

Oracle® Fusion Middleware

Using the Oracle RightNow Adapter



Release 12.2.1.4.0

F81116-01

May 2023

The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

ORACLE®

Oracle Fusion Middleware Using the Oracle RightNow Adapter, Release 12.2.1.4.0

F81116-01

Copyright © 2015, 2023, Oracle and/or its affiliates.

Primary Author: Oracle Corporation

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software, software documentation, data (as defined in the Federal Acquisition Regulation), or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software," "commercial computer software documentation," or "limited rights data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle®, Java, and MySQL are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

Preface

Audience	vii
Related Resources	vii
Conventions	vii

1 Introduction to the Oracle RightNow Adapter

Introduction	1-1
Overview	1-2
Prerequisites to Using the Oracle RightNow Adapter	1-4
Oracle RightNow Adapter Design Overview	1-5
Supported Versions and Platforms	1-5
WSDLs Supported by Oracle RightNow Adapter	1-6

2 Getting Started with the Oracle RightNow Adapter

Using Oracle RightNow Adapter Connection Parameters	2-1
Obtaining the Standard WSDL	2-2
Importing the Oracle RightNow Application's Certificate into the Client/Server	2-2
Importing the Oracle RightNow Application's Public Certificate into WebLogic Server	
Using Keytool	2-6
Configuring Oracle RightNow Adapter Permissions	2-7
Details for Object-specific Permissions	2-8
Authenticating on the Oracle RightNow Cx Server with Account Passwords	2-8
Oracle Cloud Connect Web Services for SOAP API Access Control	2-8
Understanding the Oracle RightNow Adapter in Design Time and Runtime	2-9
Unsupported Features	2-10

3 Walkthrough of the Oracle RightNow Adapter Configuration Wizard

Performing Common JDeveloper Configuration Steps	3-1
Creating a SOA Application Project in JDeveloper	3-1
Configuring an Oracle RightNow Adapter for Inbound Services	3-5

Configuring an Oracle RightNow Adapter for Outbound Services	3-7
Understanding Create, Read, Update, and Delete Operations	3-8
Supported Features	3-9
Using CRUD Operations	3-9
Using the Batching Feature	3-10
Chaining	3-13
Using Chaining	3-16
Supported Processing Options	3-19
CreateProcessingOptions	3-19
DestroyProcessingOptions	3-19
GetProcessingOptions	3-20
UpdateProcessingOptions	3-20
Working with ROQL	3-20
Using ROQL	3-21
ROQL Query Statement	3-21
ROQL Query Statement	3-21
Running the ROQL Query Statement	3-21
Using the ROQL Query Builder	3-21
Simplifying the Discovery of Standard and Custom Business Objects	3-22
Suggesting Query Constructs Based on the Context	3-22
Providing Auto-Completion	3-22
Providing Alias Support to Improve Readability	3-23
Using ROQL to Suggest Relationships	3-23
Using the Query Builder to Obtain Inline and Semantic Validation	3-23
Adapter Support for ROQL	3-23
Query Arguments	3-24
Support for Bind Parameters	3-24

4 Understanding Oracle RightNow Adapter Advanced Concepts

Understanding the SOAP API	4-1
Understanding Objects	4-1
Understanding Transactions	4-2
Handling the Polymorphic Behavior of Oracle RightNow Cx Schema	4-2
Example: Mapping A Custom Object	4-2
Example: Mapping an Object without Using an Oracle RightNow Adapter	4-3
Example: Mapping an Object with the Oracle RightNow Adapter	4-4
Integrating with Custom Objects in the Cloud	4-5
Creating Custom Objects in the RightNow Cx Server	4-5
Selecting Custom Objects to Perform Operations	4-6
Understanding Oracle RightNow Adapter Security Management	4-6

Authenticating on the Oracle RightNow Cx Server with Account Passwords	4-7
Understanding Access Control on the Oracle RightNow CX Server	4-7
Oracle Cloud Connect Web Services for SOAP Site Configuration	4-7
Configuring Restricted Access Permissions on RightNow Cx	4-8
Validating Account Credentials	4-9
Profile Configuration	4-9
Password-based Authentication	4-9
Oracle RightNow Adapter Test Functionality	4-10
Design-Time Test Functionality Details	4-10
Oracle RightNow Adapter Limit and Restriction Handling	4-11
Delete-Cascading Delete Effect	4-11
API Limits Enforced by the RightNow Cx Server	4-11

