   - **Keywords**: Leave this blank.
   - **Package**: Leave this blank.
   - **Description**: Enter description information for your integration, such as "Create a sales order in Oracle E-Business Suite".
   - **Available to other projects**: Do *not* select this checkbox in this example so that this integration is only used within the same project. It will not be available to other projects.
5. Click **Create**.

   An empty canvas is displayed.

To complete the integration, you need to add the following tasks that are described in the next few sections:

- Add the desired connections to the integration you just created.

See:

- Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection
- Add the REST Adapter as a Trigger (Source) Connection

- Add mappings to the integration.

  See Create Mappings.

- Assign business identifiers for tracking.

  See Assign a Business Identifier for Tracking.

Add the REST Adapter as a Trigger (Source) Connection

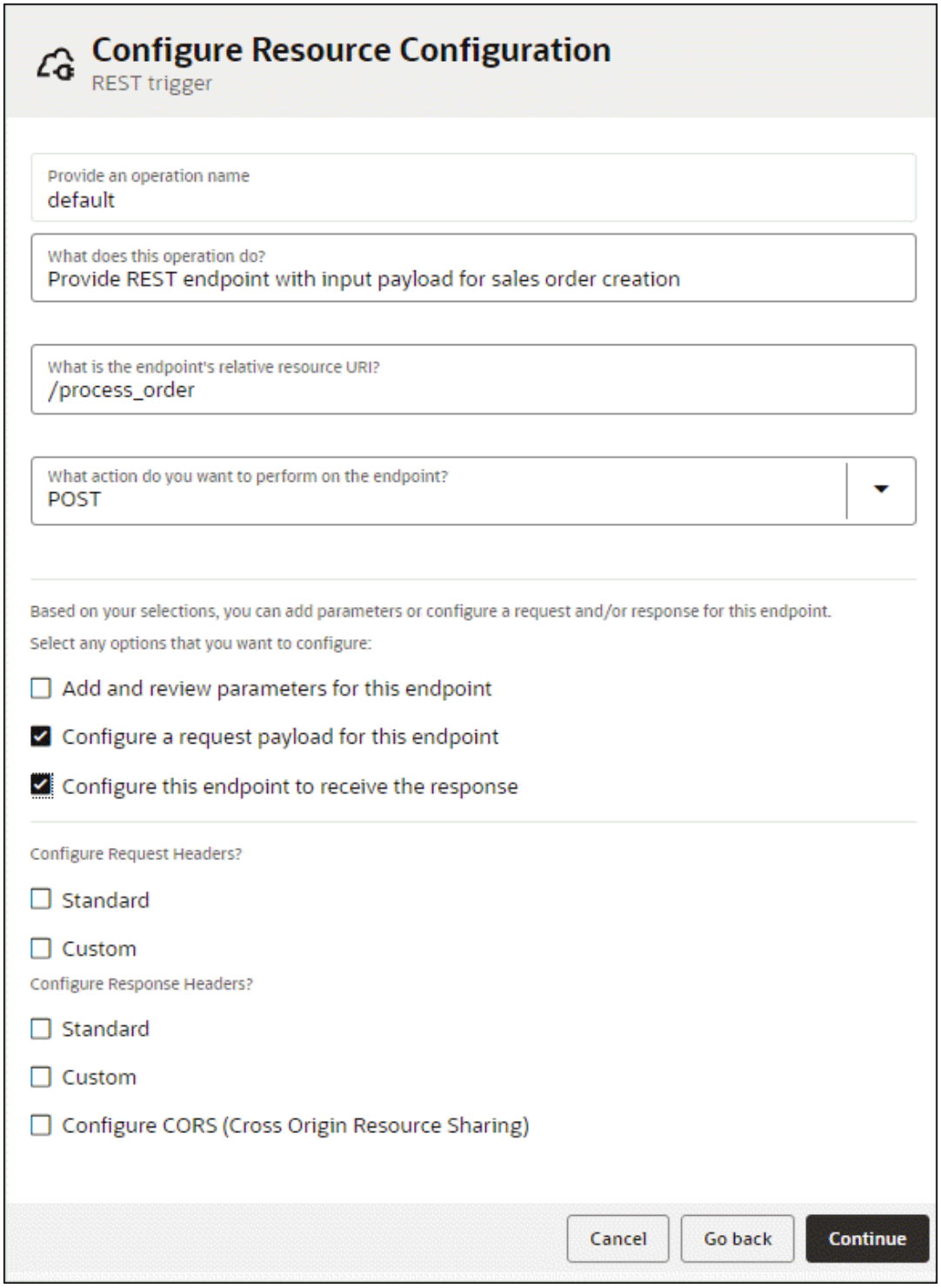
You need to add a trigger (source) connection in the integration. The trigger (source) connection can be any application adapters suitable for your integrations. In this example, the REST Adapter is used for the integration.

Perform the following steps to add the REST Adapter as a trigger (source) connection:

1. In the Create Order integration canvas, click the **+** sign in the integration canvas or click **Triggers** on the side of the canvas. A list of trigger connections appears.
2. Search and select the "GenericREST" connection that you created earlier from the list of trigger connections. The REST Adapter Endpoint Wizard appears.
3. Enter the following information in the Configure Basic Info page:
   - **What do you want to call your endpoint?** - Enter the name of this endpoint, such as "Source".
   - **What does this endpoint do?** - Enter the usage of this endpoint, such as "Provide REST endpoint with input payload for sales order creation".
   - **Select to configure multiple resources or verbs (maximum 11)?** - Leave this field unchecked.

   Click **Continue**.
4. In the Configure Resource Configuration page, enter the following information:
   - **What does this operation do?** - Enter the usage of this operation, such as "Provide REST endpoint with input payload for sales order creation".
   - **What is the endpoint's relative resource URI?** - Enter "`/process_order`".
   - **What action do you want to perform on the endpoint?** - Select "POST" from the drop-down list.
   - **Configure a request payload for this endpoint** - Select this checkbox indicating that a request payload is required in this activity.

   Ensure that you select the following two checkboxes for this trigger (source) connection:
   - **Configure a request payload for this endpoint**
   - **Configure this endpoint to receive the response**



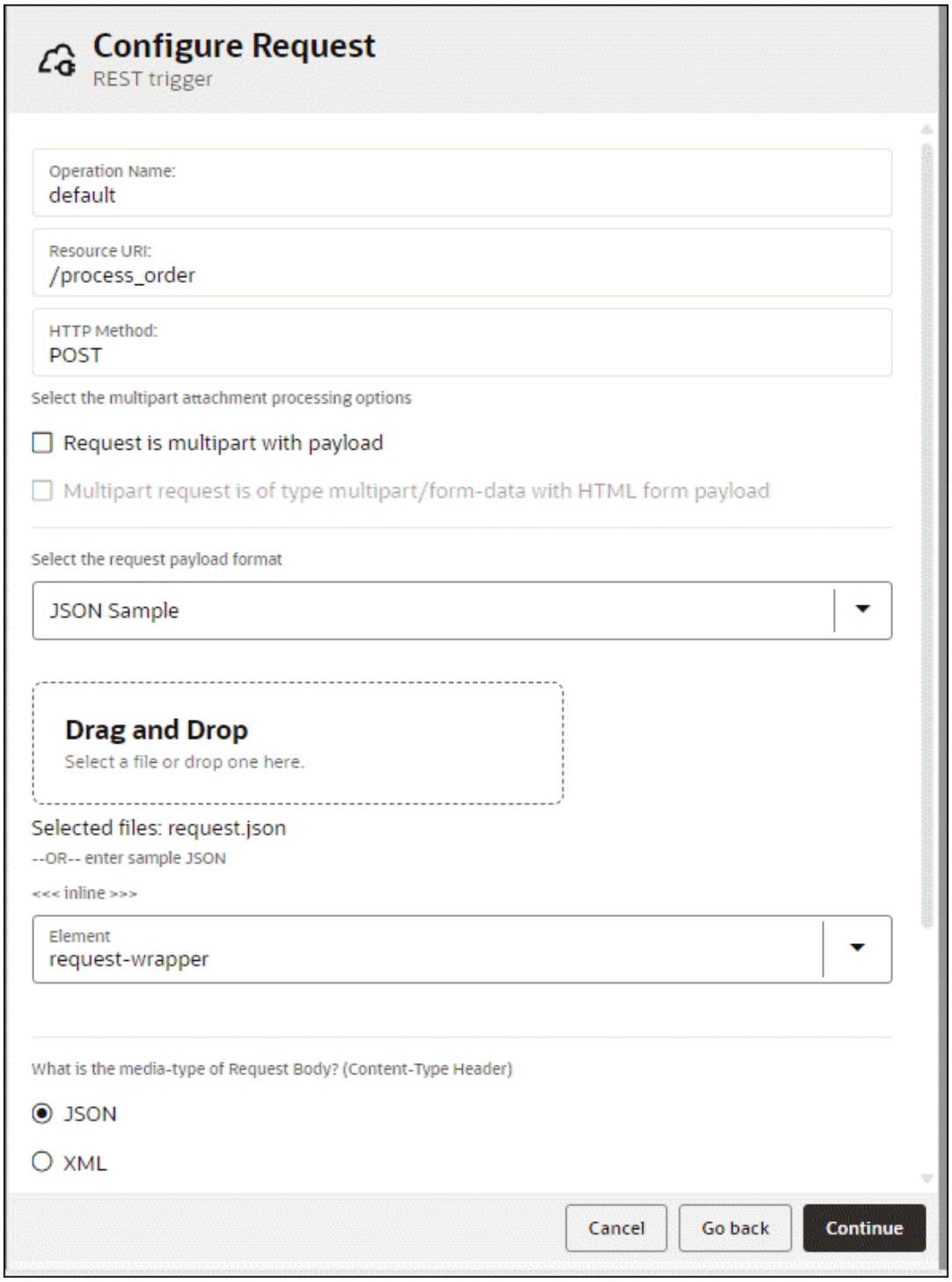
Click **Continue**.

5. In the Configure Request page, perform the following tasks:
   - In the "Select the request payload format" field, select **JSON Sample**.

     Please note that the request payload file type can be either XML schema or JSON format.
   - In the Sample Location field, click **+** to select a desired request payload, such as "request.json". Click **Open** to attach the selected file.

For the sample request payload, see Sample JSON Payloads for the Oracle E-Business Suite Adapter as an Invoke Example for a PL/SQL REST Service.

- In the "What is the media-type as Request Body? (Content-Type Header)" section, select the **JSON** button as the type.



Click **Continue**.

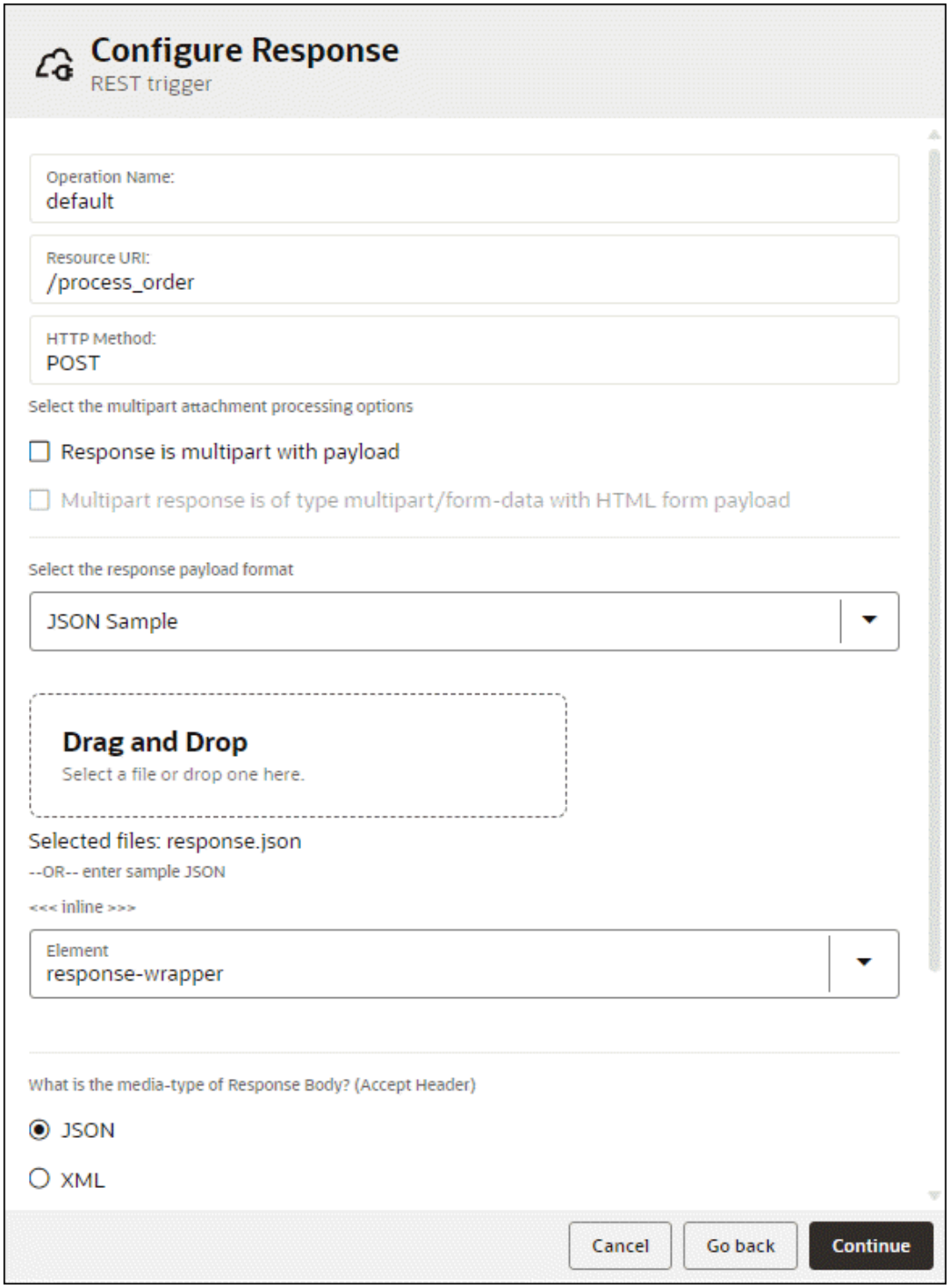
6. In the Configure Response page, select **JSON Sample** as the response payload format for this example.

Similar to the request, the response payload type can be either XML schema or JSON format.

In the Sample Locaton field, click **+** to select a desired request payload file, such as "response.json". Click **Open** to attach the selected file.

For the sample response payload, see Sample JSON Payloads for the Oracle E-Business Suite Adapter as an Invoke Example for a PL/SQL REST Service.

In the "What is the media-type as Response Body? (Accept Header)" section, select the **JSON** button as the type.



7. Click **Continue**.

   This displays the Summary page with the following REST service information that you specified earlier. Click **Finish**.

   Click **Save** to save your work. The GenericREST connection now appears in the canvas.

Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection

After adding the REST Adapter trigger connection to the integration, you can add the Oracle E-Business Suite connection "EBS122" that you created earlier as an invoke (target) connection.

Perform the following steps to add the Oracle E-Business Suite Adapter as an invoke (target) connection:

1. In the Create Order integration canvas, hover your cursor over the lines after the Trigger icon and click the **+** sign to search the "EBS122" connection that you created earlier from the Invokes menu selection.

   The Oracle E-Business Suite Adapter Endpoint Configuration Wizard appears.

2. In the Configure Basic Info page, enter the following information for your endpoint:

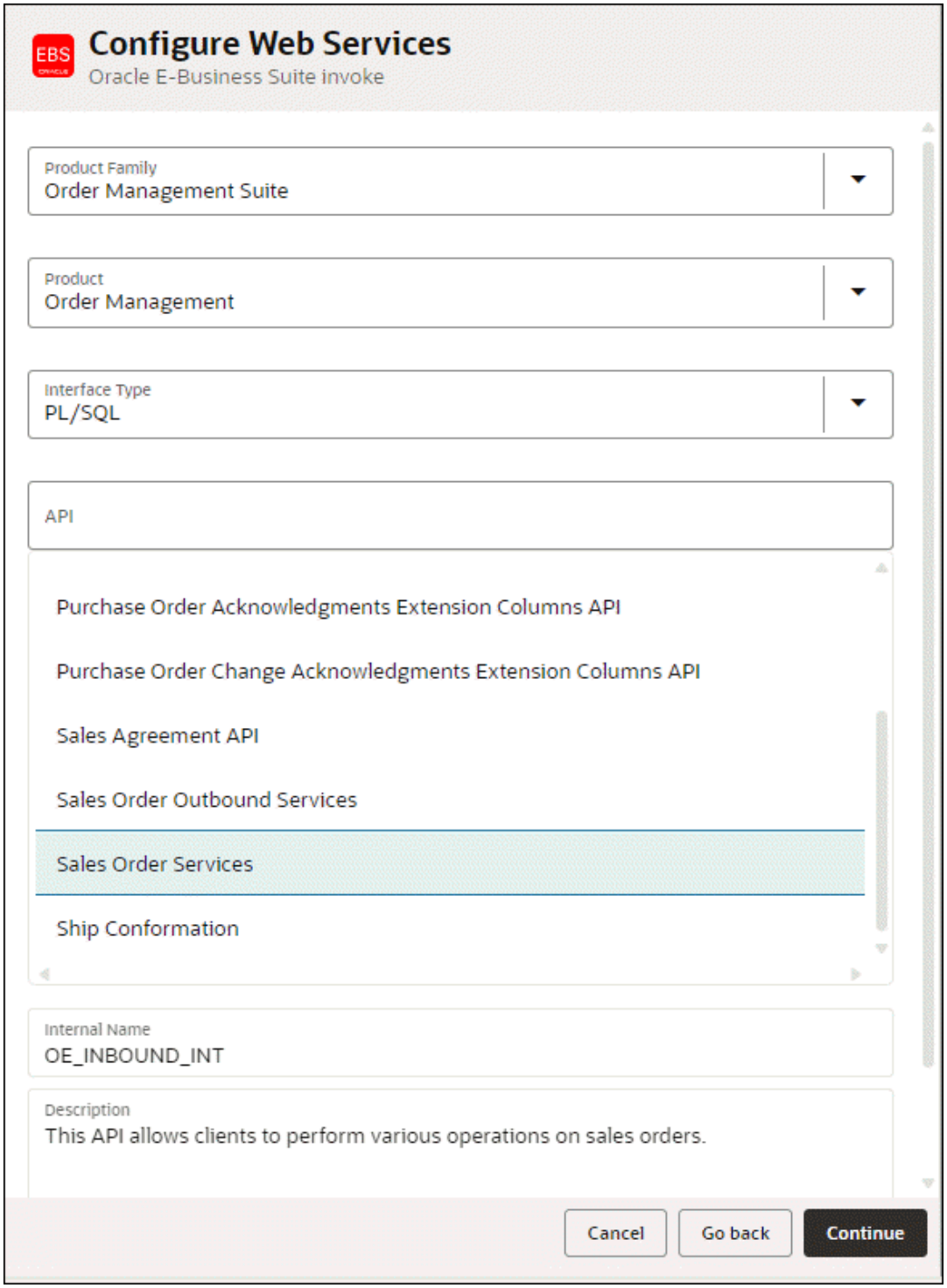
   - **What do you want to call your endpoint?** - Enter "EBS_Reference".
   - **What does this endpoint do?** - Enter "Create a Sales Order in Oracle E-Business Suite".

   Click **Continue**.

3. In the Configure Web Services page, specify the following information for your target connection:

   - **Product Family:** Select "Order Management Suite" from the drop-down list.
   - **Product:** Select "Order Management".
   - **Interface Type:** Select "PL/SQL" from the list.

   After you select a desired product family, a product, and an interface type, a list of PL/SQL APIs including Oracle seeded APIs and custom ones contained in the selected product "Order Management" is populated for further selection.

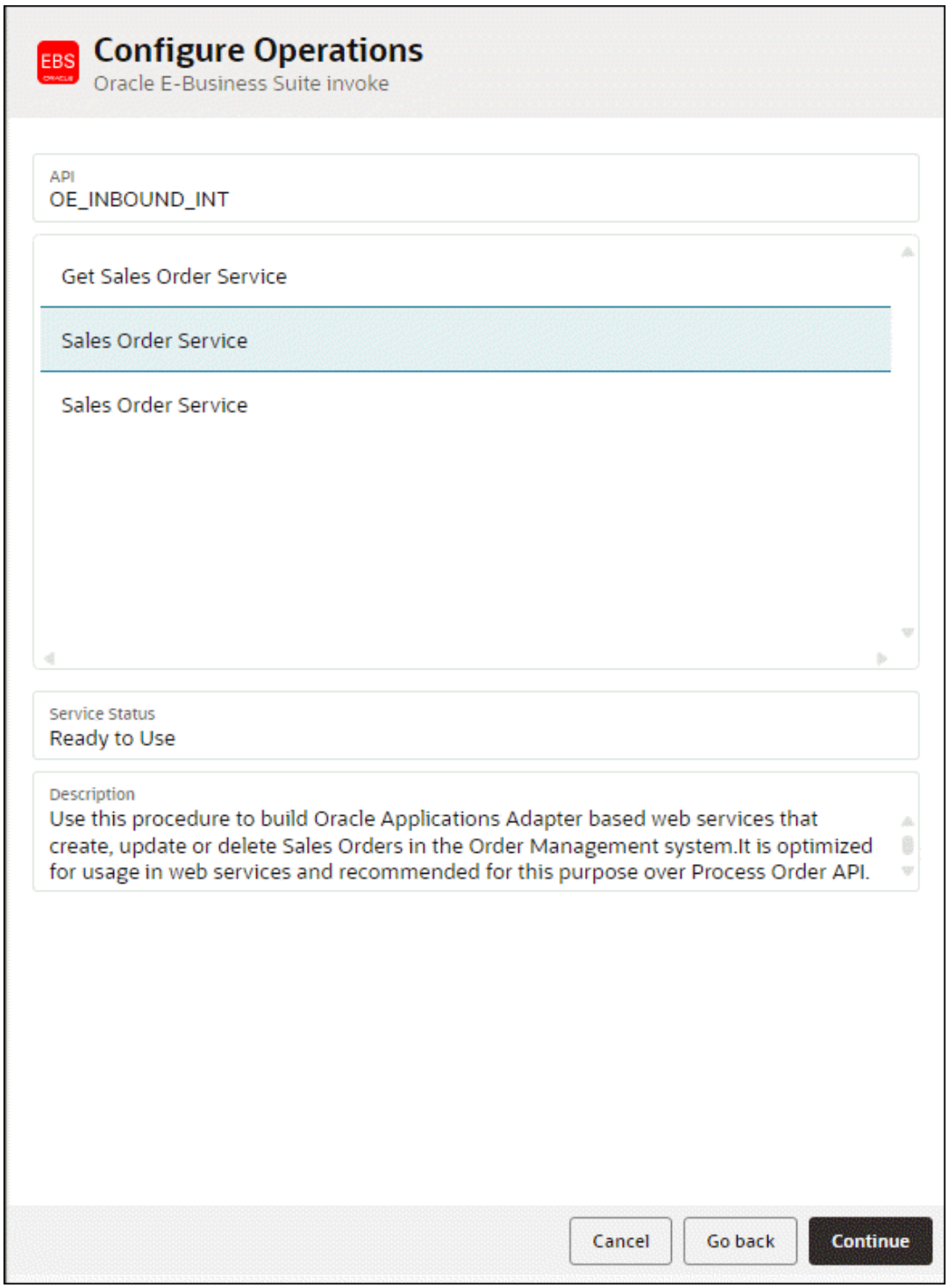


Select a desired API name, such as "Sales Order Services". The corresponding API internal name (OE_INBOUND_INT) and description are automatically populated.

Click **Continue**.

