Oracle® Cloud Using the ServiceNow Adapter with Oracle Integration 3





Oracle Cloud Using the ServiceNow Adapter with Oracle Integration 3,

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Preface

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



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

Topics:

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

Audience

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

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at https://www.oracle.com/corporate/accessibility/.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit https://support.oracle.com/portal/ or visit Oracle Accessibility Learning and Support 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 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 ServiceNow Adapter

Review the following conceptual topics to learn about the ServiceNow 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:

- ServiceNow Adapter Capabilities
- What Application Version Is Supported?
- About ServiceNow Adapter Use Cases
- Workflow to Create and Add a ServiceNow Adapter Connection to an Integration



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

ServiceNow Adapter Capabilities

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

The ServiceNow Adapter provides the following benefits:

- Supports connecting to private resources that are in your virtual cloud network (VCN) with a private endpoint. See Connect to Private Resources in *Provisioning and Administering Oracle Integration 3* and Configure the Endpoint Access Type. This type of connection does not use the connectivity agent.
- Enables simplified bidirectional integration with ServiceNow.
- Supports consuming SOAP and REST API endpoints.
- Supports all ServiceNow plugins that are activated in ServiceNow.
- Supports receiving notifications for a selected application and module or table when a record is inserted, updated, or deleted in ServiceNow.
- Provides support for performing the following type of operations against the selected application and modules in ServiceNow:
 - Create, Update, or Delete Information Create, update, or delete records for/from a selected application and module.
 - Query Information Get records or information from a selected application and module.

- Retrieve, Upload, Download or Delete Attachment(s) Download, retrieve, upload, or delete attachment metadata to or from a specific record in the module. In addition, you can retrieve attachment metadata of a record using the Single Attachment Metadata and Multiple Attachments Metadata operations.
- Supports the following batch operations:
 - CRUD (Create, Update, Get, or Delete)
 - File attachment (Download, Upload, Retrieve, or Delete attachment)
- Supports REST APIs protected using:
 - OAuth 2.0 three-legged authentication (Authorization Code Credentials)
 - OAuth 2.0 two-legged authentication (Resource Owner Password Credentials)
 - Basic authentication
- Supports SOAP APIs protected using basic authentication.

The ServiceNow Adapter is one of many predefined adapters included with Oracle Integration. See the Adapters page in the Oracle Help Center.

What Application Version Is Supported?

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

About ServiceNow Adapter Use Cases

The ServiceNow Adapter can be used in a variety of scenarios.

- A trigger Salesforce Adapter connection is integrated with an invoke ServiceNow Adapter connection, which creates an incident in ServiceNow whenever a new case is created in Salesforce.
- Dynamic event handling to synchronize with a customer CRM/ERP system.
- Service management data synchronization in real time with CRM systems.
- Incident creation and workflow approval process management.
- Employee synchronization from customer ERP/HCM systems with users.

Workflow to Create and Add a ServiceNow 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.



Step	Description	More Information
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 a ServiceNow Adapter Connection
2	Create the integration. When you do this, you add trigger and invoke connections to the integration.	Create Integrations and Add the ServiceNow Adapter Connection to an Integration
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 <i>Using Integrations in Oracle</i> Integration 3
6	Monitor the integration on the dashboard.	Monitor Integrations During Runtime in <i>Using</i> Integrations in Oracle Integration 3
7	Track payload fields in messages during runtime.	Assign Business Identifiers for Tracking Fields in Messages and Track Integration Instances in <i>Using Integrations in Oracle Integration 3</i>
8	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in <i>Using Integrations in Oracle Integration</i> 3



Create a ServiceNow Adapter Connection

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

Topics:

- Prerequisites for Creating a Connection
- Create a Connection

Prerequisites for Creating a Connection

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

- Prerequisites for Oracle Integration Releases 23.04 or Later
- Prerequisites for Oracle Integration Releases Earlier Than 23.04
- Prerequisites to Use the Authorization Code Credentials Security Policy and Resource Owner Password Credentials

Prerequisites for Oracle Integration Releases 23.04 or Later

When you create or edit your ServiceNow connection on release 23.04 or later of Oracle Integration, you must satisfy the following prerequisites.

- Purchase a Subscription to ServiceNow
- Satisfy User and Role Requirements
- Create a Custom User and Assign the Required Permissions

Purchase a Subscription to ServiceNow

When you subscribe, you receive an instance name URL, user name, and password. This information is required for creating a ServiceNow Adapter connection in the Connections page. See Configure Connection Properties and Configure Connection Security.

Satisfy User and Role Requirements

You don't need to be an admin user to use the ServiceNow Adapter in Oracle Integration. If you want to assign an administrative role to a ServiceNow user, you can do so. Otherwise, you can create a custom user, assign the necessary roles, and create an Access Control List (ACL) for granting the necessary access to the following tables.

No matter if the user is an admin or a custom, the necessary permissions/accesses must be granted to the following tables.

Note the following:

 Ensure that web services are enabled and respective permissions are assigned for the following tables in the ServiceNow instance.

- Ensure the Integration User has the appropriate role.
- A ServiceNow user with the default SOAP role (without any customization or changes) is required to configure or use the ServiceNow Adapter.