5 Understanding BPEL Integration with Service Components (BPEL/Mediator)

Overview	5-1
Understanding the Account Object	5-1
Designing a Composite for Service Integration	5-1
Defining a Composite for BPEL and Mediator	5-2
Configuring the Oracle RightNow Adapter	5-8
Integrating with BPEL	5-11
Deploying the Composite	5-20
Testing the Composite	5-21
Testing the Outbound Process	5-21

6 Developing Oracle Service Bus Integrations with the Oracle RightNow Adapter

Generating Oracle Cloud Adapter Artifacts	6-1
Creating Oracle Service Bus Projects Using Oracle Service Bus Console	6-1
Creating a Service Bus Project, and Generating the Oracle Service Bus JCA Business Service	6-7
Creating an Empty Console for the Oracle Service Bus and Creating a New Service Bus Project	6-7
Defining a Service Bus Business Service with the Oracle RightNow Adapter	6-9
Testing the Oracle Service Bus Project from the Oracle Service Bus Console	6-15

7 Troubleshooting and Error Handling with the Oracle RightNow Adapter

Understanding Oracle RightNow Adapter Design-Time JDeveloper Errors	7-1
Understanding API Faults and Error Handling	7-2

About Request Errors	7-2
About Server Errors	7-2
About Unexpected Errors	7-2
Understanding RightNow Exception Codes	7-2
Understanding Adapter Fault Handling	7-3

8 Oracle RightNow Adapter Use Cases

Performing a Create, Read, Update, Destroy (CRUD) Operation on a Single Business Object	8-1
Performing a CRUD Operation on Multiple Business Objects	8-2
Performing a Batch Operation with Multiple Business Objects and Multiple Operations	8-2
Querying Arbitrary Objects using ROQL	8-3
Performing CRUD Operations on Custom Objects	8-3
Chaining Multiple Operations Together in One Batch Request	8-4

9 Configuring Oracle RightNow Cloud Properties

Configuring Basic Information Properties	9-1
What You Can Do from the Basic Info Page	9-1
What You See on the Basic Info Page	9-2
Configuring Oracle Cloud Adapter Connection and CSF Key Properties	9-2
What You Can Do from the Oracle Cloud Adapter Connection Page	9-2
What You See on the Oracle Cloud Adapter Connection Page	9-3
What You Can Do from the Oracle Cloud Adapter CSF Key Page	9-3
What You See on the Oracle Cloud Adapter CSF Key Page	9-4
Configuring Oracle RightNow Cloud Source Request Properties	9-4
What You Can Do from the Oracle RightNow Cloud Source Request Page	9-4
What You See on the Oracle RightNow Cloud Source Request Page	9-5
Configuring Oracle RightNow Cloud Source Response Properties	9-6
What You Can Do from the Oracle RightNow Cloud Source Response Page	9-6
What You See on the Oracle RightNow Cloud Source Response Page	9-6
Configuring Oracle RightNow Cloud Target Operation Properties	9-7
What You Can Do from the Oracle RightNow Cloud Target Operations Page	9-8
What You See on the Oracle RightNow Cloud Target Operations Page	9-8
Reviewing Configuration Values on the Summary Page	9-10
What You Can Do from the Summary Page	9-11
What You See on the Summary Page	9-11

A Credential Store Configuration for Managing RightNow Credentials

Preface

This guide describes how to use the Oracle RightNow adapter in your SOA composite applications and Oracle Service Bus business services.

Audience

This guide is intended for anyone who is interested in using the Oracle RightNow adapter.

Related Resources

Refer to the Oracle Fusion Middleware library on the Oracle Help Center for additional information.

- For Oracle SOA Suite information, see Oracle SOA Suite.
- For Oracle Service Bus information, see Oracle Service Bus.
- For adapters information, see On-Premises and Cloud SOA Adapters.
- For versions of platforms and related software for which Oracle products are certified and supported, review the [Certification Matrix](#).