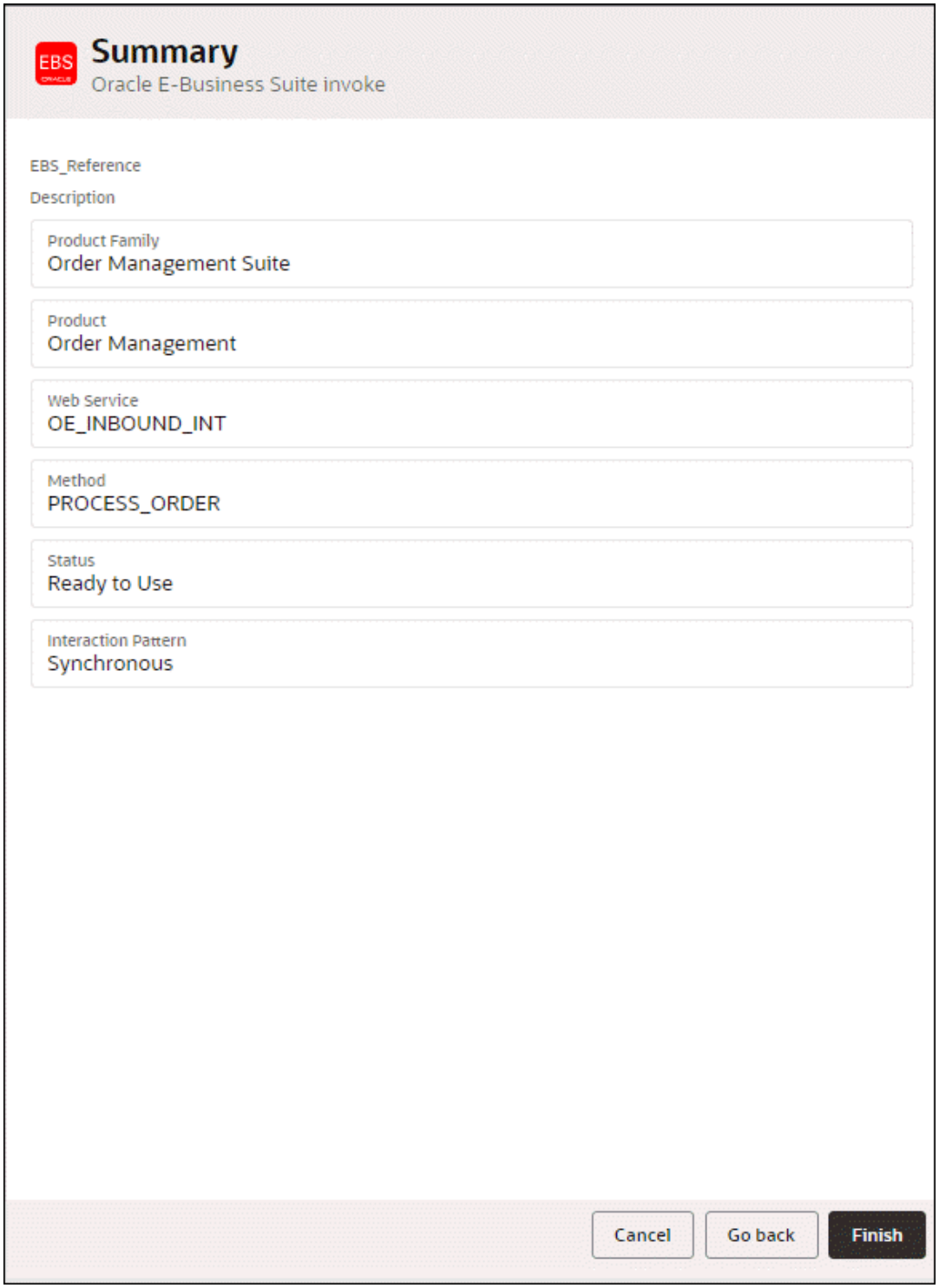
4. The selected API internal name OE_INBOUND_INT appears in the Configure Operations page.

   Select a desired method name contained in the selected OE_INBOUND_INT API for this invoke (target) connection. For example, select "PROCESS_ORDER".



Click **Continue**.

5. The Summary page displays all the selected interface details. This information includes the selected "PROCESS_ORDER" operation (with "Ready to Use" status) contained in the "OE_INBOUND_INT" web service from the Order Management Suite product family and Order Management product. This page also displays the default interaction pattern "Synchronize" for the selected service.



The Oracle E-Business Suite Adapter Target Endpoint configuration is successfully created.

Click **Finish**.

6. Click **Save** to save your work.

The connection for Oracle E-Businses Suite now appears in the canvas.

Create Mappings

This step is to create mappings between the source and target data structures in the integration. It includes the following mappings:

- mappings for **`EBS_Reference`**
- mappings for **`Source`**

Create mappings for `EBS_Reference`:

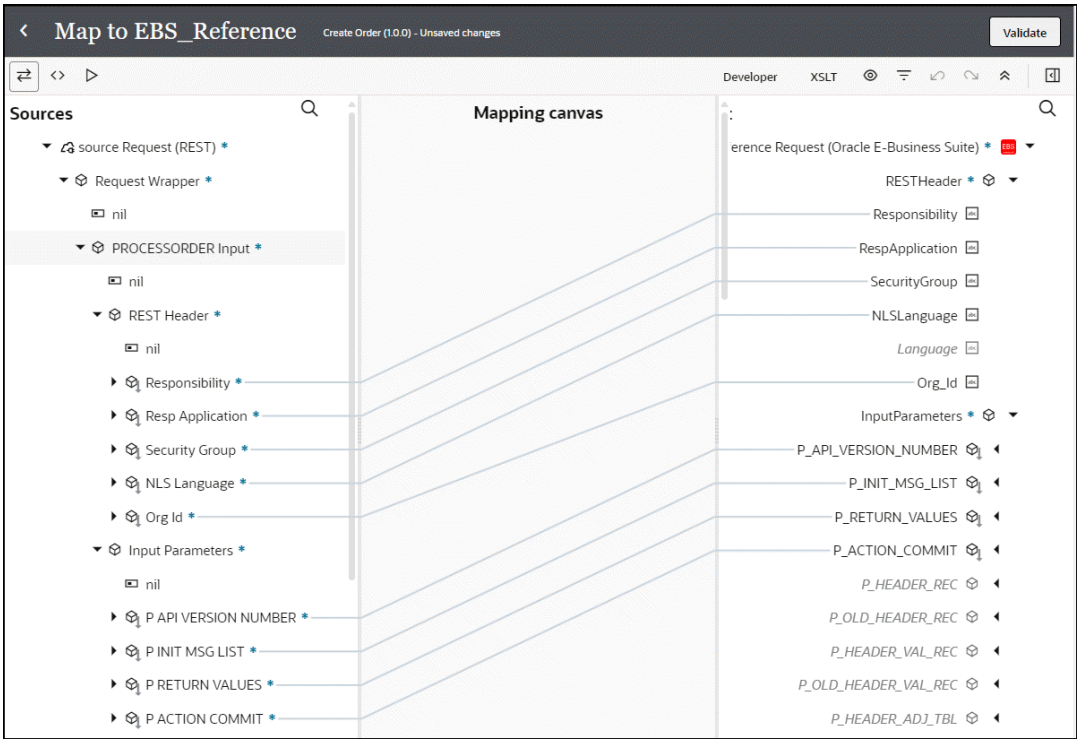
1. In the Create Order integration flow, select the **Map to EBS_Reference** action and then click **Edit** . The mapper is displayed.
2. In the mapper, perform the following tasks to create mappings:
   - In the Source section, expand the **Source Request (REST)** node, then the **Request Wrapper** node, then the **PROCESSORDER Input** node, and then the **InputParameters** node.

     Select the **P_API_VERSION_NUMBER** element.
   - In the Target section, expand the **EBS_Reference Request (Oracle E-Business Suite)** node, and then the **InputParameters** node.

     Select the **P_API_VERSION_NUMBER** element.

   Drag the **P_API_VERSION_NUMBER** element from the Source section to the **P_API_VERSION_NUMBER** element in the Target section to map the data.

   Once you complete this step, the mapped source value and the corresponding target element are connected by a line.



Similarly, use the same approach to complete the mappings for the elements listed in the following table.

Source Path	Source Element	Target Path	Target Element
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/RESTHeader	Responsibility	EBS_Reference Request (Oracle E-Business Suite)/ RESTHeader	Responsibility
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/RESTHeader	RespApplication	EBS_Reference Request (Oracle E-Business Suite)/ RESTHeader	RespApplication
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/RESTHeader	SecurityGroup	EBS_Reference Request (Oracle E-Business Suite)/ RESTHeader	SecurityGroup
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/RESTHeader	NLSLanguage	EBS_Reference Request (Oracle E-Business Suite)/ RESTHeader	NLSLanguage
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/RESTHeader	Org_Id	EBS_Reference Request (Oracle E-Business Suite)/ RESTHeader	Org_Id
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/Input Parameters	P_INIT_MSG_LIST	EBS_Reference Request (Oracle E-Business Suite)/ InputParameters	P_INIT_MSG_LIST
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/Input Parameters	P_RETURN_VALUES	EBS_Reference Request (Oracle E-Business Suite)/ InputParameters	P_RETURN_VALUES
Source Request (REST)/Request Wrapper/ PROCESSORDER Input/Input Parameters	P_ACTION_COMMIT	EBS_Reference Request (Oracle E-Business Suite)/ InputParameters	P_ACTION_COMMIT

3. Once the mapping is complete, click **Validate** to return to the integration canvas.

Create mappings for `Source`:

1. In the Create Order integration, click the **Map to Source** action and select **edit**  . The mapper is displayed.
2. In the mapper, perform the following tasks to create mappings:
   - In the Source section, expand the **EBS_Reference Response (Oracle E-Business Suite)** node, then the **PROCESS_ORDERResponse** node, and then the **OutputParameters** node.

     Select the **X_RETURN_STATUS** element.

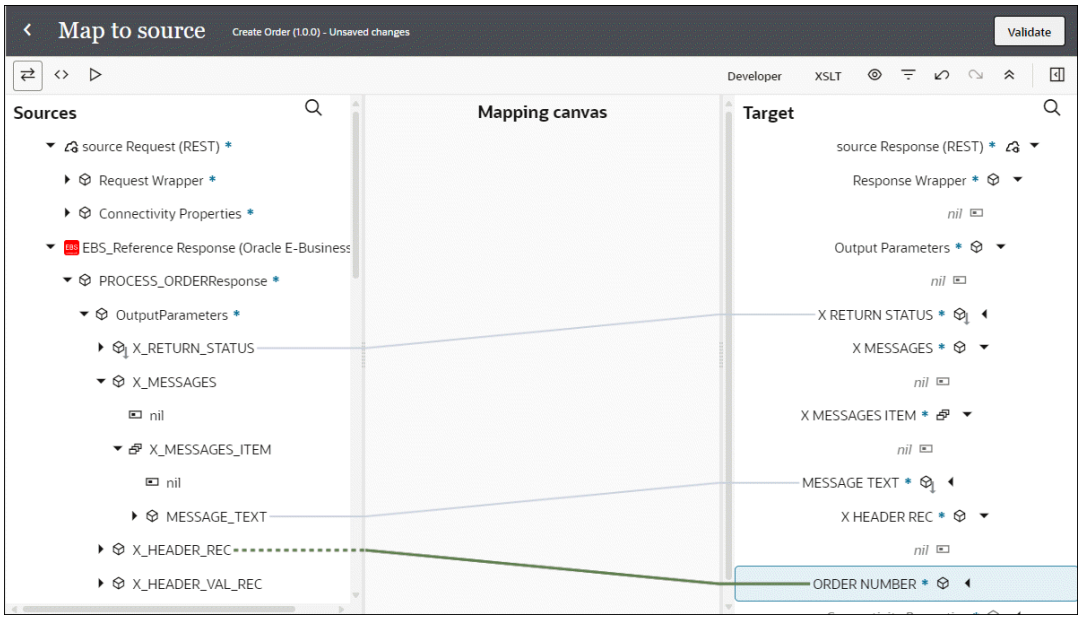
- In the Target section, expand the **Source Reponse (REST)** node, then the **Response Wrapper** node, and then the **Output Parameters** node.

  Select the **X_RETURN_STATUS** element.

Drag the **X_RETURN_STATUS** element from the Source section to the **X_RETURN_STATUS** element in the Target section to map the data.

3. Use the same approach to complete the mappings for the elements listed in the following table.

Source Path	Source Element	Target Path	Target Element
EBS_Reference Response (Oracle E-Business Suite)/ PROCESS_ORDERResponse/ OutputParameters/ X_MESSAGES/ X_MESSAGES_ITEM	MESSAGE_TEXT	Source Reponse (REST)/Response Wrapper/ OutputParameters/ X_MESSAGES/ X_MESSAGES_ITEM	MESSAGE_TEXT
EBS_Reference Response (Oracle E-Business Suite)PROCESS_ORDERResponse/ OutputParameters/ X_HEADER_REC	ORDER_NUMBER	Source Reponse (REST)/Response Wrapper/ OutputParameters/ X_HEADER_REC	ORDER_NUMBER



Once the mapping is complete, click **Validate** and then save your work.

Assign a Business Identifier for Tracking

To effectively track payload fields in messages during runtime, you can specify up to three tracking fields to enable runtime tracking on messages.

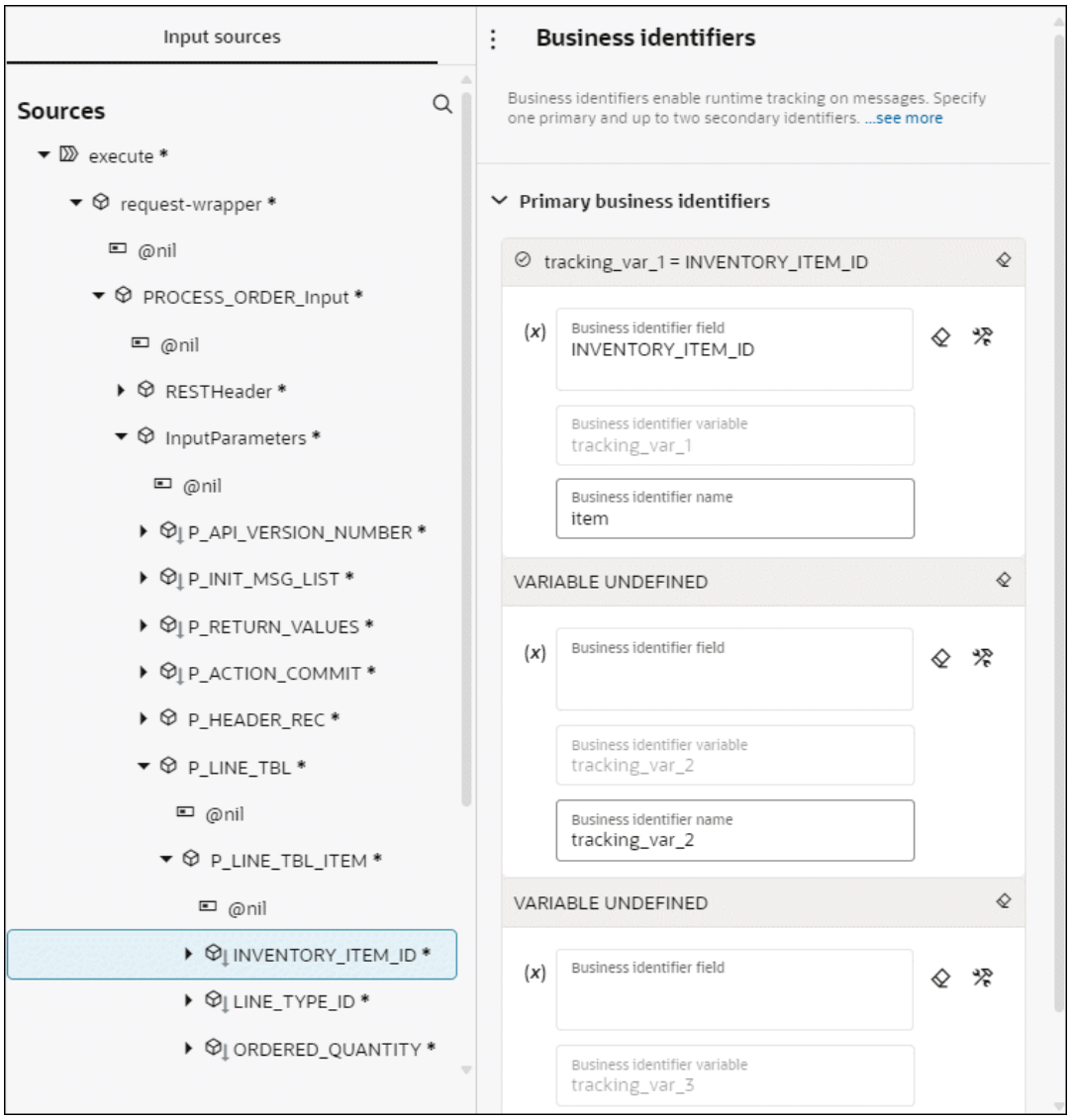
1. In the "Create Order" integration canvas, click **Business Identifiers** (I).

   The Business identifiers panel appears.

2. From the **Sources** section, drag the payload field that you want to track to the **Primary business identifiers**.

   For example, drag the INVENTORY_ITEM_ID element from the **Sources** section to the **Business identifier field** as the primary key. A checkmark to the left of the **INVENTORY_ITEM_ID** element indicates that this is the primary business identifier.

   Enter "item" as the **Business identifier name** for the INVENTORY_ITEM_ID element.



3. Save your work.

Activate and Test the Integration

Activate the Integration

After you complete the integration with desired source and target connections and mappings, you can activate the "Create Order" integration.

Perform the following steps to activate the integration:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, hover your cursor over the **Create Order** integration, then click **Activate** .
3. The Activate integration panel appears. Select the level of tracing appropriate to your integration. Click **Activate**.

   Notice that a status message is displayed in the banner at the top of the Integrations page.

Test the Integration

Hover your cursor over the **Create Order** integration, then click **Actions** and then select **Run**.

You can copy the Endpoint URL (`https://<Oracle Integration Host>:<Port>/ic/api/integration/v1/flows/ebusiness/CREATE_ORDER/1.0/process_order`) and open it in any REST client to invoke the REST service for order creation.

For example, an order number 69359 is created successfully after the service invocation and is shown in the Response tab.

Verify Order Creation in Oracle E-Business Suite

Log in to Oracle E-Business Suite as a user who has the Order Management Super User, Vision Operations (USA) responsibility.

Select **Order Returns** and then **Sales Order** from the navigation menu to open the Sales Orders form.

Search for an order by pressing the **F11** key. In the Customer PO field, enter the order ID retrieved from the service invocation. For example, enter 69359 and press the **CTRL+F11** keys to execute the query. You should be able to find the order created in Oracle E-Business Suite.

Sample JSON Payloads for the Oracle E-Business Suite Adapter as an Invoke Example for a PL/SQL REST Service

This section includes the JSON request and response payloads used in the example of adding the Oracle E-Business Suite Adapter as an invoke (target) connection in an integration.

For information on using these payloads, see: Add the REST Adapter as a Trigger (Source) Connection.

Sample Request Payload for the request.json File


```
{
  "PROCESS_ORDER_Input": {
    "RESTHeader": {
      "Responsibility": "ORDER_MGMT_SUPER_USER",
      "RespApplication": "ONT",
      "SecurityGroup": "STANDARD",
      "NLSLanguage": "AMERICAN",
      "Org_Id": "204"
    },
    "InputParameters": {
      "P_API_VERSION_NUMBER": "1.0",
      "P_INIT_MSG_LIST": "T",
      "P_RETURN_VALUES": "T",
      "P_ACTION_COMMIT": "T",
      "P_HEADER_REC": {
        "BOOKED_FLAG": "N",
        "ORDER_TYPE_ID": "1430",
        "ORG_ID": "204",
        "PAYMENT_TERM_ID": "4",
        "PRICE_LIST_ID": "1000",
        "SOLD_TO_ORG_ID": "1002",
        "TRANSACTIONAL_CURR_CODE": "USD",
        "OPERATION": "CREATE"
      },
      "P_LINE_TBL": {
        "P_LINE_TBL_ITEM": {
          "INVENTORY_ITEM_ID": "149",
          "LINE_TYPE_ID": "1427",
          "ORDERED_QUANTITY": "1",
          "PAYMENT_TERM_ID": "4",
          "PRICE_LIST_ID": "1000",
          "UNIT_LIST_PRICE": "12.55",
          "UNIT_SELLING_PRICE": "12.55",
          "OPERATION": "CREATE"
        }
      },
      "P_RTRIM_DATA": "n"
    }
  }
}
```

Sample Response Payload for the response.json File

```
{
  "OutputParameters" : {
    "X_RETURN_STATUS" : "S",
    "X_MESSAGES" : {
      "X_MESSAGES_ITEM" : [ {
        "MESSAGE_TEXT" : " Debug File: "
      } ]
    },
    "X_HEADER_REC" : {
      "ORDER_NUMBER" : 123
    }
  }
}
```

An Example of Using an Open Interface REST Service as an Invoke (Target) Connection in an Integration

Sample Business Scenario

An open interface "AR Autoinvoice" (RAXMTR) is used to explain how to insert invoice data in Oracle E-Business Suite through the invocation of REST services.

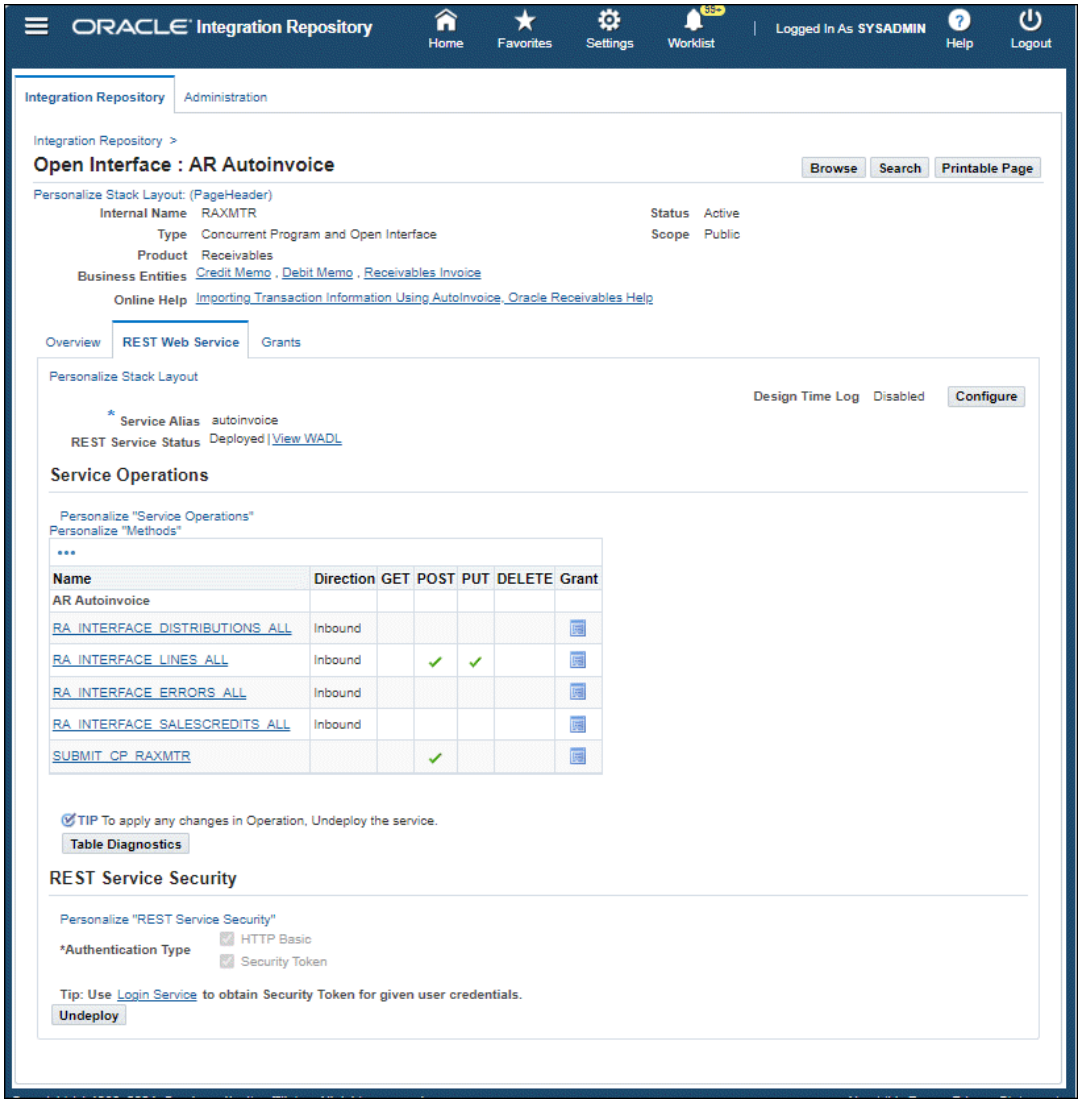
In this example, the REST Adapter is used as a trigger (source) connection and the Oracle E-Business Suite Adapter is used as invoke (target) connections to invoke the REST services contained in the RAXMTR open interface.

At runtime when the integration is triggered, the Oracle E-Business Suite Adapter receives a request with input payload from the trigger (source) connection, invokes the RA_INTERFACE_LINES_ALL REST service to insert data, and invokes the SUBMIT_CP_RAXMTR REST service to submit the corresponding concurrent program. Once the integration is executed and completed successfully, invoice line data is inserted into the RA_INTERFACE_LINES_ALL open interface table in Oracle Receivables. Additionally, you will find the log messages as output responses indicating the number of records are inserted into the table and the concurrent request ID. You can then use the request ID to view and verify the report of the RAXMTR concurrent program.

Prerequisites:

Before creating the integration in Oracle Integration, you need to ensure the following tasks are in place:

- The "AR Autoinvoice" (RAXMTR) open interface is deployed as a REST service with alias `autoinvoice`. All included service operations or interface tables are selected and deployed as REST service operations.



Record the following REST service endpoint from the WADL:

`https://<host>:<port>/webservices/rest/<alias>/RA_INTERFACE_LINES_ALL/`

Replace `<alias>` with `autoinvoice` in this example. You will use this service endpoint later when you create a REST connection in Oracle Integration.

- Security grants are created for the `operations` user.

Based on the integration scenario, the sample tasks for using an Oracle E-Business Suite Open Interface REST service in an integration are included in the Topics section:

Topics:

1. Establish the Connections for Oracle E-Business Suite and REST Services
2. Create an Integration
3. Add the REST Adapter (Trigger) and the Oracle E-Business Suite Adapter (Invoke) to the Integration
4. Create Mappings
5. Assign a Business Identifier for Tracking

6. Activate and Test the Integration
7. Sample XSD for the Oracle E-Business Suite Adapter as an Invoke Example for an Open Interface REST Service

Establish the Connections for Oracle E-Business Suite and REST Services

In this integration example, you need to create the following two connections:

- Connection for Oracle E-Business Suite

  Once the connection to an Oracle E-Business Suite instance is successfully established, you can add the Oracle E-Business Suite Adapter as invoke (target) connections later in an integration.

- Connection for REST services

  You need to establish the connection for REST services. You can add this REST connection as a trigger (source) connection later in an integration.