The applications and modules supported by the adapter are displayed for selection in the user interface when you add access to the following tables:

Permissions	Operation
sys_plugins	Gets standard applications.
sys_app	Gets custom applications.
sys_db_object	Gets modules.
sys_ui_section	Gets view fields in get operations.
sys_documentation	Views the field labels instead of actual field names in the user interface.
sys_package	Fetches standard packages.
	Note : This permission is required for both connections (that is, invoke and trigger connections).
sys_ui_element	Gets view fields in get operations.
sys_soap_message	For insert/delete of ServiceNow outbound SOAP messages.
	Note : This permission is required only for trigger connections.
sys_soap_message_function	For insert ServiceNow outbound SOAP message functions.
	Note : This permission is required only for trigger connections.
sys_script	For insert/update/delete of ServiceNow business rules.
	Note : This permission is required only for trigger connections.
sys_rest_message	For insert/delete of ServiceNow outbound REST messages.
	Note : This permission is required only for trigger connections.
sys_rest_message_fn	For insert ServiceNow outbound REST message functions.
	Note : This permission is required only for trigger connections.
sys_rest_message_headers	For insert ServiceNow outbound REST message headers information.
	Note : This permission is required only for trigger connections.

Create a Custom User and Assign the Required Permissions

- 1. Create a custom role:
 - a. Log in to the ServiceNow cloud application (xxx.service-now.com) with administrator credentials.



- **b.** On the home page, search for **Roles** in the search box in the left pane, and click **Roles** under **User Administration** in the search results.
- c. Click **New** to create a new role.
- d. Enter the required details and click **Submit**.
- 2. Enable web services for the preceding tables and assign permissions:
 - a. Log in to the ServiceNow cloud application (xxx.service-now.com) with administrator credentials.
 - **b.** On the home page, search for tables in the search box in the left pane, and click the **Tables** link under **System Definition** in the search results.
 - c. Search for each of the ServiceNow tables from the preceding table using the **Search** box or locate a table using the show/hide filter.
 - d. Click the table name or **Business Rule** (for the trigger role) in the search results.
 - e. Locate and click the Application Access tab.
 - f. For the invoke role, select the Can read check box (you can refer to the following table for required permissions), and select the Allow access to this table via web services check box if it is not selected already.

Table Name	Permission
Sys_db_object	Read Only
Sys_plugins	Read Only
Sys_app	Read Only
Sys_ui_section	Read Only
Sys_ui_element	Read Only
Sys_package	Read Only

g. For the trigger role, select the respective permission (refer to the following table for required permissions), and select the Allow access to this table via web services check box if it is not selected already.

Table Name	Permission
sys_soap_message	Create, Update, and Delete
sys_soap_message_function	Create, Update, and Delete
sys_script	Create, Update, and Delete
sys_rest_message	Create, Update, and Delete
sys_rest_message_fn	Create, Update, and Delete
sys_rest_message_headers	Create, Update, and Delete
sys_db_object	Read Only
sys_plugins	Read Only
sys_app	Read Only
sys_ui_section	Read Only
Sys_ui_element	Read Only
Sys_package	Read Only



Table Name	Permission
sys_documentation	Read Only
	Note : Assign this permission if you want to view the field labels instead of the actual field names in the list.

This provides the required access for the table and provides permission to access the table with web services.

- Create or modify the access control list to assign permissions for the preceding tables.
 - a. Assign the security_admin privileges to the admin user, if they are not assigned already. The admin user must have security_admin privileges to modify the access control lists.
 - On the Home page, click the lock icon. In case of user interface 16, select the Elevate Roles from the System Administrator drop-down list.
 - ii. Select the **security_admin** check box if it is not selected already.
 - Search for Access Control in the Search box in the left pane and click Access Control (ACL) under System Security.
 - c. Create two access control lists for a table (that is, table-level access control and field-level access control) to provide read, create, and write access to any table.
 - d. Create the table-level access control list:
 - Click New.
 - ii. For the invoke role, select record in the Type field, select read in the Operation field, and select a table name (for example, sys_plugins) in the Name field.
 - iii. For the trigger role, select record in the Type field, select create in the Operation field, and select a table name (for example, sys_soap_message) in the Name field.
 - iv. Under the Requires role section, search for the custom role (for example, Integration Specific Role), and click the check mark.
 - v. Click Submit.
 - e. Provide field-level access control:
 - i. Click New.
 - ii. For the invoke role, select record in the Type field, select read in the Operation field, select a table name (for example, sys_plugins) in the Name field, and select * (asterisk) from the field next to the Name field.
 - iii. For the trigger role, select record in the Type field, select create in the Operation field, and select a table name (for example, sys_soap_message) in the Name field.
 - iv. Under the Requires role section, search for the custom role (for example, Integration Specific Role), and click the check mark.
 - v. Click Submit.



- 4. Similarly, you must create an access control list for the preceding table to provide read, create, write, and delete permissions. If the access control list for a table exists, you can add the custom role under the **Requires Role** section.
 - a. On the home page, search for users in the search box in the left pane and click Users under User Administration in the search results.
 - b. Click **New** to create a new user.
 - c. Enter the required values and click **Submit**.
 - d. Search for the user with the user ID to assign roles.
 - e. In the Roles section, click Edit.
 - f. Search for the custom role (for example, Integration Specific Role), SOAP, ITIL, query_no_domain_table_api, and rest_service roles, and assign them to the user.
 - Click Save.

Prerequisites for Oracle Integration Releases Earlier Than 23.04

Perform the following prerequisites for Oracle Integration releases earlier than 23.04.

- Purchase a Subscription to ServiceNow
- · Satisfy User and Role Requirements
- Create a Custom User and Assign the Required Permissions

Purchase a Subscription to ServiceNow

When you subscribe, you receive an instance name URL, user name, and password. This information is required for creating a ServiceNow Adapter connection on the Connections page. See Configure Connection Properties and Configure Connection Security.

Satisfy User and Role Requirements

A ServiceNow user with the Admin role or a custom user can use the ServiceNow Adapter in Oracle Integration. You can create a custom user (for example, the Integration User) in ServiceNow that can be assigned a custom role that has access to the table names shown in the following table in ServiceNow.

Note the following:

- Ensure that web services are enabled and respective permissions are assigned for the following tables in the ServiceNow instance.
- Ensure the Integration User has the appropriate role.
- A ServiceNow user with the default SOAP role (without any customization or changes) is required to configure or use the ServiceNow Adapter.
- The default SOAP role has the following permissions: query, create, update, and delete records on all tables, and execute scripts. While this is verifiable, ServiceNow recommends using the Admin role.



Note:

If a SOAP role has been modified or the SOAP role is not functional, you must follow the ServiceNow recommendations and use the Admin role. If you do not want to assign the Admin role, you can create a custom role, add accesses to the following tables, and assign the default SOAP role to the custom role.

A ServiceNow Adapter connection can be created with minimal access on the tables. However, only the modules supported by the adapter are displayed for selection in the user interface when you add access to the following tables:

Table Name	Permission
sys_soap_message	For insert/delete of ServiceNow outbound SOAP messages.
	Note : This permission is required only for trigger connections.
sys_soap_message_function	For insert ServiceNow outbound SOAP message functions.
	Note : This permission is required only for trigger connections.
sys_script	For insert/update/delete of ServiceNow business rules.
	Note : This permission is required only for trigger connections.
sys_db_object	To get modules.
	Note : This permission is required for both connections (that is, invoke and trigger connections).
Sys_package	Fetches standard packages.
	Note : This permission is required for both connections (that is, invoke and trigger connections).

The applications and modules supported by the adapter are displayed for selection in the user interface when you add access to the following tables:

Permissions	Operation
sys_plugins	Gets standard applications.
sys_app	Gets custom applications.
sys_db_object	Gets modules.
sys_ui_section	Gets View fields in Get operations.
sys_documentation	Views the field labels instead of actual field names in the user interface.
sys_package	Fetches standard packages. Note: This permission is required for both connections (that is, invoke and trigger connections).



Permissions	Operation
sys_ui_element	Gets View fields in Get operations.
sys_soap_message	For insert/delete of ServiceNow outbound SOAP messages.
	Note : This permission is required only for trigger connections.
sys_soap_message_function	For insert ServiceNow outbound SOAP message functions.
	Note : This permission is required only for trigger connections.
sys_script	For insert/update/delete of ServiceNow business rules.
	Note : This permission is required only for trigger connections.

Create a Custom User and Assign the Required Permissions

- 1. Create a custom role:
 - a. Log in to the ServiceNow cloud application (xxx.service-now.com) with administrator credentials.
 - **b.** On the home page, search for **Roles** in the search box in the left pane, and click **Roles** under **User Administration** in the search results.
 - c. Click **New** to create a new role.
 - d. Enter the required details and click **Submit**.
- 2. Enable web services for the preceding tables and assign permissions:
 - a. Log in to the ServiceNow cloud application (xxx.service-now.com) with administrator credentials.
 - **b.** On the home page, search for tables in the search box in the left pane, and click the **Tables** link under **System Definition** in the search results.
 - c. Search for each of the ServiceNow tables from the preceding table using the Search box or locate a table using the show/hide filter.
 - d. Click the table name or **Business Rule** (for the trigger role) in the search results.
 - e. Locate and click the Application Access tab.
 - f. For the invoke role, select the Can read check box (you can refer to the following table for required permissions), and select the Allow access to this table via web services check box if it is not selected already.

Table Name	Permission
Sys_db_object	Read Only
Sys_plugins	Read Only
Sys_app	Read Only
Sys_ui_section	Read Only
Sys_ui_element	Read Only
Sys_package	Read Only



You can refer to the following table for the required permissions when you want to create a ServiceNow Adapter connection with minimal accesses to the tables.

Table Name	Permission
sys_db_object	Read Only
Sys_package	Read Only

g. For the trigger role, select the respective permission (refer to the following table for required permissions), and select the **Allow access to this table via web services** check box if it is not selected already.

Table Name	Permission
sys_soap_message	Create, Update, and Delete
sys_soap_message_function	Create, Update, and Delete
sys_script	Create, Update, and Delete
sys_db_object	Read Only
sys_plugins	Read Only
sys_app	Read Only
sys_ui_section	Read Only
Sys_ui_element	Read Only
Sys_package	Read Only
sys_documentation	Read Only Note: Assign this permission if you want to view the field labels instead of the actual field names in the list.

This provides the required access for the table and allows permission to access the table with web services.

You can refer to the following table for the required permissions when you want to create a ServiceNow Adapter connection with minimal accesses to the tables.

Table Name	Permission
sys_soap_message	Create, Update, and Delete
sys_soap_message_function	Create, Update, and Delete
sys_script	Create, Update, and Delete
sys_db_object	Read Only
Sys_package	Read Only

- Create or modify the access control list to assign permissions for the preceding tables.
 - a. Assign the security_admin privileges to the admin user, if it is not assigned already. The admin user must have security_admin privileges to modify the access control lists.
 - i. On the Home page, click the **lock** icon. In case of user interface 16, select **Elevate Roles** from the **System Administrator** drop-down list.
 - ii. Select the **security_admin** check box if it is not selected already.