Create an Oracle E-Business Suite Connection with Oracle E-Business Suite Adapter

Perform the following steps to establish the connection for Oracle E-Business Suite in Oracle Integration:

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

   In the Create connection panel, scroll down and select "Oracle E-Business Suite" from a list of adapters.

   You can optionally use the search feature to enter a full or partial name to locate the Oracle E-Business Suite Adapter from the list.
3. In the Create connection panel, enter the following information for your connection:
   - **Name:** Enter "EBSDemo".
   - **Identifier:** Accept the default populated identifier, such as "EBSDEMO".
   - **Role:** Select the "Trigger and Invoke" role for this connection.
   - **Keywords:** Leave this blank.
   - **Description:** Enter "Use the Oracle E-Business Suite Adapter connection in an integration" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

   Click **Create** to create the connection.
4. Enter additional connection details by specifying the following information:
   - In the Properties dialog, enter a URL (`http://<Oracle E-Business Suite host name>:<port>`) to connect to an Oracle E-Busiess Suite instance.
   - In the Security section, Basic Authentication is shown as the security policy. Enter **`operations`** as the user name and its associated password to access the Oracle E-Business Suite instance you specified earlier in the Properties section.
   - In the Access type section, select **Connectivity agent** and then click **Associate agent group**.

     Select a desired agent group, such as "EBS" to use with the Oracle E-Business Suite Adapter, and click **Use** to enable the selection.

After you specify the connection information for "EBSDemo", the connection details page is displayed.

5. Click **Test** to test the connection you just specified for Oracle E-Business Suite.
6. Click **Save** to save your work.

The Oracle E-Business Suite connection "EBSDemo" now appears in the Connections page.

Create an Connection for REST Services in This Example

Perform the following steps to create an connection for REST APIs:

1. On the Connections page, click **Create**.

   The Create connection panel appears.
2. Scroll down and select "REST" from a list of adapters for the REST Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the REST Adapter from the list.
3. Enter the following information for your REST Adapter connection:
   - **Name:** Enter "RESTSample" as the connection name.
   - **Identifier:** Accept the default populated identifier such as "RESTSAMPLE".
   - **Role:** Select the "Trigger" role for this connection.
   - **Keywords:** Leave this field blank.
   - **Description:** Enter "The sample source REST endpoint" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.
4. Click **Create** to create the connection.
5. The Connection details page is displayed for the "RESTSample" connection you just created. Enter additional connection details by specifying the following information:
   - In the Properties section, enter the following information:
     - **Connection Type:** Select "REST API Base URL".
     - **Connection URL:** Enter a connection URL (`http://<Oracle E-Business Suite host name>:<port>/webservices/rest/autoinvoice`) for the "AR Autoinvoice" (RAXMTR) REST service with `autoinvoice` alias name that you deployed earlier as part of the prerequisites mentioned earlier in An Example of Using an Open Interface REST Service as an Invoke (Target) Connection in an Integration.
   - In the Security section, accept the "Basic Authentication" as the default security policy.

     Enter **`operations`** as the user name and its associated password to access the "AR Autoinvoice" (RAXMTR) REST service you specified earlier in the Properties section.
6. In the Security section, select "Basic Authentication" as the security policy.
7. Click **Test** to test the connection you just specified for REST services.
8. Click **Save** to save your work.

The "RESTSample" connection for REST services appears in the Connections page, along with the Oracle E-Business Suite connection "EBSDemo" that you created earlier.

Create an Integration

Perform the following steps to create an integration between REST services and Oracle E-Business Suite:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, click **Create**. The Create integration panel appears.
3. In this example, choose the "Application" integration pattern and click **Create** to create an integration with a blank source and target.

   Enter the following information:

   - **Name**: Enter "EBS OIT Demo" as the name.
   - **Identifier**: Accept the default identifier value such as "EBS_OIT_DEMO".
   - **Version**: Accept the default version number.
   - **Documentation URL**: Leave this blank.
   - **Keywords**: Leave this blank.
   - **Package**: Leave this blank.
   - **Description**: Enter appropriate description for this integration, such as "Inserting records in an Open Interface Table".
   - **Available to other projects**: Do *not* select this checkbox in this example so that this integration is only used within the same project. It will not be available to other projects.
4. Click **Create**.

   An empty canvas is displayed.

To complete the integration, you need to add the following tasks that are described in the next few sections:

- Add the desired connections to the integration you just created.

  See: Add the REST Adapter (Trigger) and the Oracle E-Business Suite Adapter (Invoke) to the Integration.
- Add mappings to the integration.

  See: Create Mappings.
- Assign business identifiers for tracking.

  See: Assign a Business Identifier for Tracking.

Add the REST Adapter (Trigger) and the Oracle E-Business Suite Adapter (Invoke) to the Integration

After creating an integration with "Application" pattern, you need to orchestrate desired activities for the integration.

In this example, the "EBS OIT Demo" orchestration flow diagram created for this integration includes the following activities:

- The REST Adapter as a trigger connection "REST"

This activity provides the invoice line information as an input payload for invocation of the RA_INTERFACE_LINES_ALL REST service through the Oracle E-Business Suite Adapter.

See: Add the REST Adapter as a Trigger Connection.

- Mapping defined for "RA_Interface_Lines"

  This activity allows you to map and pass the invoice related parameters to the "RA_Interface_Lines" activity to invoke the RA_INTERFACE_LINES_ALL REST service contained in the "AR Autoinvoice" (RAXMTR) open interface.

  See: Create Mappings.

- The Oracle E-Business Suite Adapter as an invoke connection (called RA_Interface_Lines) for inserting invoice line data

  This activity invokes the RA_INTERFACE_LINES_ALL REST service when adding the Oracle E-Business Suite Adapter as an invoke connection. This activity will insert multiple invoice line records into the RA_INTERFACE_LINES_ALL open interface table in Oracle Receivables when the service is invoked successfully.

  See: Add the Oracle E-Business Suite Adapter as an Invoke Connection for Inserting Records.

- The first logger called "Interface"

  This activity allows you to log message about the "Success Count" information after the successful invocation of the RA_INTERFACE_LINES_ALL REST service.

- Mapping defined for "Submit_RAXMTR"

  This activity provides the parameter values to the "Submit_RAXMTR" activity in order for the concurrent program to run successfully.

  See: Create Mappings.

- The Oracle E-Business Suite Adapter as an invoke connection (called "Submit_RAXMTR") for submitting associated concurrent program

  This activity invokes the "SUBMIT_CP_RAXMTR" REST service to submit the RAXMTR (Autoinvoice Master Program) concurrent program. When the request of running the concurrent program is processed or executed, validation is performed on the corresponding open interface.

  See: Add the Oracle E-Business Suite Adapter as an Invoke Connection for Submitting a Concurrent Program.

- The second logger called "CPSubmitResponse"

  Once the concurrent request is successfully processed, use this activity to log message about the concurrent request ID. You can view the associated report through the concurrent request ID for validation.

  See: Add the Loggers.

Topics:

Add the REST Adapter as a Trigger Connection

The REST Adapter is used in this example to provide invoice information as an input to the RA_INTERFACE_LINES_ALL REST service invocation through the Oracle E-Business Suite Adapter.

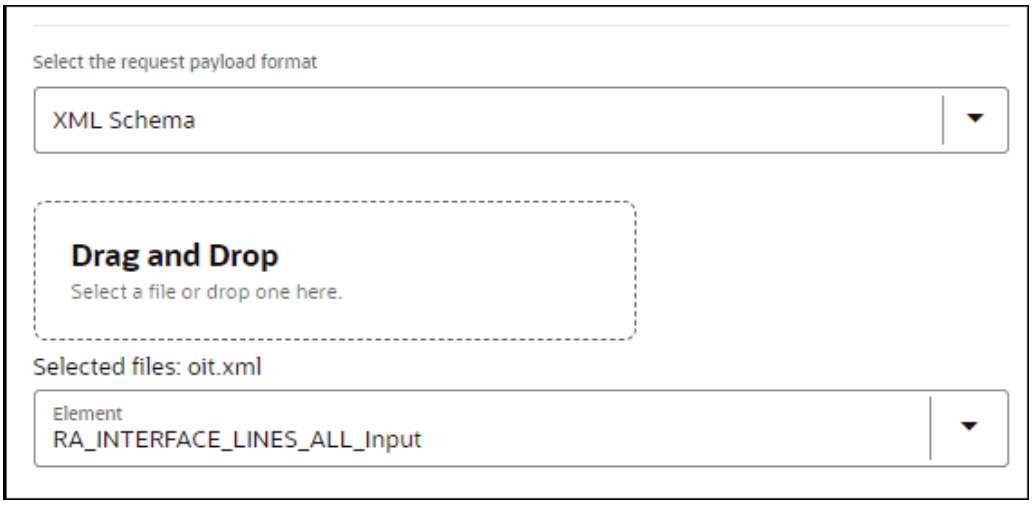
Perform the following steps to add the REST Adapter as a trigger (source) connection:

1. In the "EBS OIT Demo" integration canvas, click the **+** sign in the integration canvas or click **Triggers** on the side of the canvas. A list of trigger connections appears.
2. Search the Oracle E-Business Suite connection called "RESTSample" from the list of selection. The REST Adapter Endpoint Configuration Wizard appears.
3. Enter the following information:
   - **What do you want to call your endpoint?** - Enter the name of this endpoint, such as "REST".
   - **What does this endpoint do?** - Enter the usage of this endpoint, such as "Provide REST endpoint with input payload".
   - **What is the endpoint's relative resource URI?** - Enter `/RA_INTERFACE_LINES_ALL/`.
   - **What action does the endpoint perform?** - Select "POST" from the drop-down list.

   Ensure that you select the following checkbox for this trigger (source) connection:
   - **Configure a request payload for this endpoint**

   Click **Continue**.
4. In the Configure Request page, perform the following tasks:
   - In the "Select the request payload file" section, select the **XML schema** button.

     Please note that the request payload file type can be either XML schema or JSON format.
   - Click **Browse** to select a desired request payload file, such as "input.xsd". Click **Open** to attach the selected file. System will parse the schema and display the root element (`RA_INTERFACE_LINES_ALL_input`) in the Element field.



For the sample request payload, see Sample XSD for the Oracle E-Business Suite Adapter as an Invoke Example for an Open Interface REST Service.

- In the "Select the type of payload with which you want the endpoint to receive" section, select the **XML** button as the payload type.

Click **Continue**.

5. This displays the Summary page with the following REST service information that you specified earlier:
   - REST Service URI: `/RA_INTERFACE_LINES_ALL/`
   - Method: POST
   - Request Media Type: application/xml

   Click **Finish**.

   Click **Save** to save your work.

   The "REST" endpoint now appears as a trigger in the integration flow.

Add the Oracle E-Business Suite Adapter as an Invoke Connection for Inserting Records

After adding the REST Adapter as a trigger connection, you can add the Oracle E-Business Suite connection that you created earlier as an invoke (target) connection in your integration. This allows you to invoke an open interface table REST service to insert invoice line data into the open interface table `RA_INTERFACE_LINES_ALL` in Oracle Receivables.

Perform the following steps to add the Oracle E-Business Suite Adapter in the orchestration flow:

1. In the "EBS OIT Demo" integration canvas, drag and drop the "EBSDemo" connection from the Invokes toolbar on the right to the integration, right after the "REST" activity you created earlier.

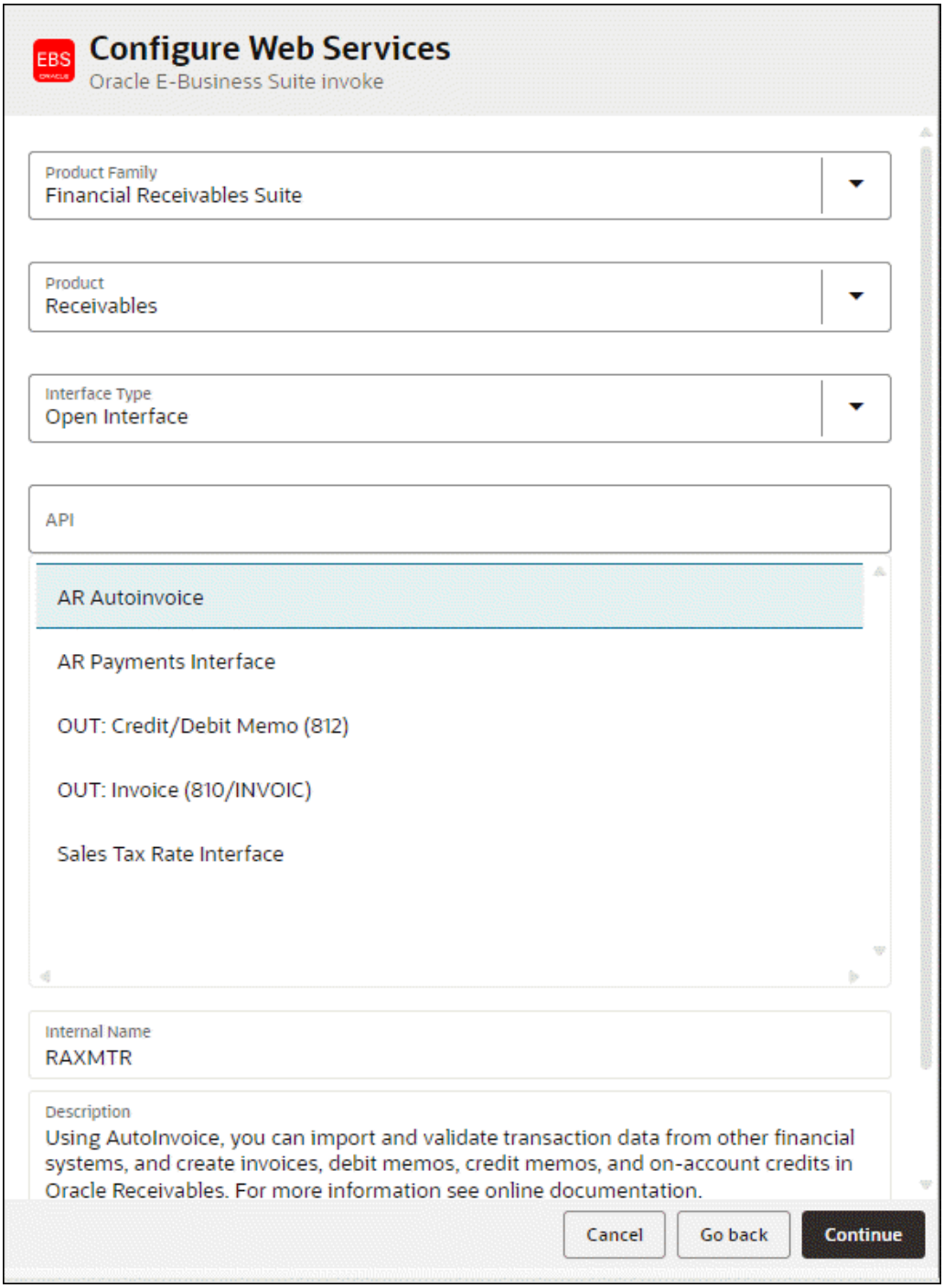
   The Configure Oracle E-Business Suite Adapter Endpoint wizard appears.

2. In the Configure Basic Info page, enter the following information for your endpoint:
   - **What do you want to call your endpoint?** - Enter "RA_Interface_Lines".
   - **What does this endpoint do?** - Enter "Insert invoice data in Oracle Receivables".

   Click **Continue**.

3. In the Configure Web Services page, specify the following information for your target connection:
   - **Product Family:** Select "Financial Receivables Suite" from the drop-down list.
   - **Product:** Select "Receivables".
   - **Interface Type:** Select "Open Interface" from the list.
   - **API:** Select "AR Autoinvoice" for this example.

     The corresponding API internal name (RAXMTR) and description are automatically populated.

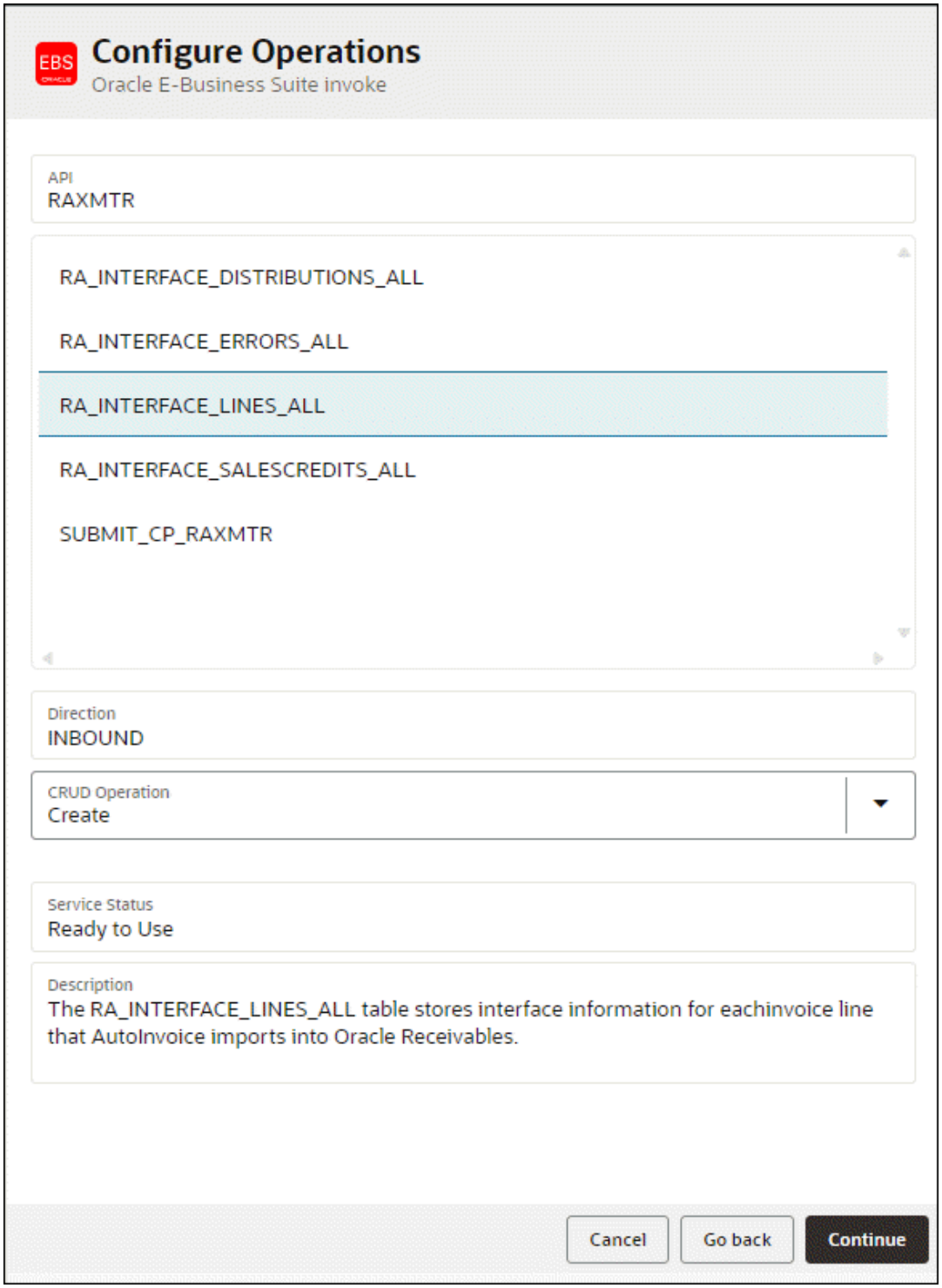


Click **Continue**.

4. In the Configure Operations page, select a desired method name contained in the selected API (RAXMTR) for this invoke (target) connection.

   For example, select "RA_INTERFACE_LINES_ALL".

   In the CRUD Operation field, select "Create" from the drop-down list.



Click **Continue**.

5. The Summary page displays all the selected interface details. This information includes the selected "RA_INTERFACE_LINES_ALL" operation (with CRUD "Create" operation) contained in the "RAXMTR" web service from the Financial Receivables Suite product family and Receivables product. This page also displays the default interaction pattern "Synchronize" for the selected service.

   The Oracle E-Business Suite Adapter Target Endpoint configuration is successfully created.

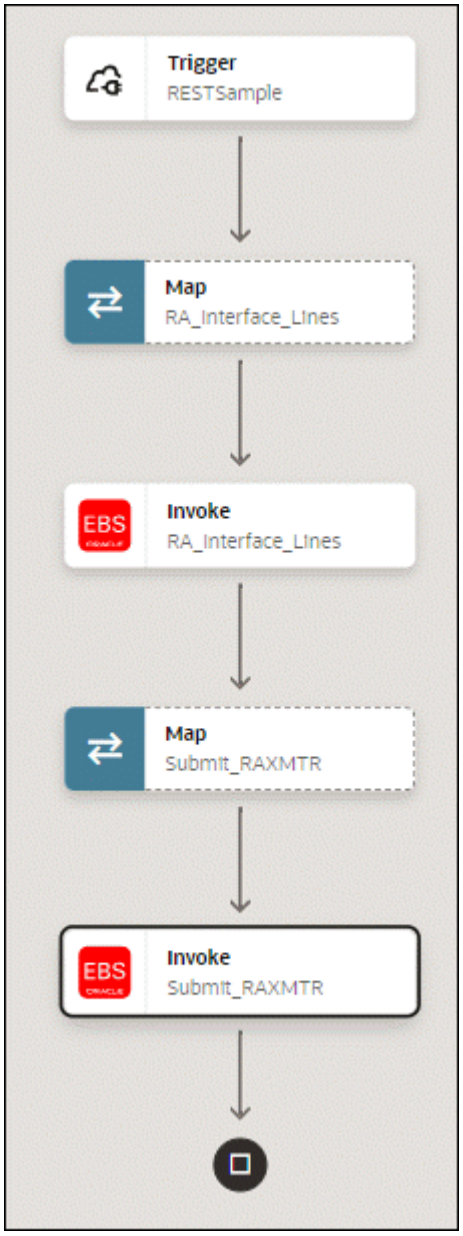
Click **Finish**.

6. Click **Save** to save your work.

The connection for Oracle E-Business Suite called "RA_Interface_lines" now appears as part of the orchestration flow.

Add the Oracle E-Business Suite Adapter as an Invoke Connection for Submitting a Concurrent Program

After adding the Oracle E-Business Suite Adapter as an invoke connection (`RA_Interface_lines`) to invoke the `RA_INTERFACE_LINES_ALL` REST service, you can add the second invoke connection in the flow to invoke the `SUBMIT_CP_RAXMTR` REST service to submit the RAXMTR (Autoinvoice Master Program) concurrent program.



Perform the following steps to add the Oracle E-Business Suite Adapter as an invoke (target) connection for concurrent program submission:

1. In the "EBS OIT Demo" integration canvas, hover your cursor over the lines right after the "RA_Interface_lines" activity you just created earlier. Click the **+** sign to display a list of invoke connections.

   Search and select the "EBSDemo" connection from the list to display the Oracle E-Business Suite Adapter Endpoint Configuration Wizard.

2. In the Configure Basic Info page, enter the following information for your endpoint:

   - **What do you want to call your endpoint?** - Enter "Submit_RAXMTR".
   - **What does this endpoint do?** - Enter "Submit the concurrent program for RAXMTR".

   Click **Continue**.

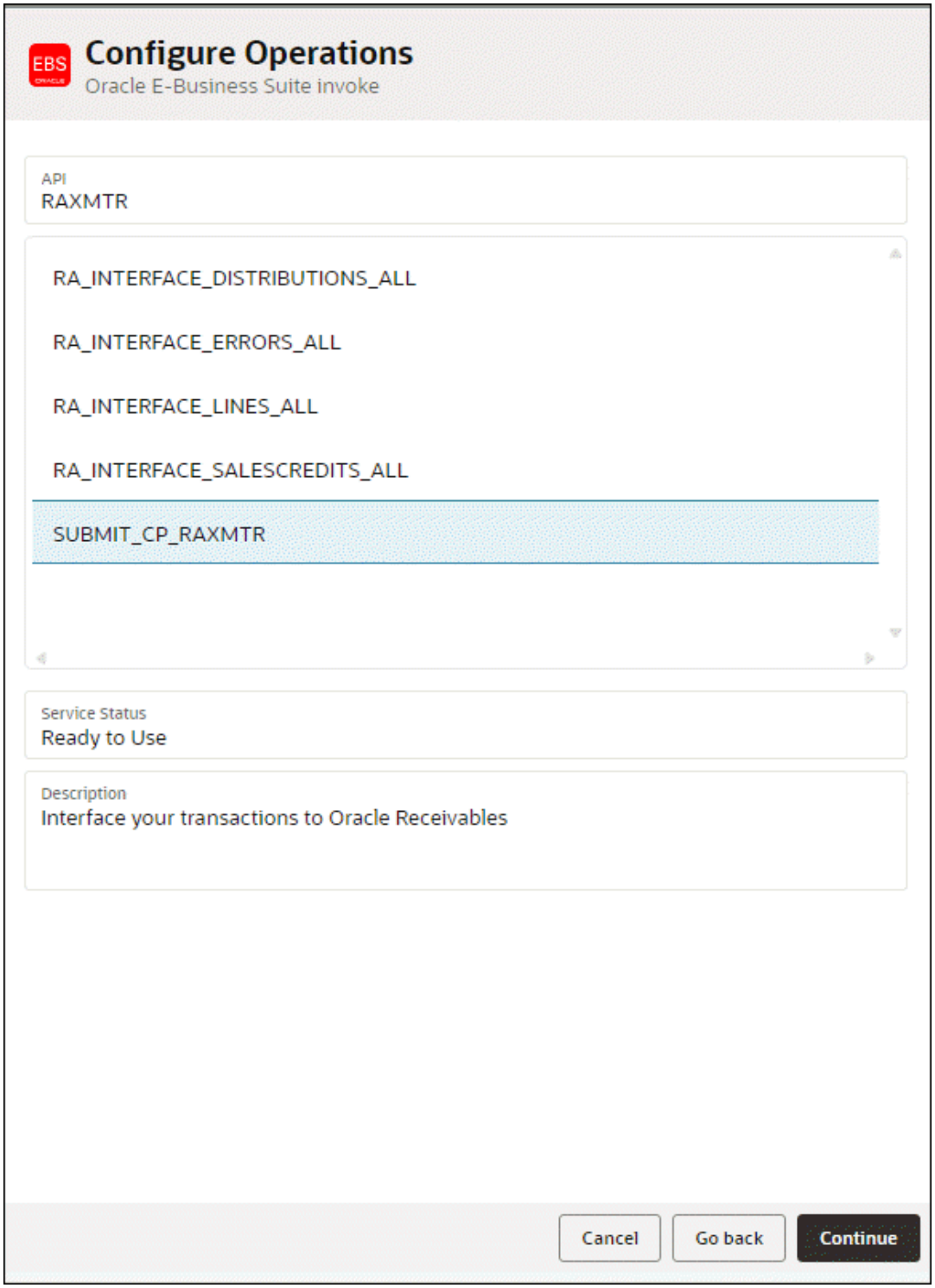
3. In the Configure Web Services page, specify the following information for your target connection:

   - **Product Family:** Select "Financial Receivables Suite" from the drop-down list.
   - **Product:** Select "Receivables".
   - **Interface Type:** Select "Open Interface" from the list.
   - **API:** Select "AR Autoinvoice".

     The corresponding API internal name (RAXMTR) and description are automatically populated.

   Click **Continue**.

4. In the Configure Operations page, select a desired method name contained in the API (RAXMTR) for this invoke (target) connection. In this example, select "SUBMIT_CP_RAXMTR".



Click **Continue**.

5. The Summary page displays all the selected interface details. This information includes the selected "SUBMIT_CP_RAXMTR" operation contained in the "RAXMTR" REST service from the Financial Receivables Suite product family and Receivables product. This page also displays the default interaction pattern "Synchronize" for the selected service.

   The Oracle E-Business Suite Adapter Target Endpoint configuration is successfully created.

Click **Finish**.

6. Click **Save** to save your work.

Add the Loggers

After adding both the trigger and invoke connections in the canvas, you can add the logger to log messages. In this example, you need to add the following two loggers in the orchestration flow:

- Add the first logger after "RA_Interface_Lines"

  This activity is to log message about the "Success Count" information after the successful invocation of the RA_INTERFACE_LINES_ALL REST service.

- Add the second logger after "Submit_RAXMTR"

  Once the concurrent program is successfully processed, use this activity to log message about the concurrent request ID. You can then view the associated report through the concurrent request ID for validation.

Perform the following steps to add loggers:

1. **Add the First Logger "Interface" for Success Count**

   In the "EBS OIT Demo" integration page, click **Actions** and drag and drop the **Logger** action to the integration after "RA_Interface_Lines" and before "Submit_RAXMTR". The Configure Logger panel appears.

   The Create Action page appears.

2. Click **Edit** under **Configure Logger** to enter "Interface" as the name.
3. Perform the following tasks to create a message:
   - In the Log field, select the **Always** button.
   - In the Source tree, expand the **RA_INTERFACE_LINES_ALLResponse** node, then the **OutputParameters** node, and then the **Summary** node.

     Drag and drop the **SuccessCount** element to the right in the Logger Message field.
   - In the Functions section, expand **Functions**, then **String**, and then **concat**. Drag and drop **concat** to the Logger Message field to add the function as expression to display Success Count.

     Click **Save** to add this action to the integration.
4. **Add the Second Logger "CPSubmitResponse" for Concurrent Program Submit ID**

   In the "EBS OIT Demo" integration page, click **Actions** and drag the drop the **Logger** action to the integration, right after "Submit_RAXMTR". The Configure Logger panel appears.

5. Click **Edit** under **Configure Logger** to enter "PSubmitResponse" as the name.
6. Perform the following tasks to create a message:
   - In the Log field, select the **Always** button.
   - In the Source tree, expand the **Submit_RAXMTR** node, then the **RAXMTRResponse** node, and then the **OutputParameters** node.

     Drag and drop the **CP_Submit** element to the right in the Logger Message field.

- In the Functions section, expand **Functions**, then **String**, and then **concat**. Drag and drop **concat** to the Logger Message field to add the function as expression to display CP Submit ID.

  Click **Save** to add the second Logger to the integration.

Create Mappings

After orchestrated the required activities in this example, you need to create the following mappings to ensure the source and target data between activities can be processed successfully for the integration:

- Create mappings for "RA_Interface_Lines"
- Create mappings for "Submit_RAXMTR"

Create Mappings for the RA_Interface_Lines Map

1. In the "EBS OIT Demo" integration page, click **Edit**  for the **`Map to RA_Interface_Lines`** icon.
2. Perform the following tasks to creating mapping:

   In this example, you need to map all the elements under the **RA_INTERFACE_LINES_ALL_Input** node from the Source section to the corresponding elements in the **RA_INTERFACE_LINES Request (Oracle E-Business Suite)** node under the Target section.

   For example, create the first mapping using the following steps:

   - In the Source section, expand the **RA_INTERFACE_LINES Request (Oracle E-Business Suite)** node, then the **RA_INTERFACE_LINES_ALL_Input** note, and then the **RESTHeader** node.

     Select the **Responsibility** element from the **RESTHeader** node.

   - In the Target section, expand the **RA_INTERFACE_LINES Request (Oracle E-Business Suite)** node, and then the **RESTHeader** node.

     Select the **Responsibility** element.

   Drag and drop the **Responsibility** element from the Source section to the **Responsibility** element in the Target section to map the data.
3. Use the same mapping mechanism described above to map all the elements under the **RA_INTERFACE_LINES_ALL_Input** node from the Source section to the corresponding elements in the **RA_INTERFACE_LINES Request (Oracle E-Business Suite)** node under the Target section. Specifically, you need to creating mappings for the following elements:

   - All elements under the **RESTHeader** node from the Source section to the corresponding elements in the Target section
   - The **Select** element from the Source section to the **Select** element in the Target section
   - All elements under the **InputParameters** node from the Source section to the corresponding elements in the **InputParameters** node in the Target section
4. Click **Validate**, and then save your mapping.

Create Mappings for the Submit_RAXMTR Map

1. In the "EBS OIT Demo" integration page, click **Edit** for the **`Map to Submit_RAXMTR`** icon.
2. In the Mapper page, assign constant values to the target elements.
   a. In the Target section, expand the **Submit RAXMTR (Oracle E-Business Suite)** node, and then the **RESTHeader** node.
   b. Click **Mapper Functions** to launch the **Components** panel.
   c. Right-click the **Responsibility** element and select **Create Target Node** from the drop-down menu.
   d. In the Expression Builder at the bottom of the page, click the "Switch to Developer View" icon and then enter `'RECEIVABLES_VISION_OPERATIONS'` for the **Responsibility** element.
   A **function** icon is added to the Mapping Canvas section for the target **Responsibility** element node. This icon indicates that a function is used in this mapping.

Similarly, use the same approach to assign appropriate values to the target elements listed in the following table:

Path	Element	Value
Submit RAXMTR (Oracle E-Business Suite)/RESTHeader	RespApplication	'AR'
Submit RAXMTR (Oracle E-Business Suite)/RESTHeader	SecurityGroup	'STANDARD'
Submit RAXMTR (Oracle E-Business Suite)/RESTHeader	NLSLanguage	'AMERICAN'
Submit RAXMTR (Oracle E-Business Suite)/RESTHeader	Org_Id	'204'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	APPLICATION	'AR'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	PROGRAM	'RAXMTR'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	SUB_REQUEST	'0'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	NumberofInstances	'1'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	Organization	'204'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	BatchSourceId	'20'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	BatchSourceName	'PROJECTS INVOICES'
Submit RAXMTR (Oracle E-Business Suite)/ InputParameters	BaseDueDateonTrxDate	'Y'

After you complete this step, function icons are added in the Mapping Canvas section for the corresponding target elements listed in the table above.

3. Click **Validate**, and then save your mapping.

Assign a Business Identifier for Tracking

Perform the following steps to provide a business identifier for tracking during runtime:

1. In the "EBS OIT Demo" integration canvas, click (I).

   The Business identifiers panel appears.

2. From the **Sources** section, expand the **RA_INTERFACE_LINES_ALL_Input** node and then the **RESTHeader** node.

   Drag and drop the **Org_Id** element to the **Business identifier field** as the primary Tracking field. A checkmark to the left of the **Org_Id** element indicates that this is the primary business identifier.

3. Save your work.

Activate and Test the Integration

Perform the following steps to activate the integration:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, hover your cursor over the **EBS OIT Demo** integration, then click **Activate** .
3. The Activate integration panel appears. Select the level of tracing appropriate to your integration. Click **Activate** to confirm this action.

   Notice that a status message is displayed in the banner at the top of the Integrations page.

When this integration is activated, a link to the Tracking page to track instances is shown on the top. Once the integration is activated, click **Actions** ... and then select **Run**. The REST endpoint URL may be as: `https://<host>:<port>/ic/api/integration/v1/flows/rest/EBS_OIT_DEMO/1.0/metadata`

Test the Integration at Runtime

1. Open a REST client.
2. Post the following HTTP request:

```
<?xml version="1.0" encoding="utf-8"?>
<RA_INTERFACE_LINES_ALL_Input>
 <RESTHeader>
  <Responsibility>RECEIVABLES_VISION_OPERATIONS</Responsibility>
  <RespApplication>AR</RespApplication>
  <SecurityGroup>STANDARD</SecurityGroup>
  <NLSLanguage>AMERICAN</NLSLanguage>
  <Org_Id>204</Org_Id>
 </RESTHeader>
<Select>QUANTITY,TRX_NUMBER,BATCH_SOURCE_NAME</Select>
<InputParameters>
<RA_INTERFACE_LINES_ALL_REC>
```

```
 <INTERFACE_LINE_ATTRIBUTE9>1</INTERFACE_LINE_ATTRIBUTE9>
 <INTERFACE_LINE_ATTRIBUTE11>1</INTERFACE_LINE_ATTRIBUTE11>
 <INTERFACE_LINE_ATTRIBUTE10>1</INTERFACE_LINE_ATTRIBUTE10>
 <ORG_ID>204</ORG_ID>
 <COMMENTS>Created by Service</COMMENTS>
 <QUANTITY>10</QUANTITY>
 <TRX_NUMBER>Demo-Rec1</TRX_NUMBER>
 <CONVERSION_RATE>1</CONVERSION_RATE>
 <CONVERSION_DATE>2018-08-18</CONVERSION_DATE>
 <CONVERSION_TYPE>User</CONVERSION_TYPE>
 <ORIG_SYSTEM_SHIP_ADDRESS_ID>1030</ORIG_SYSTEM_SHIP_ADDRESS_ID>
 <ORIG_SYSTEM_SHIP_CUSTOMER_ID>1004</ORIG_SYSTEM_SHIP_CUSTOMER_ID>
 <ORIG_SYSTEM_BILL_ADDRESS_ID>1030</ORIG_SYSTEM_BILL_ADDRESS_ID>
 <ORIG_SYSTEM_BILL_CUSTOMER_ID>1004</ORIG_SYSTEM_BILL_CUSTOMER_ID>
 <TERM_ID>4</TERM_ID>
 <TERM_NAME>30 Net</TERM_NAME>
 <CUST_TRX_TYPE_ID>1</CUST_TRX_TYPE_ID>
 <CUST_TRX_TYPE_NAME>Invoice</CUST_TRX_TYPE_NAME>
 <AMOUNT>1000.00</AMOUNT>
 <CURRENCY_CODE>USD</CURRENCY_CODE>
 <DESCRIPTION>Project Invoices</DESCRIPTION>
 <LINE_TYPE>LINE</LINE_TYPE>
 <SET_OF_BOOKS_ID>1</SET_OF_BOOKS_ID>
 <BATCH_SOURCE_NAME>PROJECTS INVOICES</BATCH_SOURCE_NAME>
 <INTERFACE_LINE_ATTRIBUTE7>Line</INTERFACE_LINE_ATTRIBUTE7>
 <INTERFACE_LINE_ATTRIBUTE6>1</INTERFACE_LINE_ATTRIBUTE6>
 <INTERFACE_LINE_ATTRIBUTE5>Sole, Mr. Samuel</INTERFACE_LINE_ATTRIBUTE5>
 <INTERFACE_LINE_ATTRIBUTE4>Vision Operations</INTERFACE_LINE_ATTRIBUTE4>
 <INTERFACE_LINE_ATTRIBUTE3>Services 01</INTERFACE_LINE_ATTRIBUTE3>
 <INTERFACE_LINE_ATTRIBUTE2>31</INTERFACE_LINE_ATTRIBUTE2>
 <INTERFACE_LINE_ATTRIBUTE1>ATZ Services</INTERFACE_LINE_ATTRIBUTE1>
 <INTERFACE_LINE_CONTEXT>PROJECTS INVOICES</INTERFACE_LINE_CONTEXT>
</RA_INTERFACE_LINES_ALL_REC>
<RA_INTERFACE_LINES_ALL_REC>
 <INTERFACE_LINE_ATTRIBUTE9>1</INTERFACE_LINE_ATTRIBUTE9>
 <INTERFACE_LINE_ATTRIBUTE11>1</INTERFACE_LINE_ATTRIBUTE11>
 <INTERFACE_LINE_ATTRIBUTE10>1</INTERFACE_LINE_ATTRIBUTE10>
 <ORG_ID>204</ORG_ID>
 <COMMENTS>Created by Service</COMMENTS>
 <QUANTITY>20</QUANTITY>
 <TRX_NUMBER>Demo-Rec2</TRX_NUMBER>
 <CONVERSION_RATE>1</CONVERSION_RATE>
 <CONVERSION_DATE>2018-08-18</CONVERSION_DATE>
 <CONVERSION_TYPE>User</CONVERSION_TYPE>
 <ORIG_SYSTEM_SHIP_ADDRESS_ID>1030</ORIG_SYSTEM_SHIP_ADDRESS_ID>
 <ORIG_SYSTEM_SHIP_CUSTOMER_ID>1004</ORIG_SYSTEM_SHIP_CUSTOMER_ID>
 <ORIG_SYSTEM_BILL_ADDRESS_ID>1030</ORIG_SYSTEM_BILL_ADDRESS_ID>
 <ORIG_SYSTEM_BILL_CUSTOMER_ID>1004</ORIG_SYSTEM_BILL_CUSTOMER_ID>
 <TERM_ID>4</TERM_ID>
 <TERM_NAME>30 Net</TERM_NAME>
 <CUST_TRX_TYPE_ID>1</CUST_TRX_TYPE_ID>
 <CUST_TRX_TYPE_NAME>Invoice</CUST_TRX_TYPE_NAME>
 <AMOUNT>1000.00</AMOUNT>
 <CURRENCY_CODE>USD</CURRENCY_CODE>
 <DESCRIPTION>Project Invoices</DESCRIPTION>
 <LINE_TYPE>LINE</LINE_TYPE>
```

```
 <SET_OF_BOOKS_ID>1</SET_OF_BOOKS_ID>
 <BATCH_SOURCE_NAME>PROJECTS INVOICES</BATCH_SOURCE_NAME>
 <INTERFACE_LINE_ATTRIBUTE7>Line</INTERFACE_LINE_ATTRIBUTE7>
 <INTERFACE_LINE_ATTRIBUTE6>1</INTERFACE_LINE_ATTRIBUTE6>
 <INTERFACE_LINE_ATTRIBUTE5>Sole, Mr. Samuel</INTERFACE_LINE_ATTRIBUTE5>
 <INTERFACE_LINE_ATTRIBUTE4>Vision Operations</INTERFACE_LINE_ATTRIBUTE4>
 <INTERFACE_LINE_ATTRIBUTE3>Services 01</INTERFACE_LINE_ATTRIBUTE3>
 <INTERFACE_LINE_ATTRIBUTE2>33</INTERFACE_LINE_ATTRIBUTE2>
 <INTERFACE_LINE_ATTRIBUTE1>ATZ Services</INTERFACE_LINE_ATTRIBUTE1>
 <INTERFACE_LINE_CONTEXT>PROJECTS INVOICES</INTERFACE_LINE_CONTEXT>
</RA_INTERFACE_LINES_ALL_REC>
</InputParameters>
</RA_INTERFACE_LINES_ALL_Input>
```

3. Click the Tracking page link mentioned earlier to display the Instances page.
4. Click the business identifier (such as Org_Id: 204) to display the orchestration flow diagram of the integration instance.
5. From the menu, select **View Activity Stream** to view log messages about Success Count from the Interface step and the log message about concurrent program Submit ID from the 'CPSubmitReponse" step.

   Log messages can be like:

   a. `LogActivity -<Date Time>- Success Count <no. of records in payload that was successfully inserted to RA_INTERFACE_LINES_ALL> - Interface`

   b. `LogActivity -<Date Time>- CP Submit ID <Request ID returned by CP Submit> - CPSubmitResponse`
6. Use the Submit ID to track the status of the associated concurrent program in Oracle E-Business Suite. Once the execution of the concurrent program is completed, you can view the report for the result of this concurrent program.

Sample XSD for the Oracle E-Business Suite Adapter as an Invoke Example for an Open Interface REST Service

This section includes the XML request payload used in the example of using an open interface table REST service as an invoke connection in an integration.

For information on using this payload in the Configure REST Endpoint wizard page, see: An Example of Using an Open Interface Table REST Service as an Invoke (Target) Connection in an Integration.

Sample Request Payload for the input.xsd File

```
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:element name="RA_INTERFACE_LINES_ALL_Input">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="RESTHeader">
     <xs:complexType>
      <xs:sequence>
       <xs:element type="xs:string" name="Responsibility"/>
       <xs:element type="xs:string" name="RespApplication"/>
```

```
        <xs:element type="xs:string" name="SecurityGroup"/>
        <xs:element type="xs:string" name="NLSLanguage"/>
        <xs:element type="xs:string" name="Org_Id"/>
       </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element type="xs:string" name="Select"/>
    <xs:element name="InputParameters">
     <xs:complexType>
      <xs:sequence>
       <xs:element name="RA_INTERFACE_LINES_ALL_REC" maxOccurs="unbounded"
minOccurs="0">
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE11"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE10"/>
       <xs:element type="xs:decimal" name="ORG_ID"/>
       <xs:element type="xs:string" name="COMMENTS"/>
       <xs:element type="xs:decimal" name="QUANTITY"/>
       <xs:element type="xs:string" name="TRX_NUMBER"/>
       <xs:element type="xs:decimal" name="CONVERSION_RATE"/>
       <xs:element type="xs:date" name="CONVERSION_DATE"/>
       <xs:element type="xs:string" name="CONVERSION_TYPE"/>
       <xs:element type="xs:decimal" name="ORIG_SYSTEM_SHIP_ADDRESS_ID"/>
       <xs:element type="xs:decimal" name="ORIG_SYSTEM_SHIP_CUSTOMER_ID"/>
       <xs:element type="xs:decimal" name="ORIG_SYSTEM_BILL_ADDRESS_ID"/>
       <xs:element type="xs:decimal" name="ORIG_SYSTEM_BILL_CUSTOMER_ID"/>
       <xs:element type="xs:decimal" name="TERM_ID"/>
       <xs:element type="xs:string" name="TERM_NAME"/>
       <xs:element type="xs:decimal" name="CUST_TRX_TYPE_ID"/>
       <xs:element type="xs:string" name="CUST_TRX_TYPE_NAME"/>
       <xs:element type="xs:decimal" name="AMOUNT"/>
       <xs:element type="xs:string" name="CURRENCY_CODE"/>
       <xs:element type="xs:string" name="DESCRIPTION"/>
       <xs:element type="xs:string" name="LINE_TYPE"/>
       <xs:element type="xs:decimal" name="SET_OF_BOOKS_ID"/>
       <xs:element type="xs:string" name="BATCH_SOURCE_NAME"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE7"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE6"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE5"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE4"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE3"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE2"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_ATTRIBUTE1"/>
       <xs:element type="xs:string" name="INTERFACE_LINE_CONTEXT"/>
      </xs:element>
      </xs:sequence>
     </xs:complexType>
   </xs:element>
   </xs:sequence>
   </xs:complexType>
  </xs:element>
  </xs:schema>
```

Examples of Using a Java REST Service as an Invoke (Target) Connection in an Integration

Oracle E-Business Suite Adapter supports the Java-based REST services as invoke connections in integrations. To better understand how to use Java REST services to fetch and use application data in integrations, this section includes integration examples of using various Java subtypes of REST services as invoke connections.

Topics:

Use a Java REST Service of Application Module Service Subtype as an Invoke (Target) Connection

Sample Business Scenario

An Application Module Service, a subtype of Java interface, called "Self-Service HR" is used to explain how to obtain available absence details from Oracle E-Business Suite through the invocation of a Java REST service.

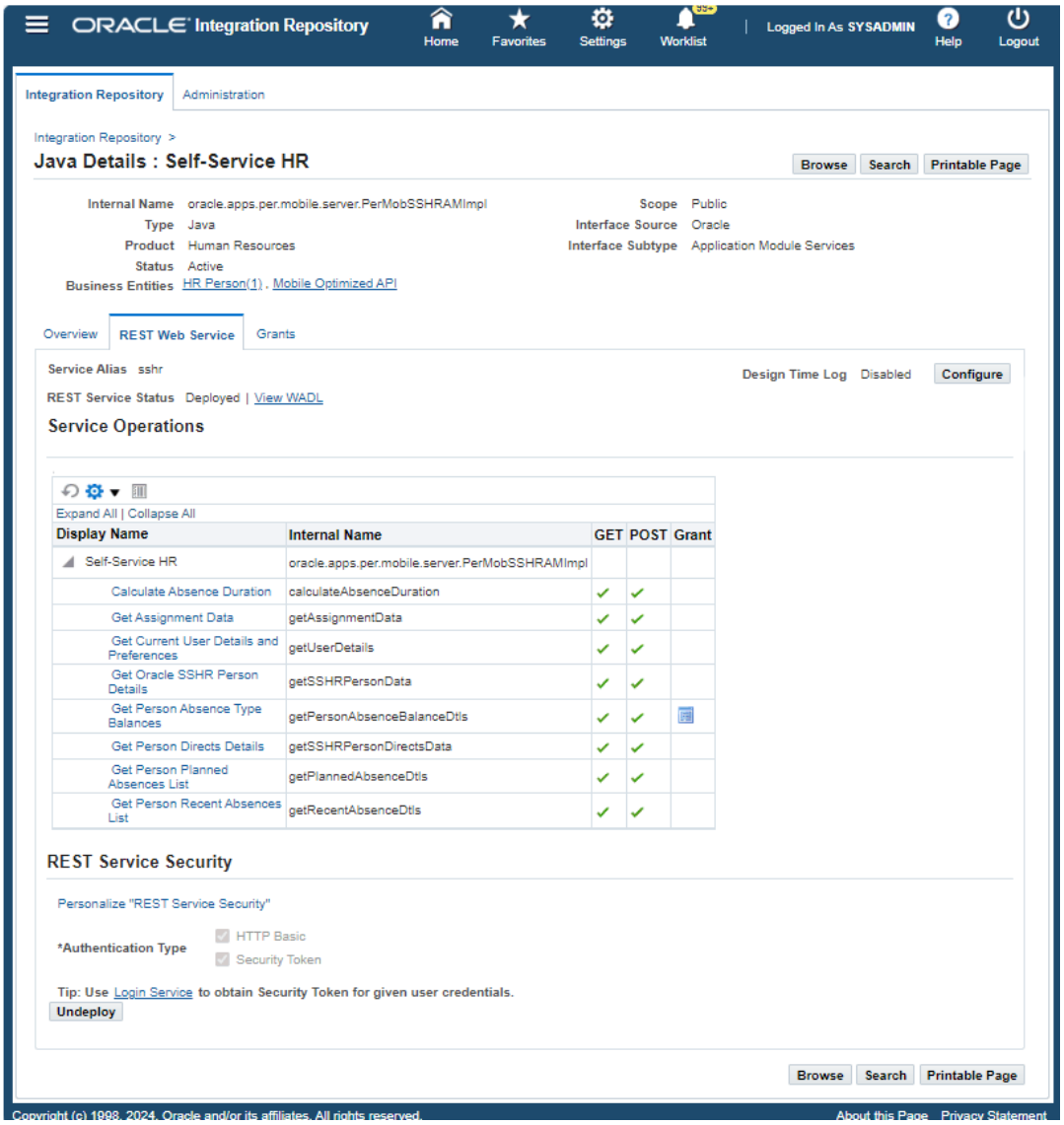
In this example, the REST Adapter is used as a trigger (source) connection and the Oracle E-Business Suite Adapter is used as an invoke (target) connection to invoke the "Get Person Absence Type Balances" (`getPersonAbsenceBalanceDtls`) REST service operation contained in the "Self-Service HR" Java API.

At runtime when the integration is triggered, the Oracle E-Business Suite Adapter receives a request with input payload from the trigger (source) connection, invokes the `getPersonAbsenceBalanceDtls` REST service operation to obtain data. Once the integration is executed and completed successfully, the available person absence data is retrieved and returned as part of the JSON response message.