- b. Search for Access Control in the Search box in the left pane and click Access Control (ACL) under System Security.
- **c.** Create two access control lists for a table (that is, table-level access control and field-level access control) to provide read, create, and write access to any table.
- d. Create the table-level access control list:
 - i. Click New.
 - ii. For the invoke role, select **record** in the **Type** field, select **read** in the **Operation** field, and select a table name (for example, **sys plugins**) in the **Name** field.
 - iii. For the trigger role, select record in the Type field, select create in the Operation field, and select a table name (for example, sys_soap_message) in the Name field.
 - iv. Under the **Requires role** section, search for the custom role (for example, **Integration Specific Role**), and click the check mark.
 - v. Click Submit.
- e. Provide field-level access control:
 - i. Click New.
 - ii. For the invoke role, select record in the Type field, select read in the Operation field, select a table name (for example, sys_plugins) in the Name field, and select * (asterisk) from the field next to the Name field.
 - iii. For the trigger role, select record in the Type field, select create in the Operation field, select a table name (for example, sys_soap_message) in the Name field, and select * (asterisk) from the drop-down list in the field next to the Name field.
 - iv. Under the **Requires role** section, search for the custom role (for example, **Integration Specific Role**), and click the check mark.
 - v. Click Submit.
- 4. Similarly, you must create an access control list for the preceding table to provide read, create, write, and delete permissions. If the access control list for a table exists, you can add the custom role under the **Requires Role** section.
 - a. On the home page, search for users in the search box in the left pane and click
 Users under User Administration in the search results.
 - b. Click **New** to create a new user.
 - c. Enter the required values and click **Submit**.
 - **d.** Search for the user with the user ID to assign roles.
 - e. In the Roles section, Click Edit.
 - f. Search for the custom role (for example, Integration Specific Role), SOAP, and ITIL roles, and assign these roles to the user.
 - g. Click Save.



Note:

When you create trigger endpoints using a new connection or an existing connection created prior to release 23.04 of Oracle Integration, you must provide access to the tables: sys_rest_message, sys_rest_message_fn, and sys_rest_message_header.

Prerequisites to Use the Authorization Code Credentials Security Policy and Resource Owner Password Credentials

You can configure the Resource Owner Password Credentials security policy and Authorization Code Credentials security policy to authenticate REST APIs. To use the Authorization Code Credentials security policy, you must perform the following prerequisites.

- Register an App and Obtain the Client ID and Client Secret
- Assign Required Permissions to Tables

Note:

The ServiceNow Adapter only supports the Authorization Code Credentials security policy on Oracle Integration release 23.04 or later.

Register an App and Obtain the Client ID and Client Secret

- 1. Log in to the ServiceNow cloud application (xxx.service-now.com) with administrator credentials.
- 2. On the home page, search for **OAUTH** in the search box in the left pane, and click **Application Registry** under **System OAuth** in the search results.
- 3. Click Create an OAuth API endpoint for external clients.
- 4. On the Application Registries page, click New.
- 5. In the **Name** field, enter a name for your app.
- 6. In the **Redirect URL** field, enter the redirect URL in the following format:

```
https://{OIC Host}:{OIC SSL PORT}/icsapis/agent/oauth/callback
```

- 7. Click **Submit**. The system generates the client ID and client secret.
- 8. On the Application Registries page, click the application you created.
- Copy the client ID and client secret values. You must enter these values on the Connections page when you configure security for your ServiceNow Adapter connection. See Configure Connection Security.



Assign Required Permissions to Tables



The ServiceNow Adapter only supports the Resource Owner Password Credentials security policy on Oracle Integration Release 23.08 or later.

Permissions	Operation
sys_plugins	Gets standard applications.
sys_app	Gets custom applications.
sys_db_object	Gets modules.
sys_documentation	Views the field labels, instead of actual field names in the user interface.
sys_package	Fetches standard packages.
	Note : This permission is required for both connections (that is, invoke and trigger connections).
sys_script	For insert/update/delete of ServiceNow business rules.
	Note : This permission is required only for trigger connections.
sys_rest_message	For insert/delete of ServiceNow outbound REST messages.
	Note : This permission is required only for trigger connections.
sys_rest_message_fn	For insert ServiceNow outbound REST message functions.
	Note : This permission is required only for trigger connections.
sys_rest_message_headers	For insert ServiceNow outbound REST message headers info.
	Note : This permission is required only for trigger connections.

Create a Connection

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

To create a connection in Oracle Integration:

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



Note:

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

- 3. In the Create connection panel, select the adapter to use for this connection. To find the adapter, scroll through the list, or enter a partial or full name in the **Search** field.
- **4.** Enter the information that describes this connection.

Description
Enter a meaningful name to help others find your connection when they begin to create their own integrations.
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).
Select the role (direction) in which to use this connection (trigger, invoke, or both). Only the roles supported by the adapter are displayed for selection. When you select a role, only the connection properties and security policies appropriate to that role are displayed on the Connections page. If you select an adapter that supports both invoke and trigger, but select only one of those roles, you'll get an error when you try to drag the adapter into the section you didn't select.
For example, assume you configure a connection for the Oracle Service Cloud (RightNow) Adapter as only an invoke . Dragging the adapter to a trigger section in the integration produces an error.
Enter optional keywords (tags). You can search on the connection keywords on the Connections page.
Enter an optional description of the connection.



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

5. Click Create.

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

Configure Connection Properties

Enter connection information so your application can process requests.

- Go to the Properties section.
- 2. In the **ServiceNow Instance Name** field, enter the instance name URL (for example, https://host_name.service-now.com). You receive the instance name URL after you purchase a ServiceNow subscription.

Configure Connection Security

You can select the Authorization Code Credentials security policy or the Resource Owner Password Credentials security policy to execute the REST API or the Basic Authentication security policy to execute both the SOAP and REST APIs.

- 1. Go to the **Security** section.
- 2. From the **Security policy** list, select the security policy.
 - Basic Authentication: Select this security policy to execute both the SOAP and REST APIs.
 - Authorization Code Credentials: Select this security policy to execute the REST API.
- 3. If you select Basic Authentication:
 - Enter a user name and password to connect to the ServiceNow instance. You receive the user name and password after you purchase a ServiceNow subscription.
 - You are redirected to the ServiceNow application page.
- 4. If you select Authorization Code Credentials:



- a. In the Client ID field, enter the client ID that you obtained after performing the steps in the prerequisites section. See Prerequisites for Creating a Connection.
- b. In the Client secret field, enter the client secret that you obtained after performing the steps in the prerequisites section. See Prerequisites for Creating a Connection.
- c. In the Scope (Optional) field, enter the scope of the access request. Scopes enable you to specify which type of access you need. Scopes limit access for the OAuth token. They do not grant any additional permission beyond that which the user already possesses.
- **d.** Click **Provide Consent** to verify the connection properties. You are redirected to the ServiceNow application page.
- e. Click Allow.
- 5. If you select Resource Owner Password Credentials:
 - a. In the Client ID field, enter the client ID that you obtained after performing the steps in the prerequisites section. See Prerequisites to Use the Authorization Code Credentials Security Policy and Resource Owner Password Credentials.
 - b. In the Client secret field, enter the client secret that you obtained after performing the steps in the prerequisites section. See Prerequisites to Use the Authorization Code Credentials Security Policy and Resource Owner Password Credentials.
 - **c.** In **Username and Password** field, enter the credentials you are using to log in to the ServiceNow portal.
 - You are redirected to the ServiceNow application page.
- You can switch back to the Connections page to proceed with testing and saving the connection configuration.
- 7. Once you see the following message, you can switch back to the Connections page to proceed with testing and saving the connection configuration.

Authenticated!!

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
- Ensure Private Endpoint Configuration is Successful

Select the Endpoint Access Type

Select the option for accessing your endpoint.

Option	This Option Appears If Your Adapter Supports
Public gateway	Connections to endpoints using the public internet.



Option	This Option Appears If Your Adapter Supports
Private endpoint	Connections to endpoints using a private virtual cloud network (VCN). Note: To connect to private endpoints, you must complete prerequisite tasks in the Oracle Cloud Infrastructure Console. Failure to do so results in errors when testing the connection. See Connect to Private Resources in Provisioning and Administering Oracle Integration 3 and Troubleshoot Private Endpoints in Using Integrations in Oracle Integration 3.

Ensure Private Endpoint Configuration is Successful

- To connect to private endpoints, you must complete prerequisite tasks in the Oracle Cloud Infrastructure Console. Failure to do so results in errors when testing the connection. See Connect to Private Resources in *Provisioning and Administering Oracle* Integration 3.
- When configuring an adapter on the Connections page to connect to endpoints using a
 private network, specify the fully-qualified domain name (FQDN) and not the IP address.
 If you enter an IP address, validation fails when you click **Test**.
- IPSec tunneling and FastConnect are not supported for use with private endpoints.

Test the Connection

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

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

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

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



3

Add the ServiceNow Adapter Connection to an Integration

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

These topics describe the wizard pages that guide you through configuration of the ServiceNow Adapter as a trigger or invoke in an integration.

Topics:

- Basic Info Page
- Trigger Applications Page
- Trigger Fields Page
- Trigger Conditions Page
- Invoke Action Page
- Invoke Operations Page
- Invoke Extended Query Page
- Summary Page

Basic Info Page

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

Element	Description	
What do you want to call your endpoint?	Provide a meaningful name so that others can understand the responsibilities of this connection. You can include English alphabetic characters, numbers, underscores, and hyphens in the name. You can't include the following characters:	
	No blank spaces (for example, My Inbound Connection)	
	 No special characters (for example, #;83& or righ(t) now4) except underscores and hyphens 	
	No multibyte characters	
What does this endpoint do?	Enter an optional description of the connection's responsibilities. For example:	
	This connection receives an inbound request to synchronize account information with the cloud application.	



Trigger Applications Page

Select an application and module for which you want receive notifications.

Element	Description	
Select Application	Use the scrolling list to select an application for which you want to receive notifications when it is inserted, updated, or deleted.	
	Note:	
	 This field is not displayed when you create a ServiceNow Adapter connection with minimal accesses to the tables. See Prerequisites for Creating a Connection. 	
	 The list shows the application name and the plug-in ID in case of a duplicate application name. 	
Filter By Application Name	Type the initial letters of the application name to filter the display of names in the list.	
Select Module	Use the scrolling list to select a module.	
	Note : The list shows the module name and the table reference in case more than one module name exists for the selected application.	
Filter By Module Name	Type the initial letters of the module name to filter the display of names in the list. You can also select a filter type:	
	All: Displays all modules.	
	 Standard: Displays standard modules delivered as part of the ServiceNow application. 	
	 Custom: Displays custom modules created. 	
Display Table Names instead of Module Names	Select this checkbox to switch to show table names instead of module names in the list.	
Search Module/Table Tab	Search For Module or Table: Type the initial letters of the module or table name to filter the display of names in the module list along with the corresponding application.	
	 Select Module: Select a module from the list of modules you have filtered. 	

Trigger Fields Page

Specify the fields for which you want notification when they are inserted, updated, or deleted.

Element	Description
Display Actual Fields Instead of Field Labels	Once you provide the required permissions in ServiceNow, field labels are displayed (by default) in the list. See Prerequisites for Creating a Connection.
	Select this checkbox to switch to display the actual field names instead of field labels in the list.
	Note : If this checkbox is selected, the actual field names are displayed on the Conditions page also.