Prerequisites:

Before creating the integration in Oracle Integration, you need to ensure the following tasks are in place:

- The "Self-Service HR" is deployed as a REST service with alias `sshr`. All included service operations are selected and deployed as REST service operations.



Record the following REST service endpoint from the WADL:

`https://<host>:<port>/webservices/rest/<alias>/getPersonAbsenceBalanceDtls/`

Replace `<alias>` with `sshr` in this example. You will use this service endpoint later when you create a REST connection in Oracle Integration.

- Security grants are created for the `bpalmer` user.

Based on the integration scenario, the sample tasks for using an Oracle E-Business Suite Java REST service of Appication Module Service subtype in an integration are included in the Topics section:

Topics:

1. Establish the Connections for Oracle E-Business Suite and REST Services
2. Create an Integration
3. Add the REST Adapter as a Trigger (Source) Connection
4. Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection

5. Create Mappings
6. Assign a Business Identifier for Tracking
7. Activate and Test the Integration

Establish the Connections for Oracle E-Business Suite and REST Services

In this integration example, you need to create the following two connections:

- Connection for Oracle E-Business Suite

  Once the connection to an Oracle E-Business Suite instance is successfully established, you can add the Oracle E-Business Suite Adapter as invoke (target) connections later in an integration.

- Connection for REST services

  You need to establish the connection for REST services. You can add this REST connection as a trigger (source) connection later in an integration.

Create an Oracle E-Business Suite Connection with Oracle E-Business Suite Adapter

Perform the following steps to establish the connection for Oracle E-Business Suite in Oracle Integration:

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

   In the Create connection panel, scroll down and select "Oracle E-Business Suite" from a list of adapters for Oracle E-Business Suite Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the Oracle E-Business Suite Adapter.
3. Enter the following information for your Oracle E-Business Suite Adapter connection:
   - **Name:** Enter "EBSDemo".
   - **Identifier:** Accept the default populated identifier, such as "EBSDEMO".
   - **Role:** Select the "Trigger and Invoke" role for this connection.
   - **Keywords:** Leave this blank.
   - **Description:** Enter "Use the Oracle E-Business Suite Adapter connection in an integration" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

   Click **Create** to create the connection.
4. Enter additional connection details:
   - In the Properties section, enter a URL (`http://<Oracle E-Business Suite host name>:<port>`) to connect to an Oracle E-Busiess Suite instance.
   - In the Security section, Basic Authentication is automatically shown as the security policy.
     Enter **`bpalmer`** as the user name and its associated password to access the Oracle E-Business Suite instance you specified earlier in the Properties section.
   - In the Access type section, select **Connectivity agent** and then click **Associate agent group**.

Select a desired agent group, such as "EBS" to use with Oracle E-Business Suite Adapter, and click **Use** to enable the selection.

After you specify the connection information for "EBSDemo", the connection details page is displayed.

5. Click **Test** to test the connection you just specified for Oracle E-Business Suite.
6. Click **Save**.

The Oracle E-Business Suite connection "EBSDemo" now appears in the Connections page.

Create an Connection for REST Services in This Example

Perform the following steps to create an connection for REST APIs:

1. On the Connections page, click **Create**.

   The Create connection panel appears.
2. Scroll down and select "REST" from a list of adapters for REST Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the REST Adapter from the list.
3. In the Create connection panel, enter "RESTSample" as the Name. The identifier value, GENERICREST, is automatically populated. Leave the optional Keywords field blank.

   Select "Trigger" as the Role. Enter a meaningful description for this connection, such as "The sample source REST endpoint".

   Do *not* click **Share with other projects** so that this connection is used for this project only.
4. Click **Create** to create the connection.
5. Enter the following connection details:
   - In the Properties section, enter the following information:
     - Connection Type: Select "REST API Base URL".
     - Connection URL: Enter a connection URL (`http://<Oracle E-Business Suite host name>:<port>/webservices/rest/sshr`) for the "Self-Service HR" REST service with the `sshr` alias name that you deployed earlier.
   - In the Security section, accept the default "Basic Authentication" as the security policy.

     Enter `sshr` as the user name and its associated password to access the "Self-Service HR" REST service you specified earlier in the Properties section.
6. Click **Test** to test the connection you just specified for REST services.
7. Click **Save**.

The "RESTSample" connection for REST services appears in the Connections page, along with the Oracle E-Business Suite connection "EBSDemo" that you created earlier.

Create an Integration

Perform the following steps to create an integration for invoking a Java REST service:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, click **Create**.

   The Create integration panel appears.

3. When adding the Oracle E-Business Suite Adapter as an invoke (target) connection, you select the "Application" integration pattern.

   Click **Create** to create an integration with a blank source and target.

4. EEnter the following information:

   - **Name**: Enter "EBS Java Service Demo" as the name.
   - **Identifier**: Accept the default identifier value such as "EBS_JAVA_SERVICE_DEMO".
   - **Version**: Accept the default version number.
   - **Documentation URL**: Leave this blank.
   - **Keyword**: Leave this blank.
   - **Package**: Leave this blank.
   - **Description**: Enter appropriate description for this integration.
   - **Available to other projects**: Do *not* select this checkbox in this example so that this integration is only used within the same project. It will not be available to other projects.

5. Click **Create**.

   An empty integration canvas is displayed.

To complete the integration, you need to add the following tasks that are described in the next few sections:

- Add the desired connections to the integration you just created.

  See:

  – Add the REST Adapter as a Trigger (Source) Connection
  – Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection

- Add mappings to the integration.

  See Create Mappings.

- Assign business identifiers for tracking.

  See Assign a Business Identifier for Tracking.

Add the REST Adapter (Trigger) and Oracle E-Business Suite Adapter (Invoke) to the Integration

In this example, the orchestration flow diagram created for this integration includes the following activities:

- The REST Adapter as a trigger activity called "REST" for the "RESTSample" connection created earlier.

  This trigger activity uses the endpoint's relative resource URI `/getPersonAbsenceBalanceDtls/` through the REST Adapter.

  See: Add the REST Adapter as a Trigger (Source) Connection.

- Mappings defined for "EBS_Reference"

  It allows you to map and pass the trigger parameters to the "EBS_Reference" activity to invoke the "Get Person Absence Type Balances" Oracle E-Business Suite REST service.

  See: Create Mappings.

- The Oracle E-Business Suite Adapter as an invoke activity called "EBS_Reference" for "EBSDemo" connection that you created earlier.

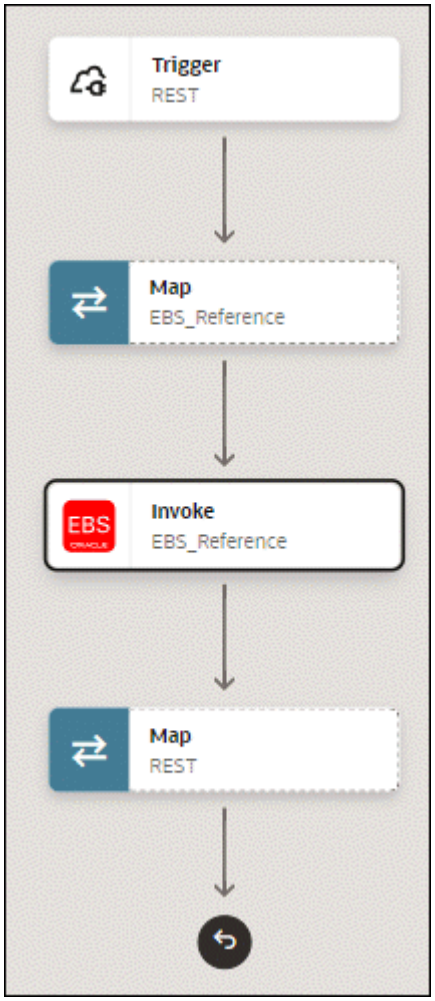
  This invoke activity uses the "Get Person Absence Type Balances" method with the “read”operation from the "Self-Service HR" REST service when adding the Oracle E-Business Suite Adapter as an invoke. This service retrieves the available absence details from Oracle Human Resources Suite.

  See: Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection.

- Mappings defined for "REST"

  This activity assigns the available absence related elements from the "EBS_Reference" activity to the corresponding elements in the "REST" activity.

  See: Create Mappings.



Topics:

- Add the REST Adapter as a Trigger (Source) Connection
- Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection
- Create Mappings

Add the REST Adapter as a Trigger (Source) Connection

After creating an integration “EBS Java Service Demo”, you need to add a trigger (source) connection in the integration. The trigger (source) connection can be any application adapters suitable for your integrations. In this example, the REST Adapter is used for the integration.

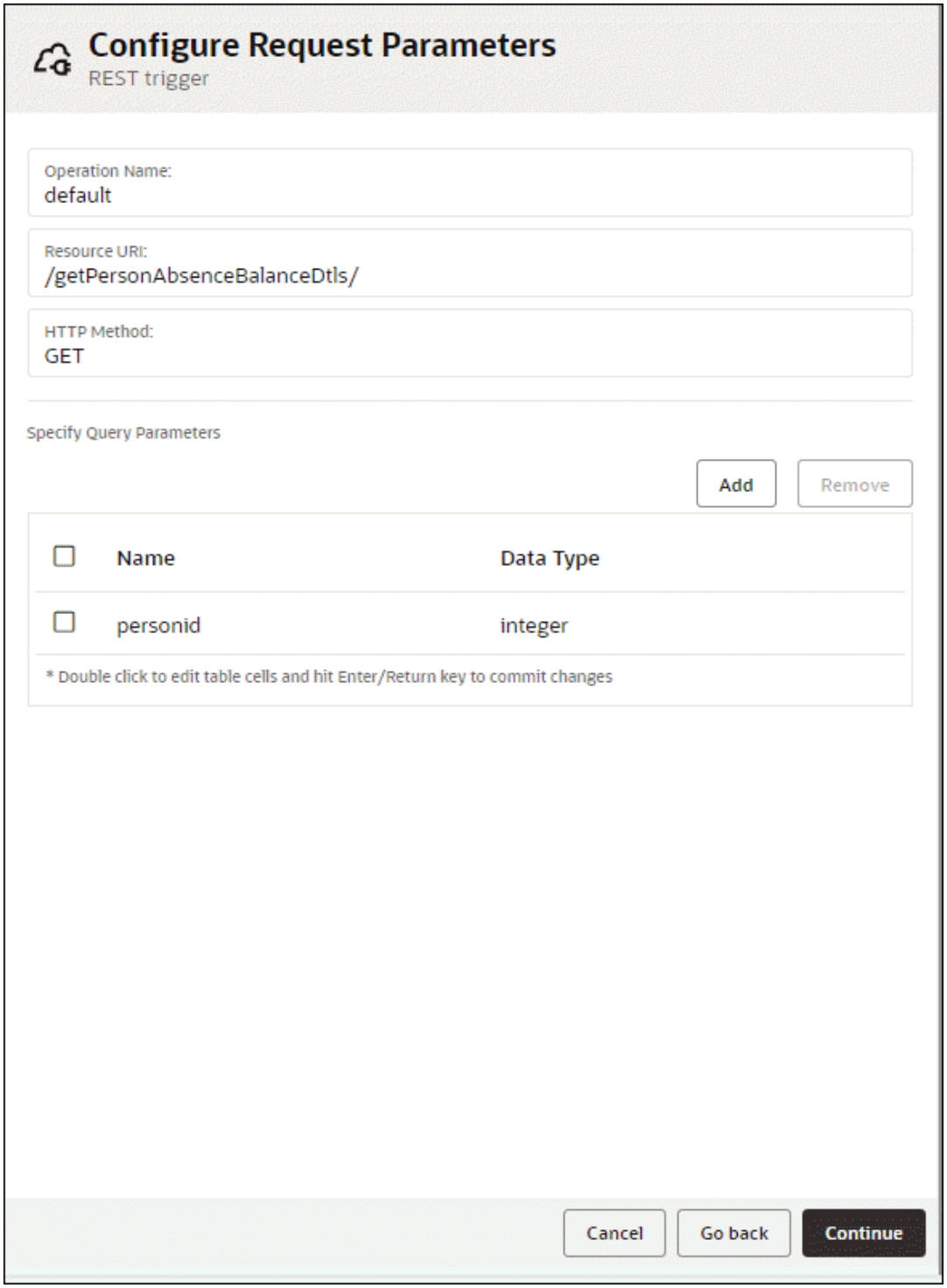
Perform the following steps to add the REST Adapter as a trigger (source) connection:

1. In the "EBS Java Service Demo" integration canvas, click the **+** sign in the integration canvas or click **Triggers** on the side of the canvas. A list of trigger connections appears.
2. Search the Oracle E-Business Suite connection called "RESTSample" from the list of selection. The REST Adapter Endpoint Configuration Wizard appears.
3. Enter the following information in the Configure Basic Info page:
   - **What do you want to call your endpoint?** - Enter the name of this endpoint, such as "REST".
   - **What does this endpoint do?** - Enter the usage of this endpoint, such as "Provide REST endpoint with input payload to obtain person absence details".
   - **Select to configure multiple resources or verbs (maximum 11)** - Leave this box unchecked.

   Click **Continue**.
4. Enter the following information in the Configure Resource Configuation page:
   - **What does this operation do?** - Enter the usage of this operation, such as "Provide REST endpoint with input payload to obtain person absence details".
   - **What is the endpoint's relative resource URI?** - Enter “`/getPersonAbsenceBalanceDtls/`”.
   - **What action does the endpoint perform?** - Select "GET" from the drop-down list.

   Ensure that you select the following two checkboxes for this trigger (source) connection:
   - **Add and review parameters for this endpoint**
   - **Configure this endpoint to receive the response**

   Click **Continue**.
5. In the Configure Request Parameters page, perform the following tasks:



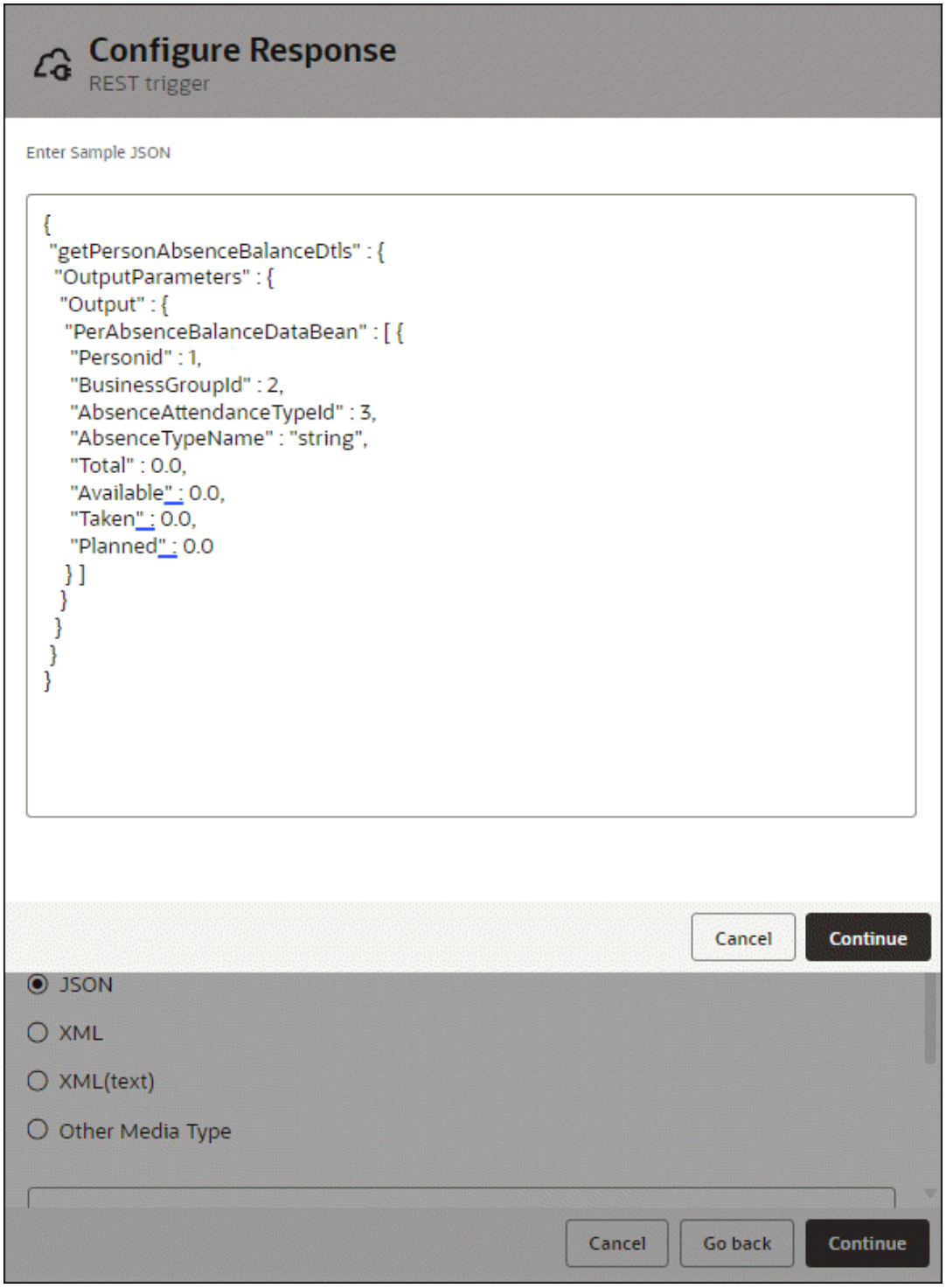
- The Resource URI field displays the "`/getPersonAbsenceBalanceDtls/`" information you entered earlier.
- In the "Specify Query Parameters" region, click **Add** to enter the following information in a new row:
  - Name: Enter "personid".
  - Data Type: Select "Integer" from the list.

Click **Continue**.

6. In the Response page, select the **JSON Sample** button for this example.

   Click **<<inline>>** to enter the following JSON payload:

```
{
 "getPersonAbsenceBalanceDtls" : {
  "OutputParameters" : {
   "Output" : {
    "PerAbsenceBalanceDataBean" : [ {
     "Personid" : 1,
     "BusinessGroupId" : 2,
     "AbsenceAttendanceTypeId" : 3,
     "AbsenceTypeName" : "string",
     "Total" : 0.0,
     "Available" : 0.0,
     "Taken" : 0.0,
     "Planned" : 0.0
    } ]
   }
  }
 }
}
```



Click **Continue** to return to the Configure Response page, and then click **Continue**.

7. This displays the Summary page of the REST service information that you specified earlier. Click **Finish**.

   Click **Save** to save your work. The RESTSample connection now appears in the canvas.

Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection

After adding the source connection in the integration “EBS Java Service Demo”, you can add the Oracle E-Business Suite connection "EBSDemo" as an invoke (target) connection in the integration.

Perform the following steps to add the Oracle E-Business Suite Adapter as an invoke (target) connection:

1. In the “EBS Java Service Demo” integration canvas, hover your cursor over the lines right after the Trigger icon and then click the **+** sign. Search and select the "EBSDemo" connection that you created earlier from the Invokes selection.

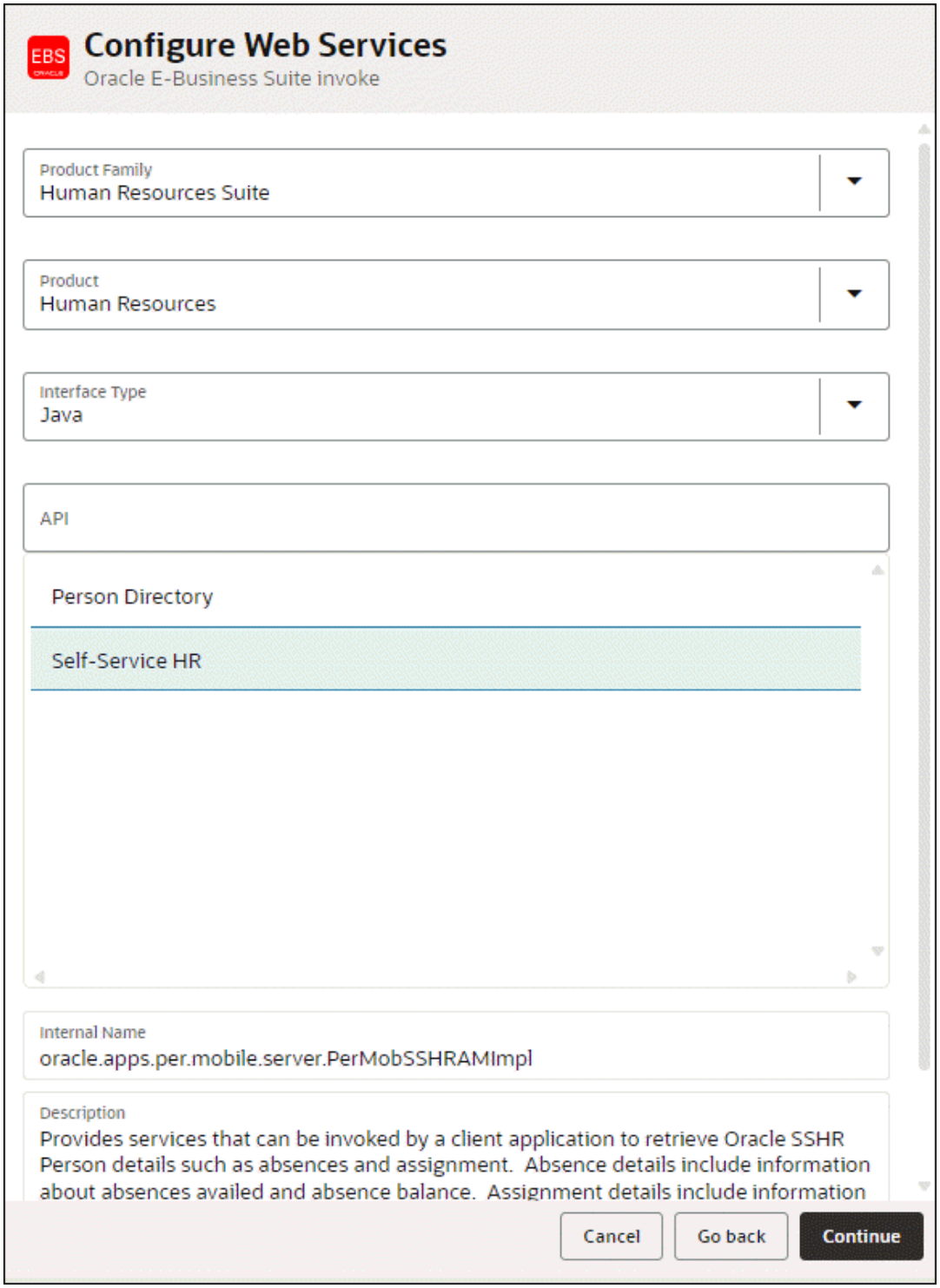
   The Oracle E-Business Suite Adapter Configuration Endpoint Wizard appears.

2. In the Configure Basic Info page, enter the following information for your endpoint:

   - **What do you want to call your endpoint?** - Enter "EBS_Reference".
   - **What does this endpoint do?** - Enter "Get person absence details".

   Click **Continue**.

3. In the Configure Web Services page, specify the following information for your target connection:



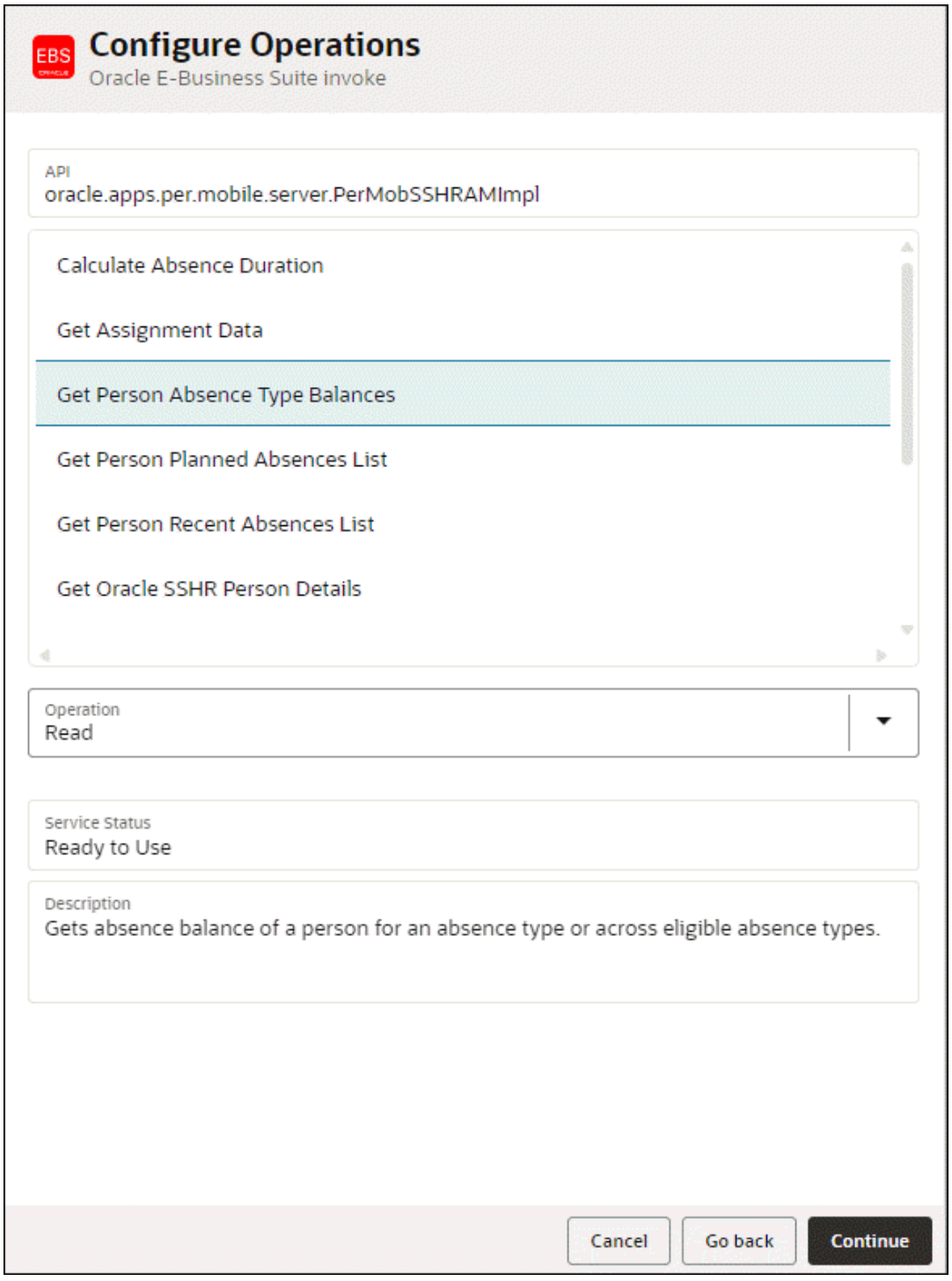
- **Product Family:** Select "Human Resources Suite" from the drop-down list.
- **Product:** Select "Human Resources".
- **Interface Type:** Select "Java" from the list.

After you select a desired product family, a product, and an interface type, a list of Java APIs including Oracle seeded APIs and custom ones contained in the selected product "Human Resources" is populated for further selection.

Select a desired Java API name, such as “Self-Service HR”. The corresponding API internal name and description are automatically populated.

Click **Continue**.

4. The selected API internal name appears in the Configure Operations page.



- **Method:** Select a desired method name contained in the selected “Self-Service HR” API for this invoke (target) connection. For example, select "Get Person Absence Type Balances".

- **Operation:** Select “Read” as the value from the drop-down list.

Click **Continue**.

5. The Summary page displays all the selected interface details. This information includes the selected "getPersonAbsenceBalanceDtls" Method and Operation “Read” (with "Ready to Use" status) contained in the selected Java REST web service from the Human Resources Suite product family and Human Resources product. This page also displays the default interaction pattern "Synchronize" for the selected service operation.

   The Oracle E-Business Suite Adapter Target Endpoint configuration is successfully created.

   Click **Finish**.

6. Click **Save** to save your work.

The connection for Oracle E-Businses Suite now appears on the canvas.

Create Mappings

After adding the trigger (source) connection and invoke (target) connection in your integration, you can create the following mappings to pass the required parameter values to the subsequent REST services:

- Define mappings for EBS_Reference
- Define mappings for REST

Create mappings for EBS_Reference:

1. In the "EBS Java Service Demo" integration flow, click **Edit** for the EBS_Reference icon.
2. Perform the following tasks to assign constant values to the target elements:
   - In the Target section, expand the **EBS_Reference Request (Oracle E-Business Suite)** node, and then the **RESTHeader** node.

     Right-click the **Responsibility** element and select **Create Target Node** from the drop-down menu.

   - In the Expression Builder at the bottom of the page, click **Switch to Design View** and then enter 'EMPLOYEE_DIRECT_ACCESS_V4.0' for the **Responsibility** element. Save your entry.
     A **function** icon is added to the Mapping Canvas section for the target **Responsibility** element node.

   Similarly, use the same approach to assign values to the target elements listed in the following table:

Path	Element	Value
Request (Oracle E-Business Suite)/RESTHeader	Respapplication	'PER'
Request (Oracle E-Business Suite)/RESTHeader	Securitygroup	'STANDARD'
Request (Oracle E-Business Suite)/FilterParameters	businessGroupId	'202'
Request (Oracle E-Business Suite)/FilterParameters	absenceAttendanceTypeId	'12'

After you complete this step, the function icons should appear in the Mapping Canvas section for the corresponding target element nodes.

3. Create the mappings between the source and target elements:

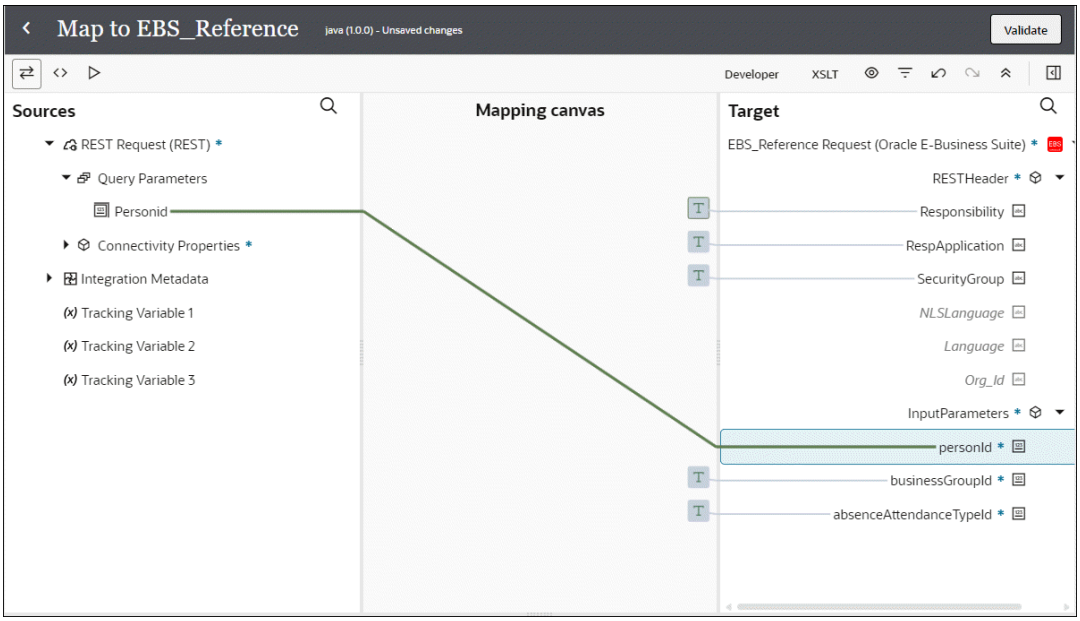
   - In the **Sources** section, expand the **REST Request (REST)** node, then the **QueryParameters** node.

     Select the **personid** element.

   - In the **Target** section, expand the **EBS_Reference Request (Oracle E-Business Suite)** node, and then the **InputParameters** node.

     Select the **personid** element.

   Drag the **personid** element from the Source section to the **personid** element in the Target section to map the data.



   Once you complete this step, the mapped source value and the corresponding target element are marked with green checks.

4. Click **Validate** and then exit the Mapper. Click **Save** to save your work.

Create mappings for `REST`:

1. In the middle of the integration, click **edit** for the `REST` icon.
2. Create mappings to map the source and target elements.

   - In the Source section, expand the **EBS_Reference Response (Oracle E-Business Suite)** node, then the **getPersonAbsenceBalanceDtlsResponse** node, then the **getPersonAbsenceBalanceDtls_Output** node, then the **OutputParameters** node, then the **Output** node, and then the **PerAbsenceBalanceDataBean** node.

     Select the **Personid** element.

   - In the Target section, expand the **REST Response (REST)** node, then the **Response Wrapper** node, then the **Get Person Absence Balance Dtls** node, then the **OutputParameters** node, then the **Output** node, and then the **Per Absence Balance Data Bean** node.

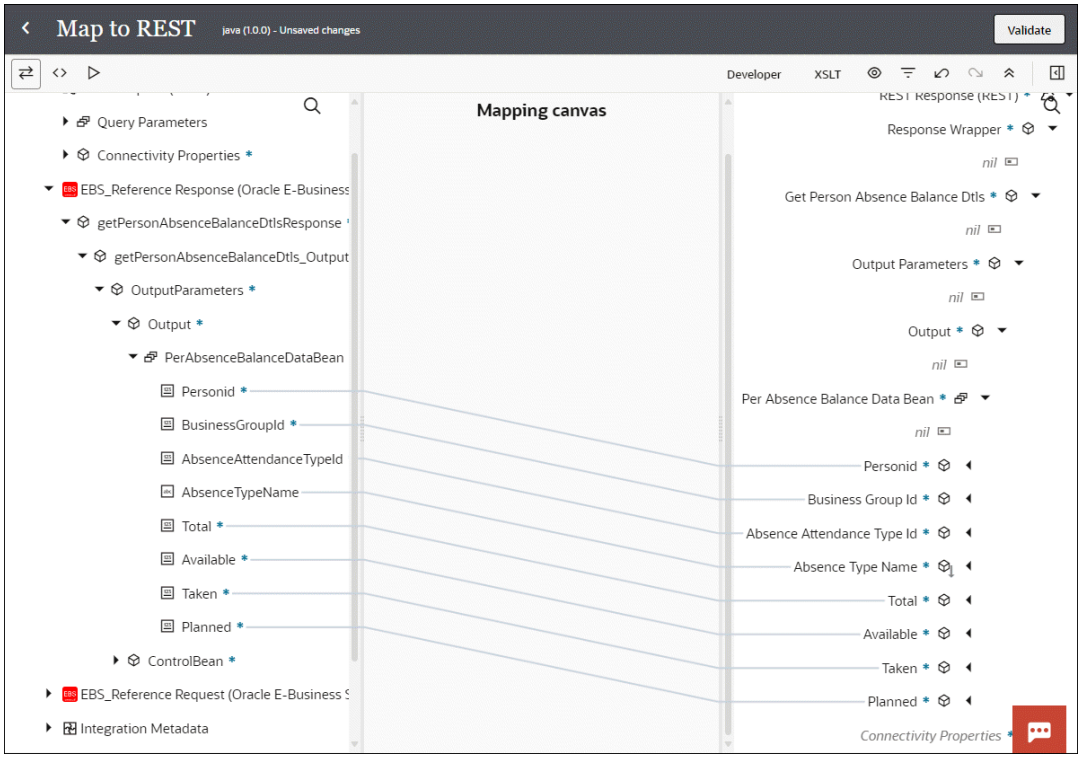
     Select the **Personid** element.

Drag the **Personid** element from the Source section to the **Personid** element in the Target section to map the data.

3. Use the same approach to complete the mappings for the elements listed in the following table.

Source Path	Source Element	Target Path	Target Element
EBS_Reference Response (Oracle E-Business Suite)/ getPersonAbsenceBalanceDtlsResponse/ getPersonAbsenceBalanceDtls_Output/ OutputParameters/ Output/ PerAbsenceBalanceDataBean	BusinessGroupId	REST Response (REST)/REST Response/get Person Absence Balance Dtls/ OutputParameters/ Output/Per Absence Balance Data Bean	BusinessGroupId
EBS_Reference Response (Oracle E-Business Suite)/ getPersonAbsenceBalanceDtlsResponse/ getPersonAbsenceBalanceDtls_Output/ OutputParameters/ Output/ PerAbsenceBalanceDataBean	AbsenceAttendanceTypeId	REST Response (REST)/REST Response/get Person Absence Balance Dtls/ OutputParameters/ Output/Per Absence Balance Data Bean	AbsenceAttendanceTypeId
EBS_Reference Response (Oracle E-Business Suite)/ getPersonAbsenceBalanceDtlsResponse/ getPersonAbsenceBalanceDtls_Output/ OutputParameters/ Output/ PerAbsenceBalanceDataBean	AbsenceTypeName	REST Response (REST)/REST Response/get Person Absence Balance Dtls/ OutputParameters/ Output/Per Absence Balance Data Bean	AbsenceTypeName
EBS_Reference Response (Oracle E-Business Suite)/ getPersonAbsenceBalanceDtlsResponse/ getPersonAbsenceBalanceDtls_Output/ OutputParameters/ Output/ PerAbsenceBalanceDataBean	Total	REST Response (REST)/REST Response/get Person Absence Balance Dtls/ OutputParameters/ Output/Per Absence Balance Data Bean	Total

Source Path	Source Element	Target Path	Target Element
EBS_Reference Response (Oracle E-Business Suite)/ getPersonAbsenceBalanceDtlsResponse/ getPersonAbsenceBalanceDtls_Output/ OutputParameters/ Output/ PerAbsenceBalanceDataBean	Taken	REST Response (REST)/REST Response/get Person Absence Balance Dtls/ OutputParameters/ Output/Per Absence Balance Data Bean	Taken
EBS_Reference Response (Oracle E-Business Suite)/ getPersonAbsenceBalanceDtlsResponse/ getPersonAbsenceBalanceDtls_Output/ OutputParameters/ Output/ PerAbsenceBalanceDataBean	Planned	REST Response (REST)/REST Response/get Person Absence Balance Dtls/ OutputParameters/ Output/Per Absence Balance Data Bean	Planned



Once you complete this step, the mapped source value and the corresponding target element are connected by a line.

Click **Validate** and then exit the Mapper. Click **Save** to save your work.

The two mappings are all created successfully.

Assign a Business Identifier for Tracking

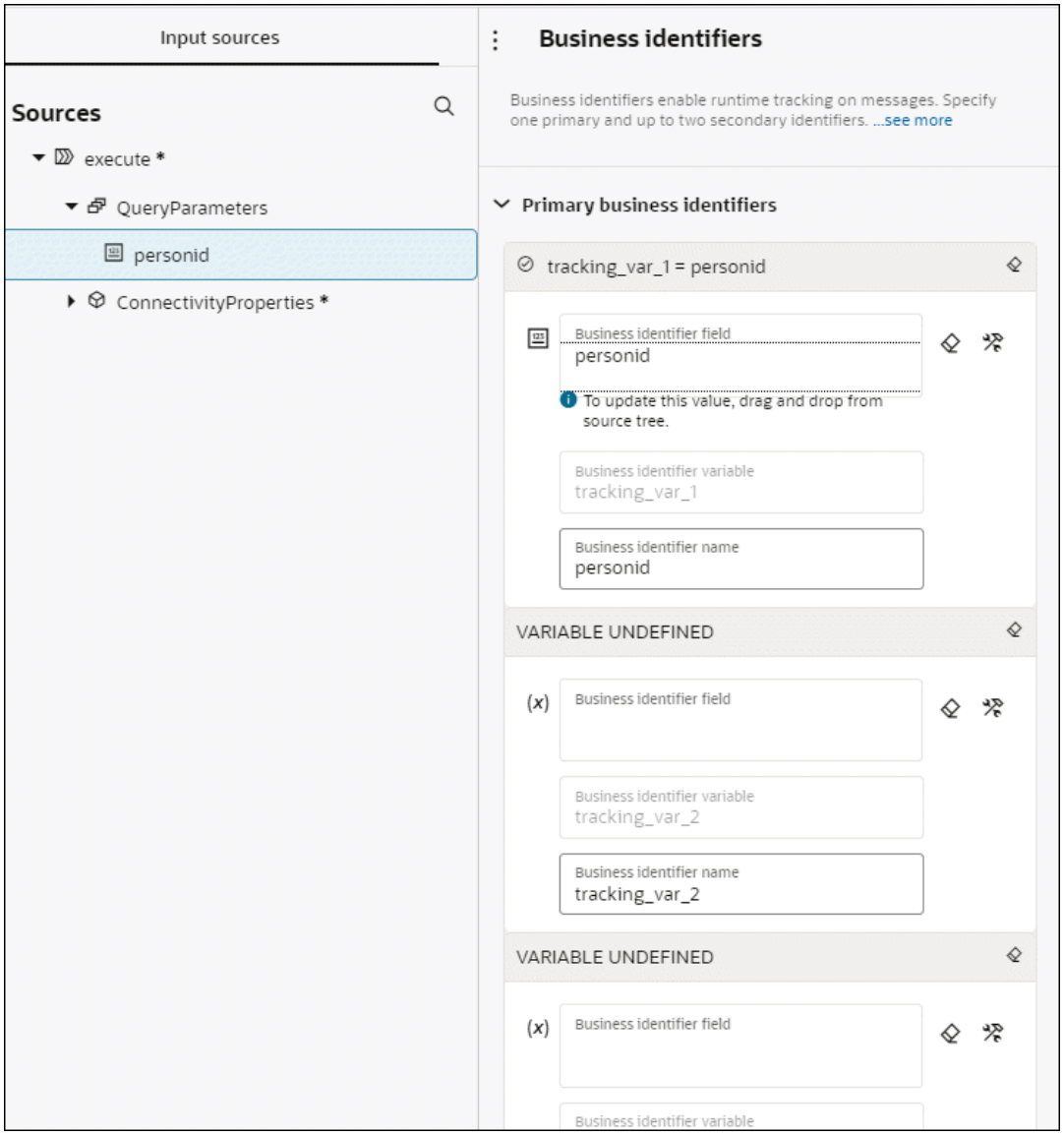
Perform the following steps to track payload fields in messages during runtime:

1. In the “EBS Java Service Demo” integration canvas, click (I).

   The Business identifiers panel appears.

2. From the **Sources** section, expand the **QueryParameters** node.

   Drag the **personid** element to the **Business identifier field** as the primary key. A checkmark to the left of the **personid** element indicates that this is the primary business identifier.



3. Save your work.

Activate and Test the Integration

Activate the Integration

After you complete the integration with desired source and target connections and mappings, you can activate the "EBS Java Service Demo" integration.

Perform the following steps to activate the integration:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, hover your cursor over the **EBS Java Service Demo** integration, and then click **Activate** .
3. The Activate integration panel appears. Select the level of tracing appropriate to your integration. Click **Activate**.

   Notice that a status message is displayed in the banner at the top of the Integrations page.

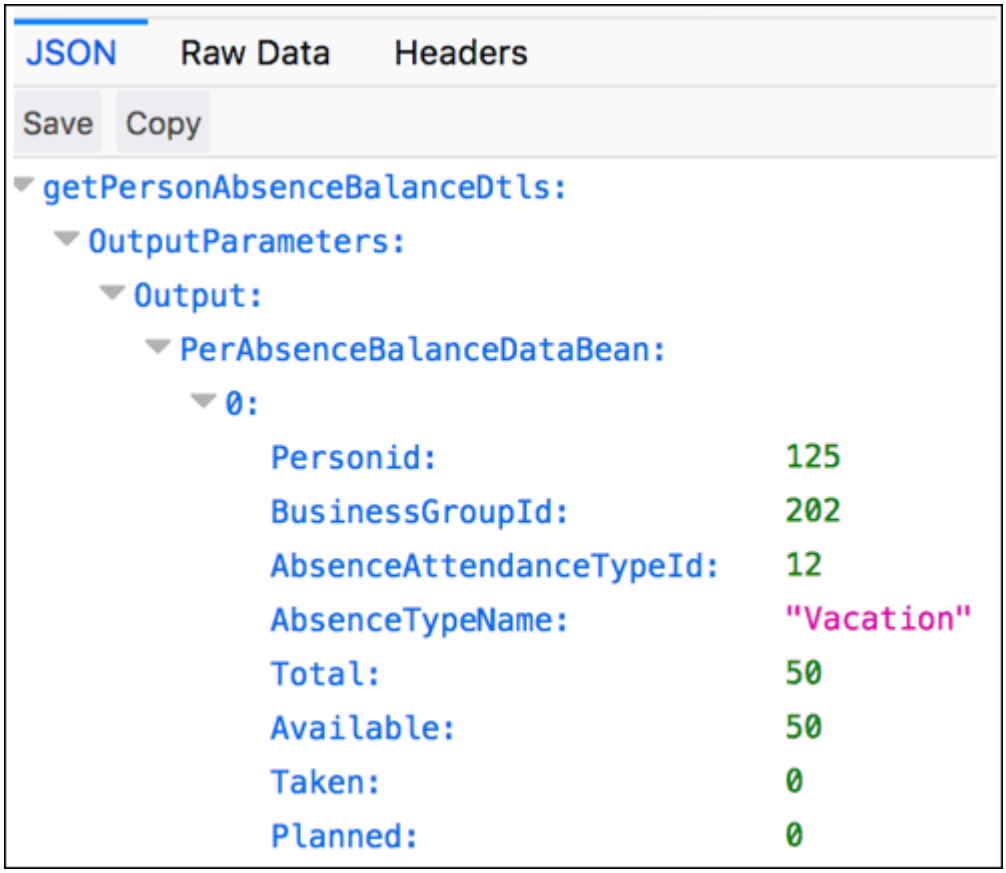
Test the Integration

Perform the following steps to test the integration:

1. Hover your cursor over the **EBS Java Service Demo** integration. Click **Actions** and then **Run**.
2. Copy the Endpoint URL (`https://<Oracle Integratoin Host>:<Port>/ic/api/integration/v1/flows/rest/EBS_JAVA_SERVICE_DEMO/1.0/getPersonAbsenceBalanceDtls/?personid=[personid-value]`).
3. Paste the URL address in a web browser and replace the value of `[personid-value]` with “`125`”.

   Press “Enter”.
4. When prompted, provide Oracle Integration user name and password for authentication.

   The absence information for the person whose Id 125 is displayed.



Use a Java REST Service of Business Service Object Subtype as an Invoke (Target) Connection

Sample Business Scenario

In this example, a Business Service Object, a subtype of Java interface, called "Site Services" is used to create a site in Oracle E-Business Suite Site Hub.

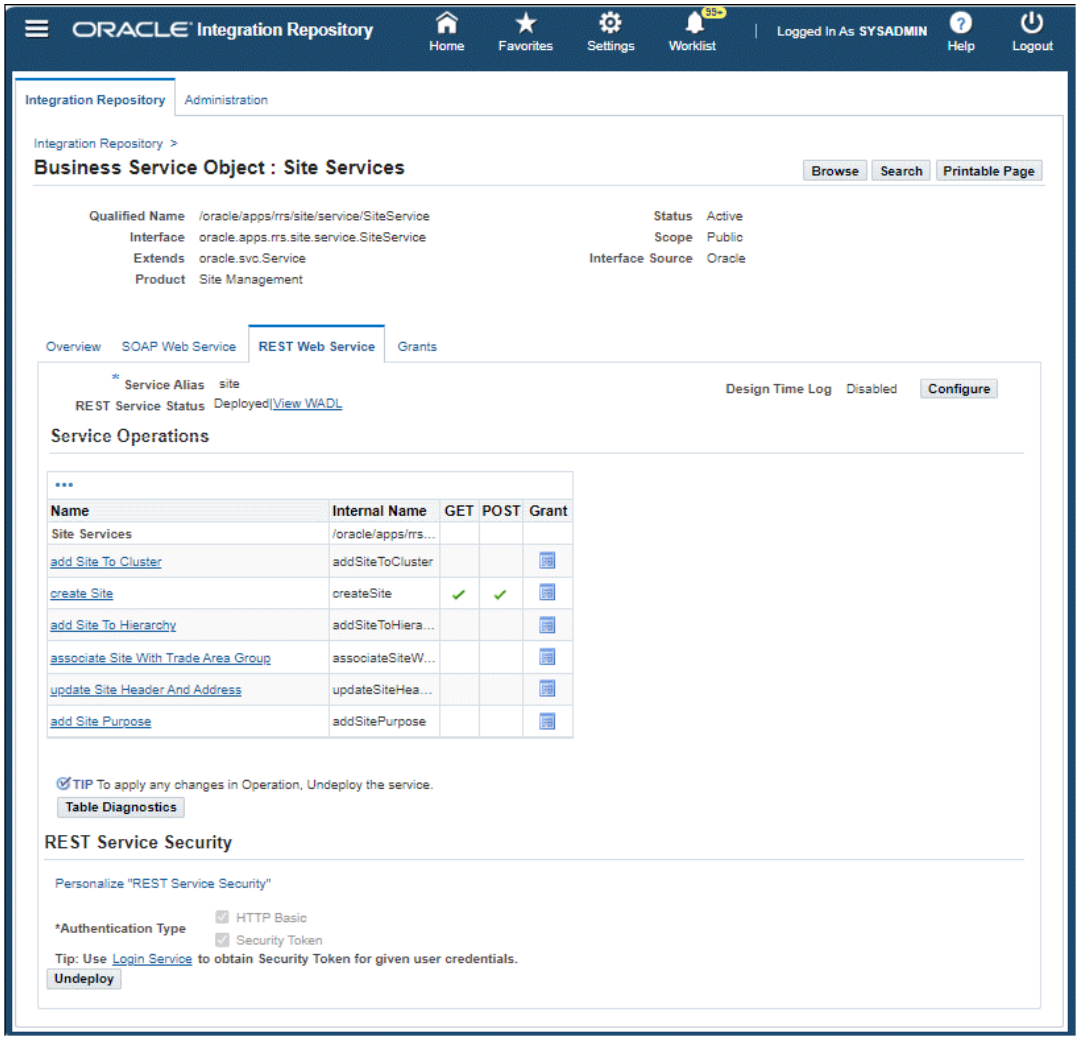
Similar to the example of using a Java Application Module Service, the REST Adapter is used as a trigger (source) connection and the Oracle E-Business Suite Adapter is used as an invoke (target) connection. In this example, the “Create Site” REST service operation contained in the “Site Services" Java API will be invoked to create a site.

At runtime, the Oracle E-Business Suite Adapter receives a request with input payload from the trigger (source) connection, and thus invokes the "Create Site (`createSite`)" REST service operation to create a site. Once the integration is executed and completed successfully, a JSON response message is returned with a site number indicating that a new site is successfully created in Oracle E-Business Suite Site Hub.

Prerequisites:

Before creating the integration in Oracle Integration, you need to ensure the following tasks are in place:

- The "Create Site" operation contained in the "Site Services” Business Service Object is deployed as a REST service operation with alias named `site`.