Element	Description
	·
Filter by Field Name	Type the initial letters of the field name to filter the display of names in the list. Use the dropdown menu to narrow or widen the list of fields:
	 ALL — Shows all of the available fields
	 CUSTOM — Shows only the custom fields
	 STANDARD — Shows only the standard fields
Available Fields	Use the scrolling list to select a list of fields for which you want to receive notifications when it is inserted, updated, or deleted These are fields contained in the application and module you selected on the Configurations page. The fields are moved to the Selected Fields list as you select them.
	You can double-click on a field name or use the arrow buttons to move the field to the Selected Fields list.
Selected Fields	The list of fields you have selected.

Trigger Conditions Page

Select the actions that trigger a notification when they are performed on the selected fields. You can also set condition statements that govern the conditions under which the notifications are triggered.

Element	Description
Receive notifications when <selected_module_name> gets:</selected_module_name>	Select one or more of the listed events (inserted, updated, deleted) that will trigger a notification when it is performed on the selected application, module or field.
Field Conditions	Use this part of the page to construct statements that govern the conditions under which the notifications are triggered. Click the checkbox to activate the condition control.

Invoke Action Page

Select the action to perform on an application and module.

Element	Description
Create, Update, or Delete Information	Create, update, or delete records from a selected application and module.
Query Information	Get records or information from a selected application and module based on the selected aggregate or get operation.
Retrieve, Upload, Download or Delete Attachment(s)	Enables you to retrieve, download, upload, or delete attachment metadata from or to a specific record in the module.
Batch Operation	Enables you to execute more than one operation as a batch in the ServiceNow application.



Invoke Operations Page

Select the operation and the application and module on which to perform the operation in the ServiceNow application. The fields that appear are based on the option that you selected on the Action page.

- · Create, Update, or Delete Information
- Query Information
- Retrieve, Upload, Download or Delete Attachment(s)
- Batch Operation

Create, Update, or Delete Information



Ensure that the Integration User has the appropriate permissions (such as, can query, can create, can update, and can delete) on the table on which to perform the operation in the ServiceNow application.

If you selected **Create, Update, or Delete Information** on the Action page, the following options are displayed:

Element	Description
Select Application	Use the scrolling list to select an application within the selected operation. Note: This field is not displayed when you create a ServiceNow Adapter connection with minimal accesses to the tables. See Prerequisites for Creating a Connection.
Filter By Application Name	Enter the initial letters of the application name to filter the display of names in the list.
Select Module	Use the scrolling list to select a module within the selected operation.
Filter By Module Name	Enter the initial letters of the module name to filter the display of names in the list. You can also select a filter type:
	All: Displays all modules.
	• Standard : Displays standard modules delivered as part of the ServiceNow application.
	 Custom: Displays custom modules created.
Display Table Names instead of Module Names	Select this check box to switch to display the table names instead of module names in the list.



Element	Description
Select an Operation	 Select one of the following operations to perform in the ServiceNow application: Create a new record in the selected module/table. Update an existing record in the selected module/table identified by the mandatory sys_id field. Delete a single record from the selected module/table based on the sys_id field or other supplied values. The following descriptions are applicable for Oracle Integration releases prior to 23.04.
	 Select one of the following operations to perform in the ServiceNow application: Create new records in the selected module/table. Update an existing record in the selected module/table identified by the primary key (sys_id) field. Delete single/multiple records from the selected module/table based on the primary key (sys_id) field or other supplied values.
Search Module/Table Tab	 Search For Module or Table: Enter the initial letters of the module or table name to filter the display of names in the module list along with the corresponding application. Select Module: Select a module from the list of modules you have filtered.

Query Information

If you selected **Query Information** on the Action page, the following options are displayed:

Element	Description
Select an Operation	Aggregate Operation: Query a table/module using an aggregate function such as SUM, COUNT, MIN, MAX, or AVG.
	 Get Operation: Query the selected table/module by example values and return the matching records and their fields.
Display Table Names instead of Module Names	Select this check box to switch to display the table names instead of module names in the list.
Get keys (Displayed only if the Get operation is selected)	If this check box is checked, the Get operation returns a list of ${\tt sys_ids}$ and the count of matching records.
Extended Query Parameters (Displayed only if the Get operation is selected)	Invokes the Extended Query Parameters page. Use this page to configure event criteria and extended query parameters used to filter the returned results. See Invoke Extended Query Page for a description.
Test Get Operation (Displayed only if the Get operation is selected)	Test Get Operation is enabled when the user selects the Get operation. Enables you to test the operation based on the parameters you selected.
Select Application	Use the scrolling list to select an application within the selected operation. Note : This field is not displayed when you create a ServiceNow Adapter connection with minimal accesses to the tables. See Prerequisites for Creating a Connection.



Element	Description
Search Module/Table Tab	Search For Module or Table: Enter the initial letters of the module or table name to filter the display of names in the module list along with the corresponding application.
	 Select Module: Select a module from the list of modules you have filtered.
Filter By Application Name	Enter the initial letters of the application name to filter the display of names in the list.
Select Module	Use the scrolling list to select a module within the selected operation.
Filter By Module Name	Enter the initial letters of the module name to filter the display of names in the list.