Record the following REST service endpoint from the WADL:

`https://<host>:<port>/webservices/rest/<alias>/createSite/`

Replace `<alias>` with `site` in this example. You will use this service endpoint later when you create a REST connection in Oracle Integration.

- Security grants are created for the `plmmgr` user.

Based on the integration scenario, the sample tasks for using an Oracle E-Business Suite Java REST service of Business Service Object subtype in an integration are included in the Topics section:

Topics:

1. Establish the Connections for Oracle E-Business Suite and REST Services
2. Create an Integration
3. Add the REST Adapter (Trigger) and Oracle E-Business Suite Adapter (Invoke) to the Integration
4. Create Mappings
5. Activate and Test the Integration

Establish the Connections for Oracle E-Business Suite and REST Services

In this integration example, you need to create the following two connections:

- Connection for Oracle E-Business Suite

  Once the connection to an Oracle E-Business Suite instance is successfully established, you can add the Oracle E-Business Suite Adapter as invoke (target) connections later in an integration.

- Connection for REST services

  You need to establish the connection for REST services. You can add this REST connection as a trigger (source) connection later in an integration.

Create an Oracle E-Businss Suite Connection with Oracle E-Business Suite Adapter

Perform the following steps to establish the connection for Oracle E-Business Suite in Oracle Integration:

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

   In the Create connection panel, scroll down and select "Oracle E-Business Suite" from a list of adapters for Oracle E-Business Suite Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the Oracle E-Business Suite Adapter from the list.
3. Enter the following information for your Oracle E-Business Suite Adapter connection:
   - **Name:** Enter "EBS".
   - **Identifier:** Accept the default populated identifier, such as "EBS".
   - **Role:** Select the "Trigger and Invoke" role for this connection.
   - **Keywords:** Leave this blank.
   - **Description:** Enter "Use the Oracle E-Business Suite Adapter connection in an integration" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.

   Click **Create** to create the connection.
4. Enter additional connection details:
   - In the Properties section, enter a URL (`http://<Oracle E-Business Suite host name>:<port>`) to connect to an Oracle E-Busiess Suite instance.
   - In the Security section, Basic Authentication is automatically shown as the security policy.
     Enter **`plmmgr`** as the user name and its associated password to access the Oracle E-Business Suite instance you specified earlier in the Properties section.
   - In the Access type section, select **Connectivity agent** and then click **Associate agent group**. A list of available agent groups is automatically populated for your selection.

     Select a desired agent group, such as "EBS" to use with Oracle E-Business Suite Adapter, and click **Use** to enable the selection.

   After you specify the connection information for "EBS", the connection details page is displayed.

5. Click **Test** to test the connection you just specified for Oracle E-Business Suite.
6. Click **Save**.

The Oracle E-Business Suite connection "EBS" now appears in the Connections page.

Create an Connection for REST Services in This Example

Perform the following steps to create an connection for REST APIs:

1. On the Connections page, click **Create**.

   The Create connection panel appears.
2. Scroll down and select "REST" from a list of adapters for REST Adapter.

   You can optionally use the search feature to enter a full or partial name to locate the REST Adapter from the list.
3. Enter the following information for your REST Adapter connection:
   - **Name:** Enter "RESTSample" as the connection name.
   - **Identifier:** Accept the default populated identifier such as "RESTSAMPLE".
   - **Role:** Select the "Trigger" role for this connection.
   - **Keywords:** Leave this field blank.
   - **Description:** Enter "The sample source REST endpoint" as the description.
   - **Share with other projects:** Do *not* click this button so that this connection is used for this project only.
4. Click **Create** to create the connection.
5. The Connection details page is displayed for the "RESTSample" connection you just created. Enter additional connection details by specifying the following information:
   - In the Properties section, enter the following information:
     - **Connection Type:** Select "REST API Base URL".
     - **Connection URL:** Enter a connection URL (`http://<Oracle E-Business Suite host name>:<port>/webservices/rest/site`) for the "Create Site" REST service operation with `site` alias name that you deployed earlier as part of the prerequisites mentioned earlier in Use a Java REST Service of Business Service Object Subtype as an Invoke (Target) Connection.
   - In the Security section, accept the "Basic Authentication" as the default security policy.

     Enter **`plmmgr`** as the user name and its associated password to access the "Create Site" REST service operation you specified earlier in the Properties section.
6. In the Security section, select "Basic Authentication" as the security policy.
7. Click **Test** to test the connection you just specified for REST services.
8. Click **Save**.

The "RESTSample" connection for REST services appears in the Connections page, along with the Oracle E-Business Suite connection "EBS" that you created earlier.

Create an Integration

Perform the following steps to create an integration for invoking a Java REST service of Business Service Object subtpye:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, click **Create**.

   The Create integration panel appears.
3. When adding the Oracle E-Business Suite Adapter as an invoke (target) connection, you select the "Application" integration pattern.

   Click **Create**.
4. Enter the following information:
   - **Name**: Enter "BSO Site" as the name.
   - **Identifier**: Accept the default identifier value such as "BSO_SITE".
   - **Version**: Accept the default version number.
   - **Documentation URL**: Leave this blank.
   - **Keywords**: Leave this blank.
   - **Package**: Leave this blank.
   - **Description**: Enter appropriate description for this integration.
   - **Available to other projects**: Do *not* select this checkbox in this example so that this integration is only used within the same project. It will not be available to other projects.
5. Click **Create**.

   An empty canvas is displayed.

To complete the integration, you need to add the following tasks that are described in the next few sections:

- Add the desired connections to the integration you just created.

  See:
  - Add the REST Adapter as a Trigger (Source) Connection
  - Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection
- Add mappings to the integration.

  See Create Mappings.

Add the REST Adapter (Trigger) and Oracle E-Business Suite Adapter (Invoke) to the Integration

In this example, the orchestration flow diagram created for this integration includes the following activities:

- The REST Adapter as a trigger activity called "RESTSample" for the "RESTSample" connection created earlier.

  This trigger activity uses the endpoint's relative resource URI `/createSite/` through the REST Adapter.

  See: Add the REST Adapter as a Trigger (Source) Connection.
- Mappings defined for "EBS_Site"

  It allows you to map and pass the trigger parameters to the "EBS_Site" activity to invoke the "Create Site" Oracle E-Business Suite REST service.

See: Create Mappings.

- The Oracle E-Business Suite Adapter as an invoke activity called "EBS_Site" for "EBS" connection that you created earlier.

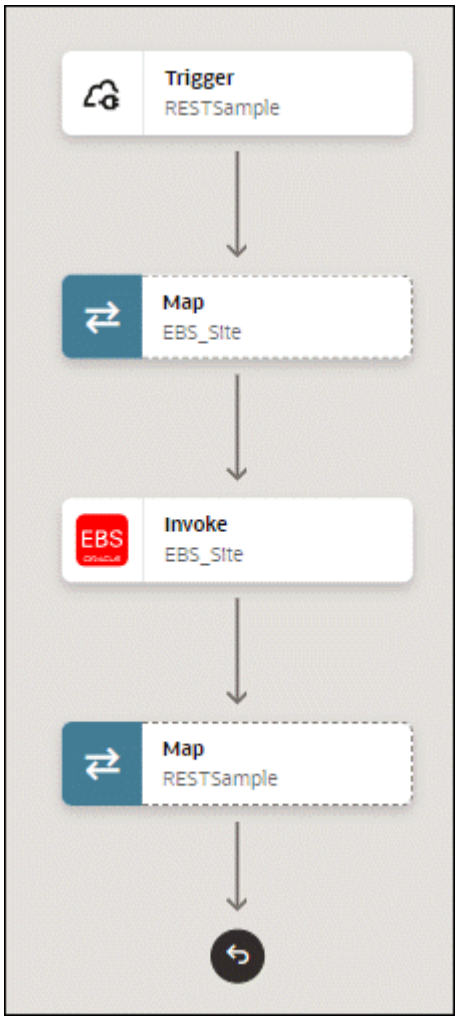
  This invoke activity uses the "Create Site" method with the “create”operation from the "Site Services" REST service when adding the Oracle E-Business Suite Adapter as an invoke connection. This service creates a site in Oracle E-Business Suite Site Hub.

  See: Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection.

- Mappings defined for "RESTSample"

  This activity assigns the site information elements from the "EBS_Site" activity to the corresponding elements in the "RESTSample" activity.

  See: Create Mappings.



Topics:

- Add the REST Adapter as a Trigger (Source) Connection
- Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection
- Create Mappings

Add the REST Adapter as a Trigger (Source) Connection

After creating an integration “EBS_Site”, you need to add a trigger (source) connection in the integration. The trigger (source) connection can be any application adapters suitable for your integrations. In this example, the REST Adapter is used for the integration.

Perform the following steps to add the REST Adapter as a trigger (source) connection:

1. In the "EBS_Site" integration canvas, click the **+** sign in the integration canvas or click **Triggers** on the side of the canvas. A list of trigger connections appears.
2. Search the Oracle E-Business Suite connection called "RESTSample" from the list of selection. The REST Adapter Endpoint Configuration Wizard appears.
3. Enter the following information in the Configure Basic Info page:
   - **What do you want to call your endpoint?** - Enter the name of this endpoint, such as "RESTSample".
   - **What does this endpoint do?** - Enter the usage of this endpoint, such as "Provide REST endpoint with input payload to create a site".
   - **Select to configure multiple resources or verbs (maximum 11)** - Leave this box unchecked.

   Click **Continue**.
4. Enter the following information in the Configure Resource Configuation page:
   - **What does this operation do?** - Enter the usage of this operation, such as "Provide REST endpoint with input payload to create a site".
   - **What is the endpoint's relative resource URI?** - Enter “`/site/`”.
   - **What action does the endpoint perform?** - Select "POST" from the drop-down list.

   Ensure that you select the following two checkboxes for this trigger (source) connection:
   - **Configure a request payload for this endpoint**
   - **Configure this endpoint to receive the response**

   Click **Continue**.
5. In the Configure Request page, perform the following tasks:
   - In the "Select the request payload format" section, select **JSON Sample**.
   - Click **<<inline>>** to enter the following JSON information as the Request Sample JSON payload:

```
{
 "site":{
  "SiteNumber":"123",
  "SiteName":"site",
  "SiteType":"type",
  "SiteStatus":"status",
  "BrandName":"brand",
  "Country":"United States",
  "Address1":"a1"
 }
}
```

- Click **OK**.
- In the "What is the media-type as Request Body? (Content-Type Header)" section, select the **JSON** button as the type.

Click **Continue**.

6. In the Configure Response page, perform the following tasks:
   - Select **JSON Sample** as the response payload format for this example.
   - Click **<<inline>>** to enter the following JSON information as the Response Sample JSON payload:

```
{
  "message":"Status message"
 }
```

   - Click **OK**.
   - In the "What is the media-type as Response Body? (Content-Type Header)" section, select the **JSON** button as the type.

   Click **Continue** to display the Summary page and review the information you have entered.
7. Click **Finish** and click **Save** to save your work. The RESTSample connection now appears in the canvas.

Add the Oracle E-Business Suite Adapter as an Invoke (Target) Connection

After adding the source connection in the integration “EBS_Site”, you can add the Oracle E-Business Suite connection "EBS" as an invoke (target) connection in the integration.

Perform the following steps to add the Oracle E-Business Suite Adapter as an invoke (target) connection:

1. In the “EBS_Site” integration canvas, hover your cursor over the lines after the Trigger "RESTSample" icon and then click the **+** sign. Search and select the "EBS" connection that you created earlier from the Invokes panel.

   The Oracle E-Business Suite Adapter Endpoint Configuration Wizard appears.
2. In the Configure Basic Info page, enter the following information for your endpoint:
   - **What do you want to call your endpoint?** - Enter "EBS_Site".
   - **What does this endpoint do?** - Enter "Create a site".

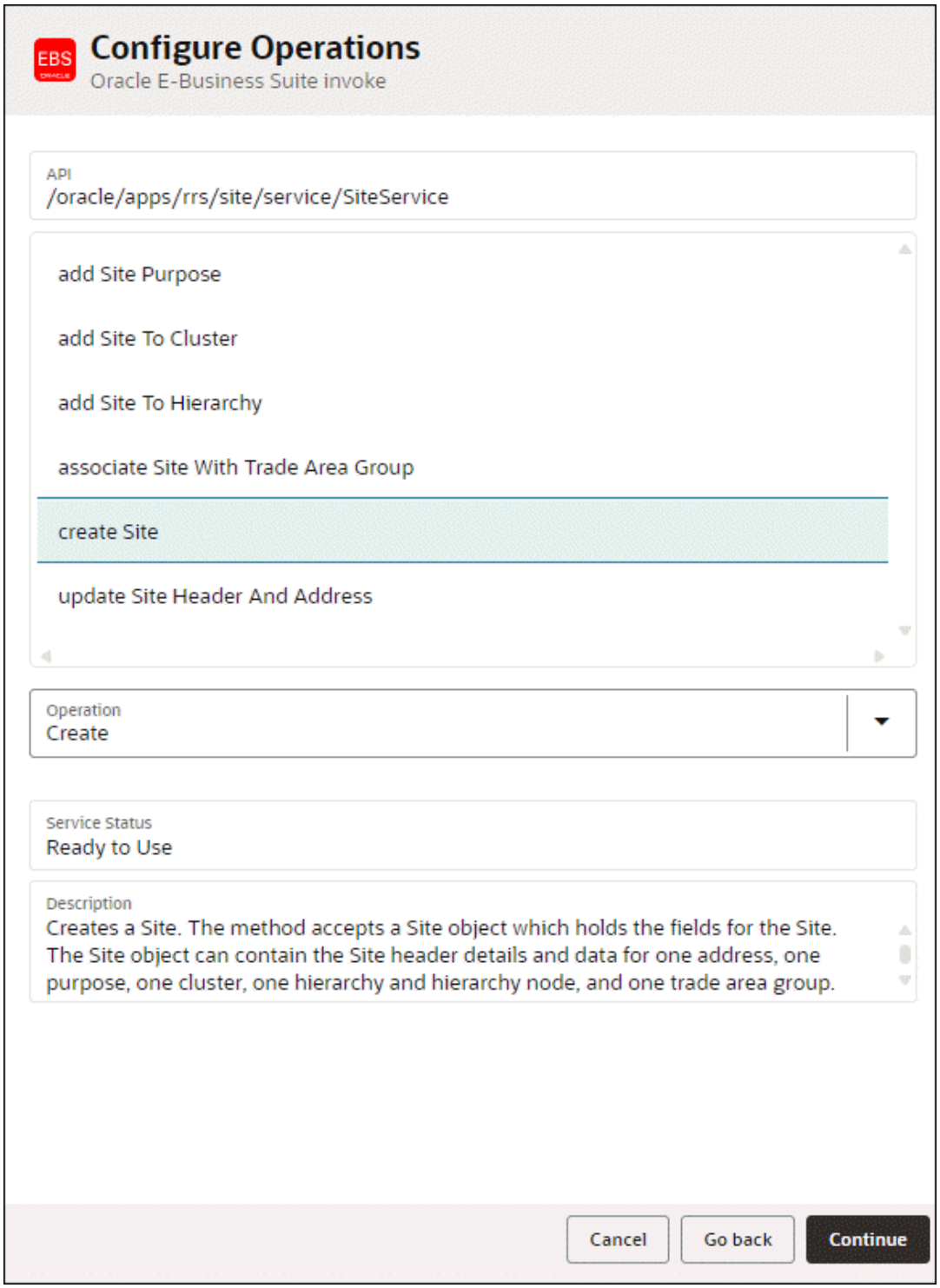
   Click **Continue**.
3. In the Configure Web Services page, specify the following information for your target connection:
   - **Product Family:** Select "Oracle Supply Chain Management Family" from the drop-down list.
   - **Product:** Select "Oracle Site Hub".
   - **Interface Type:** Select "Java" from the list.

   After you select a desired product family, a product, and an interface type, a list of Java APIs including Oracle seeded APIs and custom ones contained in the selected product "Oracle Site Hub" is populated for further selection.

Select a desired Java API name, such as “Site Services”. The corresponding API internal name and description are automatically populated.

Click **Continue**.

4. The selected API internal name appears in the Configure Operations page.



- **Method:** Select a method name called "create Site" in this example.

- **Operation:** Select “`create`” as the value from the drop-down list.

Click **Continue**.

5. The Summary page displays all the selected interface details. This information includes the selected "`createSite`" Method and Operation “`create`” (with "Ready to Use" status) contained in the selected Java REST web service from the Oracle Supply Chain Management Family product family and Oracle Site Hub product. This page also displays the default interaction pattern "Synchronize" for the selected service operation.

   The Oracle E-Business Suite Adapter Target Endpoint configuration is successfully created.

   Click **Finish**.

6. Click **Save** to save your work.

The connection for Oracle E-Businses Suite now appears in the canvas.

Create Mappings

After adding the trigger (source) connection and invoke (target) connection in your integration, you can create the following mappings to pass the required parameter values to the subsequent REST services:

- Define mappings for `EBS_Site` request
- Define mappings for `RESTSample` response

Create mappings for `EBS_Site` request:

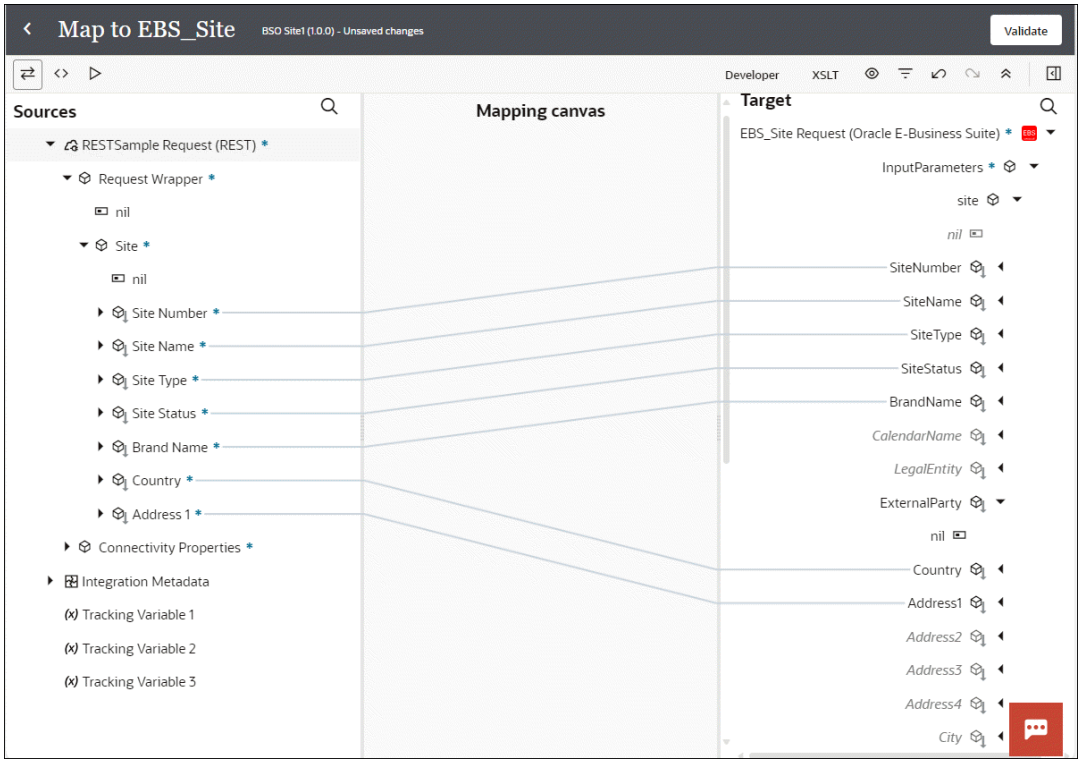
1. In the 'EBS Site' integration flow, click **Edit** for the `EBS_Site` icon.
2. Perform the following tasks to create mappings between elements:
   - In the Source section, expand the **RESTSample Request (REST)** node, then the **Request Wrapper** node, and then the **Site** node.

     Select the **Site Number** element.
   - In the Target section, expand the **EBS_Site Request (Oracle E-Business Suite)** node, then the **InputParameters** node, and then the **site** node. Select the **SiteNumber** element.

   Drag the **Site Number** element from the Source section to the **SiteNumber** element in the Target section to map the data.

   Similarly, use the same approach to map the elements from the same Source location to the same Target location listed in the following table:

Source Element	Target Element
Site Name	SiteName
Site Type	SiteType
Site Status	SiteStatus
Brand Name	BrandName
Country	Country
Address1	Address1



3. Perform the following tasks to assign constant values to the target elements:

   - In the Target section, expand the **EBS_Site Request (Oracle E-Business Suite)** node, and then the **RESTHeader** node.

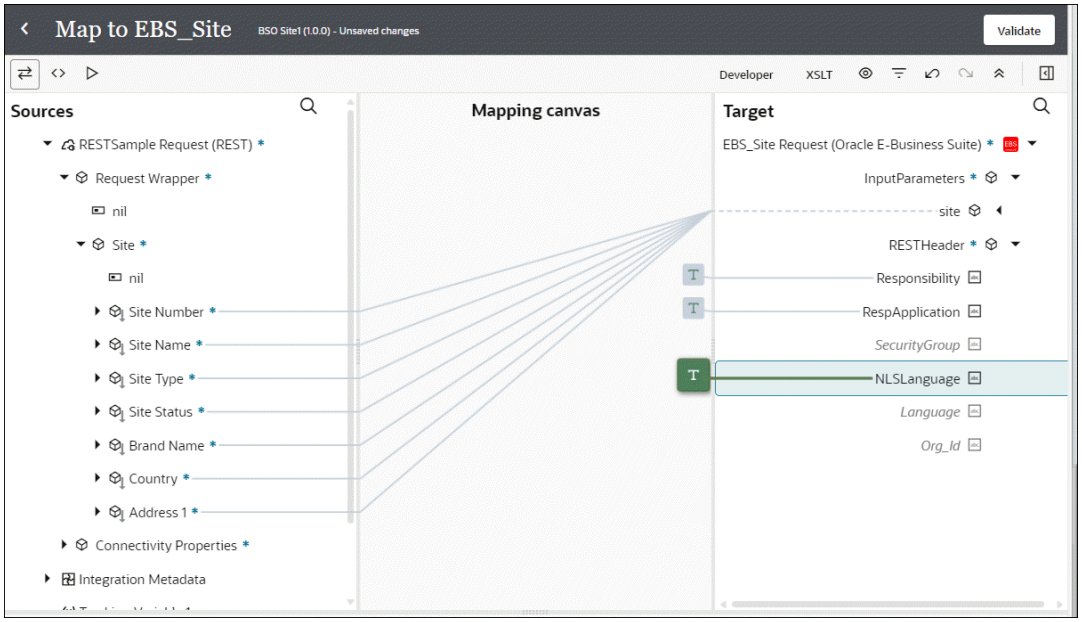
     Right-click the **Responsibility** element and select **Create Target Node** from the drop-down menu.

   - In the Expression Builder at the bottom of the page, click the "Switch to Developer View" icon and then enter `'RRS_USER'` for the Responsibility element. Save your entry.

     A **function** icon is added to the Mapping Canvas section for the target **Responsibility** element node.

Similarly, use the same approach to assign constant values to the target elements listed in the following table:

Path	Element	Value
EBS_Site Request (Oracle E-Business Suite)/RESTHeader	RespApplication	'RRS'
EBS_Site Request (Oracle E-Business Suite)/RESTHeader	NLSLanguage	'AMERICAN'



After you complete this step, the function icons should appear in the Mapping Canvas section for the corresponding target elements.

4. Click **Validate** and then exit the Mapper. Click **Save** to save your work.

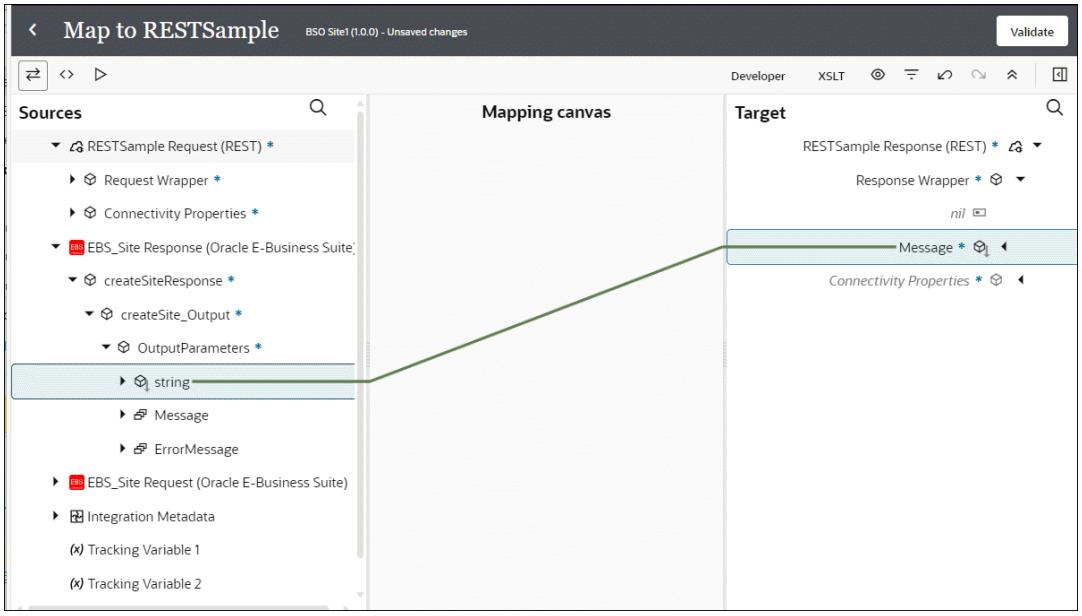
Create mappings for `RESTSample` response:

1. In the middle of the integration, click **edit** for the `RESTSample` icon.
2. Create mappings to map the source and target elements.
   - In the Source section, expand the **EBS_Site Response (Oracle E-Business Suite)** node, then the **createSiteResponse** node, then the **createSite_Output** node, and then the **OutputParameters** node.

     Select the **string** element.
   - In the Target section, expand the **RESTSample Response (REST)** node, and then the **Response Wrapper** node.

     Select the **Message** element.

   Drag the **string** element from the Source section to the **Message** element in the Target section to map the data.



3. Click **Validate** and then exit the Mapper. Click **Save** to save your work.

Activate and Test the Integration

Activate the Integration

Perform the following steps to activate the "EBS Site" integration you just created:

1. In the navigation pane, click **Design**, then **Integrations**.
2. On the Integrations page, hover your cursor over the **EBS_Site** integration, then click **Activate** .
3. The Activate integration panel appears. Select the level of tracing appropriate to your integration. Click **Activate**.

   Notice that a status message is displayed in the banner at the top of the Integrations page.

Test the Integration

Perform the following steps to test the integration:

1. On the Integrations page, hover your cursor over the **EBS_Site** integration. Click **Actions** , then **Run**.
2. In the Request section of the Test Integration page, select the Body tab and then enter the following information in the Body field:

```
{
 "site":{
  "SiteNumber":"Site1",
  "SiteName":"Demo Site",
  "SiteType":"Internal",
  "SiteStatus":"Active",
  "BrandName":"Brand A",
  "Country":"United States",
  "Address1":"100 A1"
```

```
 }
}
```

3. Click **Run** to invoke the integration.

   In the Response section, you will find the following response message indicating that this integration is successfully invoked. The new site called "Demo Site" with site number `Site1` is created in Oracle E-Business Suite Site Hub.

```
{
 "message”: “SUCCESS. Site Number=Site1"
}
```

7

Troubleshoot the Oracle E-Business Suite Adapter and Related Error Messages

This chapter describes troubleshooting information and error messages if occur at the design time while testing an Oracle E-Business Suite connection and while creating an integration with an Oracle E-Business Suite Adapter connection in Oracle Integration. The possible resolutions are also included.

Topics:

For additional information on managing errors, see Manage Errors in *Using Integrations in Oracle Integration 3*.

Error Messages While Testing an Oracle E-Business Suite Connection

The following table describes error messages if occur while testing an Oracle E-Business Suite connection with Oracle E-Business Suite Adapter from Oracle Integration:

Error Code	Error Message	Resolution
CASDK-0002	Verify Integrated SOA Gateway setup on Oracle E-Business Suite. For details, refer to Setup chapter in Using the Oracle E-Business Suite Adapter guide.	Ensure that you complete the setup tasks for Oracle E-Business Suite Integrated SOA Gateway (ISG), as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.
CASDK-0004	Invalid user name or password.	Provide valid Oracle E-Business Suite user name and password combination.

Error Code	Error Message	Resolution
CASDK-0005	User is not authorized to execute the service. Please check the user grants.	All methods of the Metadata Provider service do not have required grants created. Grant the required user privileges to Metadata Provider service, as described in step 4, Setup Tasks for Enabling the Oracle E-Business Suite Adapter. Alternatively, this error could also occur if the access to Oracle E-Business Suite instance is forbidden or blocked from Oracle Integration. Ensure that Oracle Integration is able to access the Oracle E-Business Suite instance.
CASDK-0005	Verify if Metadata Provider service is deployed with alias 'provider'. Ensure that all its methods are deployed with GET verb.	This error occurs due to either of the following reasons: • The Metadata Provider API is not deployed as a REST service. • All the methods of the API are not deployed with GET verb. • The API is deployed with GET verb but with a service alias other than "**provider**". To resolve the issue, ensure that you deploy all the methods in the Metadata Provider API with GET verb and with service alias "**provider**". For information on deploying Metadata Provider service, see step 3, as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.
CASDK-0005	Error connecting to the Oracle E-Business Suite: <URL>	Provide valid Oracle E-Business Suite host and port information (`http(s)://<Oracle E-Business Suite host name>:<port>`) where Oracle E-Business Suite is configured for ISG REST services.
CASDK-0005	A connector specific exception was raised by the application. The connection URL should be of the format: `http://<Oracle E-Business Suite host name>:<port>`	This error occurs due to invalid URL format. To resolve the issue, remove any trailing slash in the URL. Ensure that the Oracle E-Business Suite connection URL is of the format: `http(s)://<Oracle E-Business Suite host name>:<port>`
CASDK-0005	Connection URL should be of the format: `http://<host name>:<port>`	This issue occurs because of protocol error. To resolve the issue, the connection URL should be of the format: `http(Oracle E-Business Suite host name>:<port>`

Error Code	Error Message	Resolution
CASDK-0007	Unable to establish a secure connection to `example.com`. SSL protocol related exception occurred. - sun.security.validator.ValidatorException: PKIX path building failed:`sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target` - PKIX path building failed: `sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target` - unable to find valid certification path to requested target	This error occurs because of TLS certificate issues. If Oracle E-Business Suite requires a specific TLS certificate, ensure that you import or upload the Oracle E-Business Suite TLS certificate to Oracle Integration. See: Setup Tasks for a TLS-Enabled Oracle E-Business Suite Environment.

Troubleshoot the Oracle E-Business Suite Adapter While Using it as a Trigger (Source) in an Integration

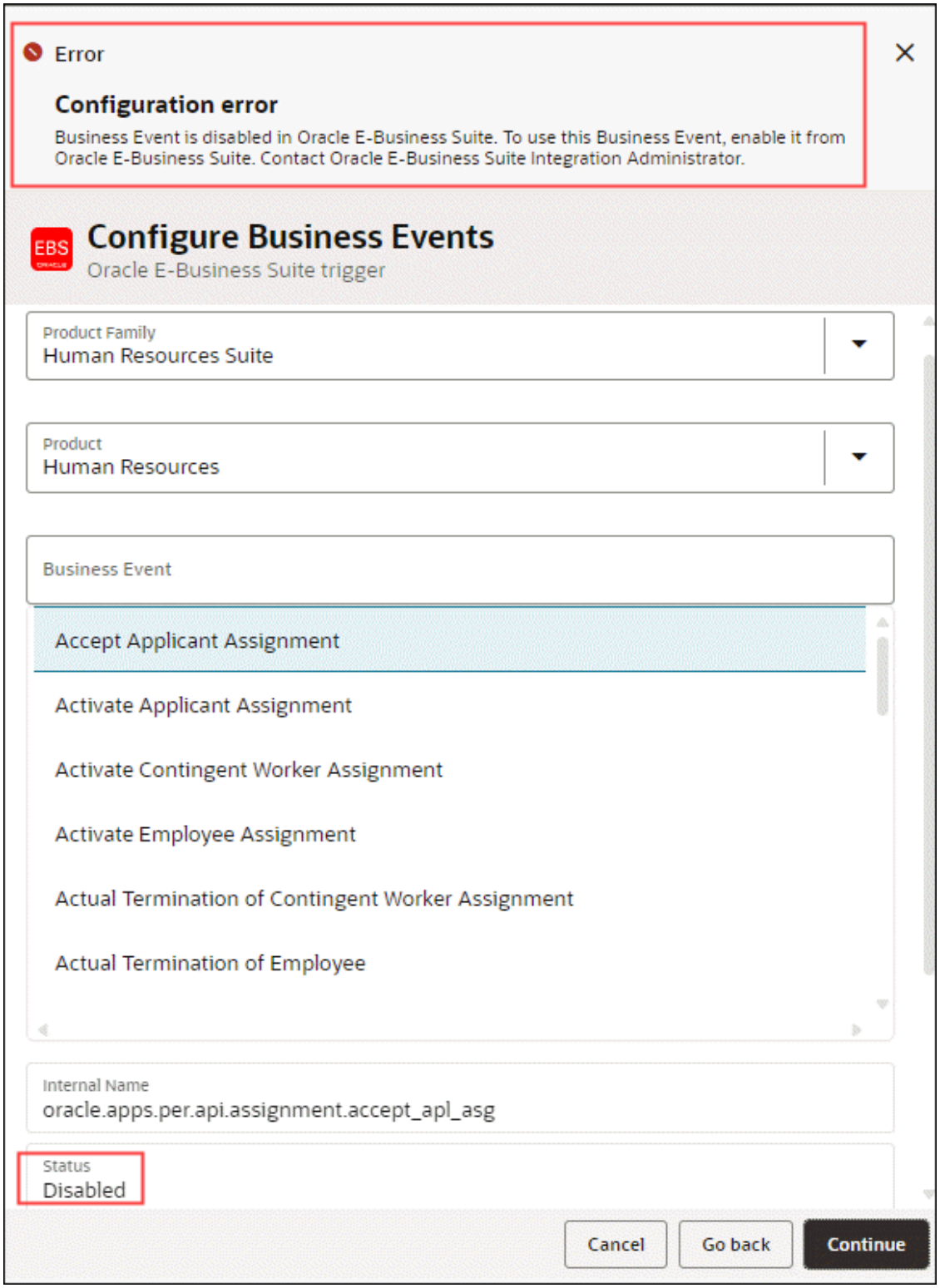
The following table describes troubleshooting information while using the Oracle E-Business Suite Adapter as a trigger (source) connection in an integration:

Issue	Resolution
If there is no XML Gateway map selected in the XML Gateway Message page, after you click **Next**, the following error may occur: `Please select a XML Gateway Map to proceed. If no maps are listed, select another Product / Product family.`	Ensure that you select a desired XML Gateway message from the populated list based on your selected product and product family before clicking **Next**. For information on configuring the endpoint for XML Gateway message maps, see Oracle E-Business Suite Adapter XML Gateway Message Page.
If there is no business event selected in the Business Events page, after you click **Next**, the following error may occur: `Please select a Business Event to proceed. If no events are listed, select another Product / Product family.`	Ensure that you select a desired business event from the populated list based on your selected product and product family before clicking **Next**. For information on configuring the endpoint for business events, see Oracle E-Business Suite Adapter Business Event Page.
When you attempt to edit an integration endpoint with Oracle E-Business Suite connection that has been successfully executed, the API used in the integration is not selected and an error occurs.	The cause of this issue could be due to product name change of the API used in the integration. To resolve the issue, you must reselect the product name of that API in the Web Services page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard.

Issue	Resolution
If you select a business event with “Disabled” status in the Business Events page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard, then the following error occurs: `Business Event is disabled in Oracle E-Business Suite. To use this Business Event, enable it from Oracle E-Business Suite. Contact Oracle E-Business Suite Integration Administrator.` (See Disabled Event Error Message)	If a business event is not "Enabled" in the Oracle Workflow Business Event System, you will not be able to use it in an integration when adding the Oracle E-Business Suite Adapter as a trigger connection. To resolve this issue, perform the following steps to enable the event: 1. Log in to Oracle E-Business Suite as a user who has the **Workflow Administrator Web Applications** responsibility. 2. Select the **Workflow Administrator Web Applications** responsibility, then **Administrator Workflow**, and then **Business Events** from the navigation menu. 3. Search for your desired business event. 4. Notice that the Event Status is displayed in the Events Results table. 5. If the event is disabled, click the **Update** icon from the table. Select "**Enabled**" and save the changes. Once the business event is enabled in Oracle E-Business Suite, perform the following tasks: 1. Log in to Oracle Integration and click **Connections**. 2. On the Connections page, locate the Oracle E-Business Suite connection. 3. From the **Actions** menu icon, click **Refresh Metadata**. The business event you just enabled will be available for use in Oracle Integration.

Disabled Event Error Message

If a selected business event is not enabled in the Oracle Workflow Business Event System, then “Disabled” is shown as the Status field value, along with an error indicating that you need to enable it enable first before using it in an integration.


Error
Configuration error
Business Event is disabled in Oracle E-Business Suite. To use this Business Event, enable it from Oracle E-Business Suite. Contact Oracle E-Business Suite Integration Administrator.
Configure Business Events
Oracle E-Business Suite trigger
Product Family
Human Resources Suite
Product
Human Resources
Business Event
Accept Applicant Assignment
Activate Applicant Assignment
Activate Contingent Worker Assignment
Activate Employee Assignment
Actual Termination of Contingent Worker Assignment
Actual Termination of Employee
Internal Name
oracle.apps.per.api.assignment.accept_apl_asg
Status
Disabled
Cancel
Go back
Continue

Troubleshoot the Oracle E-Business Suite Adapter While Using it as an Invoke (Target) in an Integration

The following table describes troubleshooting information while using the Oracle E-Business Suite Adapter as an invoke (target) connection in an integration:

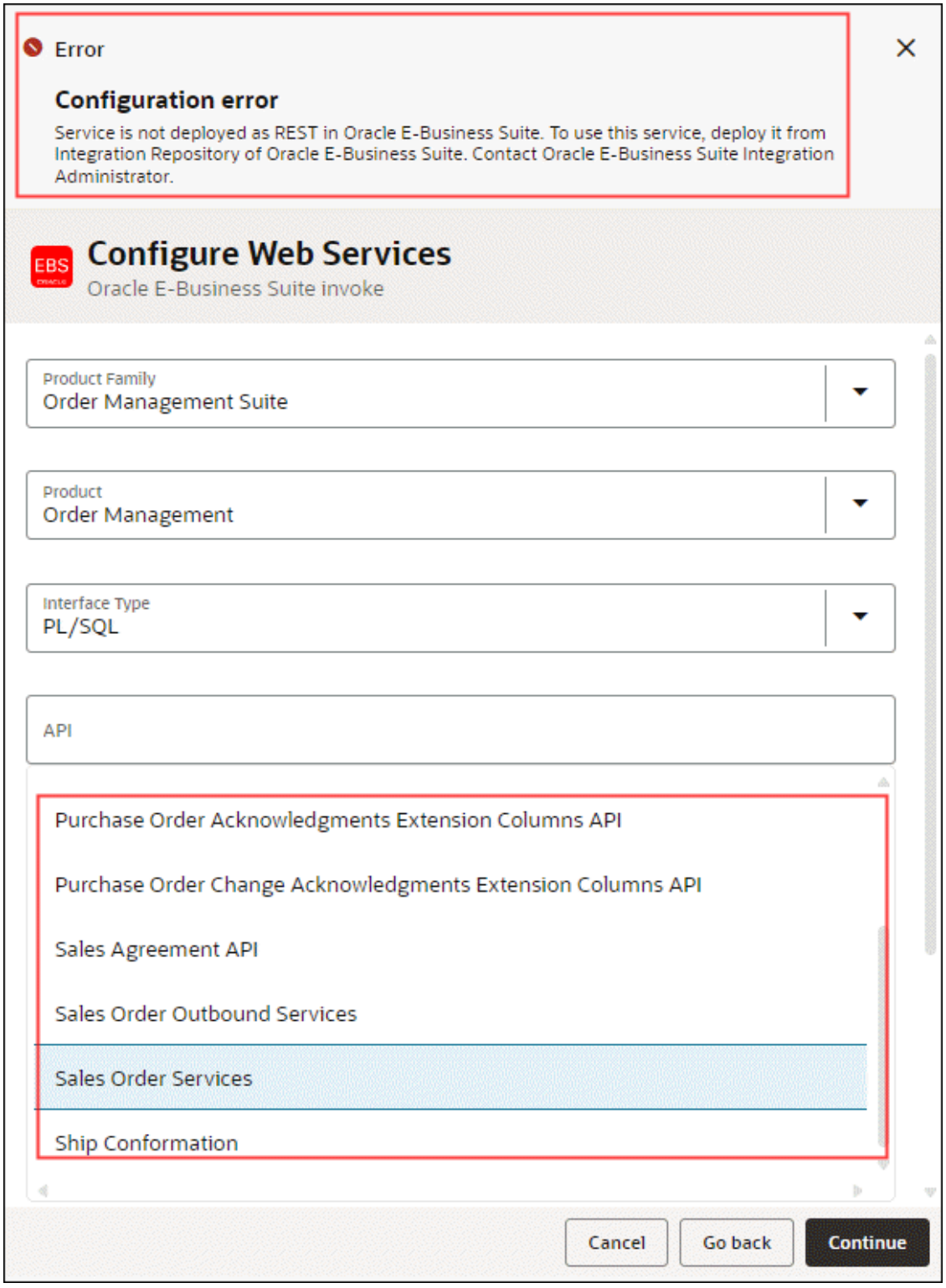
Issue	Resolution
When the Metadata Provider API in Oracle E-Business Suite only has the "isActive" method deployed, but the rest of all methods in the API are not deployed, then the following error may occur: `Empty set of values appear in the drop down during the Product Family selection.`	To resolve the issue, ensure that you deploy all the methods in the Metadata Provider API with GET verb and with service alias "**provider**". For information on deploying the Metadata Provider service, see step 3, as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.
When any of the Metadata Provider API methods (such as getInterfaces, getMethods, getProducts) except the "isActive" method are deployed but do not have grants created, the following error may occur: `The application has encountered an unexpected error. Please check the application connection details and credentials, and retry your request.`	To resolve the issue, in addition to deploying all the methods in the Metadata Provider API with GET verb, ensure that you grant the required user privileges to the Metadata Provider service, as described in step 4, Setup Tasks for Enabling the Oracle E-Business Suite Adapter.
When you attempt to edit an integration endpoint with Oracle E-Business Suite connection that has been successfully executed, the API used in the integration is not selected and an error occurs.	The cause of this issue could be due to product name change of the API used in the integration. To resolve the issue, you must reselect the product name of that API in the Web Services page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard.
If you select an interface that is not deployed as a REST service in the Web Services page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard, the following error occurs: `Service is not deployed as REST in Oracle E-Business Suite. To use this service, deploy it from Integration Repository of Oracle E-Business Suite. Contact Oracle E-Business Suite Integration Administrator.` (See Undeployed REST Service Error Message)	This error occurs because none of the methods within the selected interface is deployed as a REST service operation. To resolve this issue, ensure that you deploy the selected interface as a REST service first before using it in an integration. For information on deploying an interface as a REST service, see step 3 as described in Setup Tasks for Enabling the Oracle E-Business Suite Adapter.

Issue	Resolution
If you select a method or operation that is not deployed as a REST service operation in the Operations page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard, then “Not Deployed” is shown as the Service Status field, along with the following error: `Service operation is not deployed in Oracle E-Business Suite. To use this service, deploy it from Integration Repository of Oracle E-Business Suite. Contact Oracle E-Business Suite Integration Administrator.` (See Method with “Not Deployed” Status Error Message)	Ensure that you deploy the selected method as a REST service operation first by using the following steps: 1. Log in to Oracle E-Business Suite as a user who has the Integration Administrator privileges. 2. Navigate to the **Integrated SOA Gateway** responsibility and then select **Integration Repository** from the navigation menu. 3. Search for the desired API. It can be an interface type of PL/SQL, Java, concurrent program, or open interface table or view. **Note:** To locate a Java API of business service object, select "Business Service Object" as the interface type in the Search page. To locate other Java APIs, ensure that you select the following fields after clicking **Show More Search Options** in the Search page: • **Category**: Interface Subtype • **Category Value**: "Java Bean Services" or "Application Module Services" 4. Ensure that you select the desired method or operation that you want to use in an integration before deploying it as a REST service operation. See: Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*. 5. Log in to Oracle Integration. 6. Navigate to an Oracle E-Business Suite connection that you want to use in your integration. 7. From the **Actions** menu, click **Refresh Metadata**. The deployed interface should be available for use in Oracle Integration.

Issue	Resolution
When attempting to select the **Read** operation for a Java method in the Operations page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard, you cannot find it displayed for selection.	The **Read** operation performs the **GET** HTTP verb for a Java method. When it is not available for selection in the Operations page of the Configure Oracle E-Business Suite Adapter Endpoint Wizard, this indicates that the Java method does not have **GET** selected during the REST service deployment in Oracle E-Business Suite. To use this operation for a Java method in an integration, perform the following tasks: 1. Ensure that you select the **GET** checkbox for the Java method that you want to use before deploying the service. Otherwise, you can only use the default "Create" operation that performs the HTTP “POST” action for that Java method in an integration. See: Deploying REST Web Services, *Oracle E-Business Suite Integrated SOA Gateway Implementation Guide*. 2. Select the **Read** operation for that Java method in the Operations page of the Oracle E-Business Suite Adapter Endpoint Configuration Wizard when adding the Oracle E-Business Suite Adapter as an invoke connection. See: Invoke Oracle E-Business Suite Java APIs from Oracle Integration.

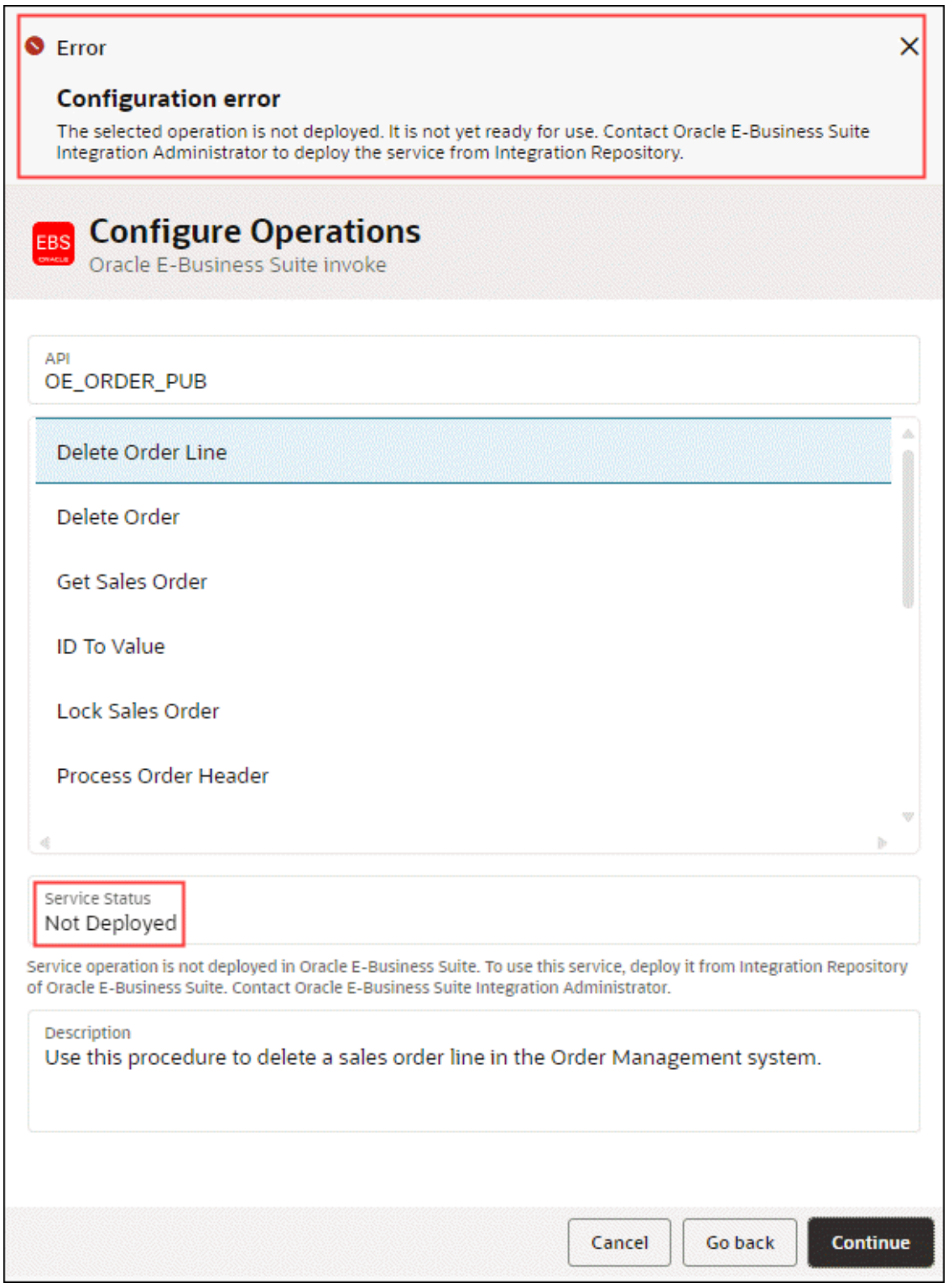
Undeployed REST Service Error Message

If none of the methods within the selected interface is deployed as a REST service operation, then an error message is shown indicating that the associated REST service is not available. You must deploy the selected interface as a REST service in Oracle E-Business Suite first.



Method with “Not Deployed” Status Error Message

If a selected method is not deployed as a REST service operation, then “Not Deployed” is shown as the Service Status field value, along with an error indicating that you need to deploy the selected method first before using it in an integration.


Error
Configuration error
The selected operation is not deployed. It is not yet ready for use. Contact Oracle E-Business Suite Integration Administrator to deploy the service from Integration Repository.
EBS
Configure Operations
Oracle E-Business Suite invoke
API
OE_ORDER_PUB
Delete Order Line
Delete Order
Get Sales Order
ID To Value
Lock Sales Order
Process Order Header
Service Status
Not Deployed
Service operation is not deployed in Oracle E-Business Suite. To use this service, deploy it from Integration Repository of Oracle E-Business Suite. Contact Oracle E-Business Suite Integration Administrator.
Description
Use this procedure to delete a sales order line in the Order Management system.
Cancel
Go back
Continue