Retrieve, Upload, Download or Delete Attachment(s)

If you selected **Retrieve, Upload, Download or Delete Attachment(s)** on the Action page, the following options are displayed:

Element	Description
Select an Operation	Select one of the following operations to perform in the ServiceNow application:
	 Retrieve attachment(s) metadata of a record(s) The following operations are supported: Single Attachment Metadata: Fetches metadata of an attachment such as file name, content-type, and so on.
	 Multiple Attachments Metadata: Fetches metadata (file name, content-type, and so on) of all the attachments that a record contains.
	 Download attachment of a specific record from the module/ table
	 Upload attachment to a specific record of the module/table
	Delete attachment from a specific record of the module/table

If you selected the **Upload attachment to a specific record of the module/table** operation, the following options are displayed:

Element	Description
Select Application	Scroll through the list to select an application within the selected operation. Note: This field is not displayed when you create a ServiceNow Adapter connection with minimal accesses to the tables. See Prerequisites for Creating a Connection.
Filter By Application Name	Enter the initial letters of the application name to filter the display of names in the list.
Select Module	Use the scrolling list to select a module within the selected operation.
Filter By Module Name	Enter the initial letters of the module name to filter the display of names in the list.
Display Table Names instead of Module Names	Select this check box to show the table names instead of the module names in the list.



Batch Operation

If you selected **Batch Operation** on the Action page, the following option is displayed. You can add or remove the batch operations to perform.

Element	Description
Click to add an Operation to the list	Select to configure an operation. A new page appears when you click this option.

Operation Page

The Operation page appears when you select the **Click to add an Operation to the list** option.

Element	Description
Select an Operation Type	Select one of the following operation types to perform in the ServiceNow application: CRUD File Attachment
Select an Operation	Select one of the following operations to perform in the ServiceNow application. The operations available for selection depend upon the operation type you selected.
	If you select the CRUD operation type, the following operations are displayed for selection. Create Update
	• Get
	• Delete
	If you select the File Attachment operation type, the following operations are displayed for selection.
	Download Attachment
	Upload Attachment
	Retrieve Attachment
	Delete Attachment
Select Application	Use the scrolling list to select an application within the selected operation.
Filter By Application Name	Enter the initial letters of the application name to filter the display of names in the list.
Display Table Names instead of Module Names	Select this check box to switch to display the table names instead of module names in the list.
Select Module	Use the scrolling list to select a module within the selected operation.
Filter By Module Name	Enter the initial letters of the module name to filter the display of names in the list. You can also select a filter type: • All: Displays all modules.
	 Standard: Displays the standard modules delivered as part of the ServiceNow application.
	Custom: Displays the custom modules created.



Invoke Extended Query Page

Enter the extended query parameter values for your integration.



This page is invoked by clicking the **Extended Query Parameters** button on the Operations page.

The following table describes the key information on the Extended Query Parameters page. For example, if you selected **Incident** as the table in which to query records and **GET** as the operation to perform on the table in ServiceNow, you may select a number from the **Order by** dropdown list in the **Extended Query Parameters** section and select **short_description** in the **Include Fields** section.

Element	Description	
Extended Query Parameter	 Select the extended query parameters to use from the following list: Order By — Uses the specified field to order the returned results. Order By desc — Uses the specified field to order the returned results in descending order. First row — Offsets the results by this number of records from the beginning of the set. When used with Last row, it has the effect of querying for a window of results. The results include the first row number. Last row — Limits the results by this number of records from the beginning of the set or the start row values when specified. When used with First row, it has the effect of querying for a window of results. Returns fewer results that the last row number and does not include the last row. Limit — Limits the number of records returned. Use view — Specifies the name of a form view that is used to limit and expand the returned results. When the form view contains deeply referenced fields (for example, caller id.email), this field is also returned in the result. 	
Include Fields	Select the fields to include.	
Filter By Field Name	Type the initial letters of the field name to filter the display of names in the list.	
Select Fields to include	Displays the fields available to select from the application.	
Included Fields	Displays the selected fields.	
Encoded query	Build a custom query. For example:	



Summary Page

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

Element	Description
Summary	Displays a summary of the configuration values you defined on previous pages of the wizard.
	The information that is displayed can vary by adapter. For some adapters, the selected business objects and operation name are displayed. For adapters for which a generated XSD file is provided, click the XSD link to view a read-only version of the file.
	To return to a previous page to update any values, click the appropriate tab in the left panel or click Go back .
	To cancel your configuration details, click Cancel.
Next Steps (Trigger only)	Displays the post-activation steps to invoke an integration from ServiceNow.
	Note : After you activate an integration that includes a ServiceNow Adapter as a trigger (source) connection, you must perform the post-activation steps to invoke an integration from ServiceNow. See Post-Activation Steps.



4

Post-Activation Steps

After you activate an integration that includes a ServiceNow Adapter as a trigger (source) connection, you must perform the following steps.

Topics:

- Post-Activation Steps for Oracle Integration Releases 23.04 or Later
- Post-Activation Steps for Oracle Integration Releases Prior to 23.04

Post-Activation Steps for Oracle Integration Releases 23.04 or Later

Perform the following ServiceNow Adapter post-activation steps in Oracle Integration releases 23.04 or later.

Invoke an Integration from ServiceNow

When you use Oracle Integration instance version 23.04 or later, you need to configure basic authentication to invoke an integration from ServiceNow.

- 1. Log in to ServiceNow using a valid user name and password.
- 2. Search for the **REST Message** in the quick search bar.
- 3. Click **REST Message** under **Outbound** in the search results.
- 4. Search for the endpoint URL. You obtain this endpoint URL after activating an integration in the Oracle Integration instance.



To copy an endpoint URL, hover over an integration, click **Action**, then **Run details**, then **Metadata URL**, and copy the endpoint URL.

- 5. Click the REST message name.
- **6.** Scroll down to the **HTTP Methods** section and click the link associated with the configured HTTP method.
- 7. In the Authentication type field, select Basic from the drop-down list.
- 8. In the **Basic auth profile** field, click the search icon. The Basic Auth Configuration window is displayed.
- 9. Select the existing profile or click **New** to create a new profile, and click **Update**.

Post-Activation Steps for Oracle Integration Releases Prior to 23.04

Perform the following ServiceNow Adapter post-activation steps in Oracle Integration releases prior to 23.04.

Invoke an Integration from ServiceNow

When you use Oracle Integration instance version 20.1.1.0.0 (200121.1400.33610) or later, you need to configure basic authentication to invoke an integration from ServiceNow.

- 1. Log in to ServiceNow using a valid user name and password.
- 2. Search for the **SOAP Message** in the quick search bar.
- 3. Click SOAP Message under Outbound in the search results.
- Search for the WSDL endpoint URL. You obtain this endpoint URL after activating an integration in the Oracle Integration instance.
- 5. Click the SOAP message name.
- 6. Scroll down and click the businessEvent link under SOAP Message Functions.
- 7. In the Authentication type field, select Basic from the drop-down list.
- 8. In the **Basic auth profile** field, click the search icon. The Basic Auth Configuration window is displayed.
- 9. Select the existing profile or click **New** to create a new profile, and click **Update**.

Note:

When you configure the ServiceNow Adapter as a trigger (source) connection in an integration and perform an event in ServiceNow, but do not receive a request in the Observability section of Oracle Integration, you must perform a workaround to resolve the issue. See Request from ServiceNow is Not Delivered to an Oracle Integration Instance.



5

Troubleshoot the ServiceNow Adapter

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

Topics:

- Request from ServiceNow is Not Delivered to an Oracle Integration Instance
- Retrieve Undelivered Messages When an Endpoint is Unavailable
- Error While Refreshing the Metadata for the ServiceNow Adapter Connection
- Error When the ServiceNow Endpoint is Configured as a Trigger

Request from ServiceNow is Not Delivered to an Oracle Integration Instance

Assume you configure the ServiceNow Adapter as a trigger (source) connection in an integration and perform an event in ServiceNow, but do not receive a request in the monitoring section of Oracle Integration. The root cause of the problem is that the length of the integration WSDL endpoint exceeds 120 characters. This results in the ServiceNow request not being delivered to the Oracle Integration instance.

ServiceNow uses a SOAP message to send a request to third party applications and the WSDL endpoint as part of this message.

Perform the following workaround to resolve this issue:

- 1. Log in to the ServiceNow instance.
- **2.** Enter dictionary in the search box in the left pane.
- 3. Click **Dictionary** under **System Definition** in the search results.
- 4. Filter the records with their **Table** set to **ecc_queue** and **Column** name set to **topic**.
- In the Table column, click the record to open the details.
- 6. Edit the **Max length** field. You can enter any value more than 120 characters and less than 254 characters for single-line text.



The ServiceNow Adapter recommends that the WSDL URL length not be longer than 250 characters.

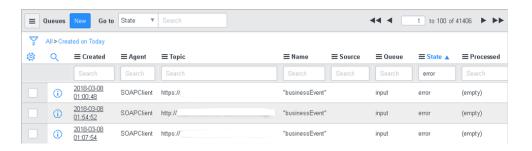
7. Click Update.

Retrieve Undelivered Messages When an Endpoint is Unavailable

When an endpoint is unavailable, messages in ServiceNow are not delivered. ServiceNow provides an External Communication Channel (ECC) queue to retrieve undelivered messages. The ECC Queue is a connection point between an instance (https://host.service-now.com/) and other systems that integrate with it. There is no API call provided by ServiceNow to resend the unavailable messages. You can recall the unavailable messages manually.

To resend undelivered messages:

- 1. Log in to the ServiceNow instance.
- 2. Go to ECC Queue.
- 3. Filter the messages with their **State** set to **error** to be displayed.



4. In the **Created** column, click any message to open the details.

The message payload and reason for failure are displayed.



5. Click **Run Again** to resend the undelivered message.

This action resends the message.



Error While Refreshing the Metadata for the ServiceNow Adapter Connection

When you select the **Refresh Metadata** option from the **Actions** menu for the ServiceNow Adapter connection, a download error is displayed while downloading the metadata.

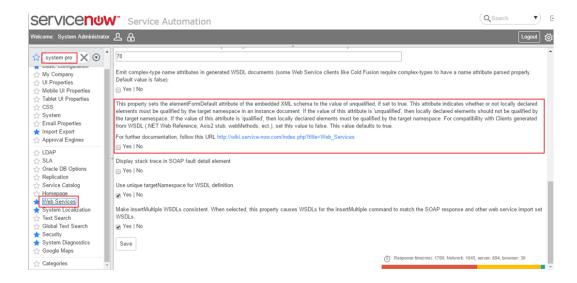
For example, assume you perform the following steps:

- 1. Go to the Connections page.
- 2. Search for and select the ServiceNow Adapter connection.
- Select Refresh Metadata.
- 4. Click the **information** icon and check the status of the refresh.

The status of that refresh should be completed. Instead, a download error is displayed.

Perform the following workaround to resolve this issue:

- 1. Log in to the ServiceNow instance.
- 2. Enter system properties in the search box in the left pane.
- Select and click Web Services.
- 4. Select the Yes | No check box for the highlighted property.



Error When the ServiceNow Endpoint is Configured as a Trigger

Note the following error that can occur when the ServiceNow endpoint is configured as a trigger.

Issue	Solution
Why am I unable to configure the ServiceNow Adapter trigger endpoint properties?	Ensure that you have provided the required accesses to the tables. See Prerequisites for Creating a Connection.