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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction to the Oracle RightNow Adapter

This chapter provides an introduction to the Oracle Cloud Adapter for Oracle RightNow Cloud Service (the Oracle RightNow adapter).

This chapter includes the following topics:

- [Introduction](#)
- [Overview](#)
- [Supported Versions and Platforms](#)

Introduction

The Oracle RightNow adapter combines web, social tools, and contact center experiences for a unified, cross-channel service solution in Oracle Cloud, enabling organizations to increase sales and customer acquisition, build trust and strengthen relationships, and reduce costs and effort. The RightNow Cloud Service enterprise platform provides transparent reliability, unmatched security, and successful delivery of the mission-critical customer service and support. It is a key component of the Oracle RightNow product family.

Today, there are thousands of enterprise customers across the globe and across different industry verticals that use Oracle RightNow Cx for providing superior customer experience across multiple channels including web, contact center, social and others.

These channels empower customers to easily self-solve issues from anywhere through the web, collaborate support issues on products through social channels such as Facebook and, most importantly, manage timely resolution of incidents across all channels.

To maximize ROI in SaaS assets, enterprises need to ensure that the data in their individual SaaS and on-premise applications are accurate, up-to-date and integrated.

For example, enterprises can streamline operations and deliver real-time scheduling of field technicians for services through Field Service integration with on-premise or SaaS Applications such as E-Business Suite, TOA ETADirect and other integration with SaaS applications such Oracle Sales Cloud or Salesforce.com can ensure that the enterprise sales personnel have complete visibility into the customer experiences when they talk to their customers and prospects. Similarly, integration with bug tracking applications such as Jira or Bugzilla helps manage end-to-end resolution of customer-reported issues from start to finish.

Oracle RightNow Cx exposes various integration capabilities for desktop extensibility, data integration and web integration. Data integration capabilities of Oracle RightNow Cx enable real-time access and synchronization of data with other SaaS and on-premise applications. Oracle RightNow Cx exposes a web services platform called Oracle Cloud Connect Web Services for SOAP — a set of SOAP-based services that can be used to securely access and modify data contained in the Oracle RightNow Cx platform. It is a backward-compatible, public API that enables customers and partners to integrate with the Oracle RightNow Cx platform using industry leading standards such as WSDL 1.1 and SOAP 1.1. It provides broad support for a wide variety of languages, platforms, and tools.

The Oracle RightNow adapter leverages this web service platform to offer seamless connectivity and simplified integration with the Oracle RightNow Cx. Using the Oracle

RightNow adapter and the SOA Suite platform, customers can avoid high costs of development, QA, maintenance and upgrades associated with developing custom point to point integrations with other applications.

The Oracle RightNow adapter supports custom attributes (new RightNow concept custom attributes and custom fields with the default c package) in business objects to make use of the Oracle RightNow application's support for custom attributes. Note the following details:

- Custom attributes and custom fields are visible in a hierarchal structure in the mapper. For example, assume you create an integration in which you select the **Contact** business object on the Request page of the adapter configuration wizard. If you then go to the mapper, and expand the **Contact** element, an element called **ContactCustomFields** is displayed. If you expand this element, you see that custom attributes are visible in a hierarchal structure in the tree. Custom attributes are also visible as part of custom packages in the mapper.
- If you have a prebuilt integration from an earlier release of Oracle Integration Cloud Service that contained business objects that now support custom attributes, those attributes are now visible in the mapper after you regenerate the artifacts for the integration. However, they are not displayed in a hierarchal structure, but rather the flat structure of previous releases (not under any package).
- Custom attributes are also visible in the generated artifacts that you can download.

The Oracle RightNow adapter supports the RightNow Object Query Language (ROQL), which supports querying data using QueryCSV. This enables you to retrieve data in a tabular format.

Overview

The Oracle RightNow adapter builds on the Connect Web Services API for SOAP to provide real-time integration with the Oracle RightNow Cx Platform. RightNow API version 1.3 is supported. The Oracle RightNow Connect Web Services platform exposes two web service definitions (WSDLs) to calling applications.

- **Standard WSDL.** This WSDL should be used by integration designers to model integrations specific to their Oracle RightNow instance. The typed WSDL is a strongly typed representation of the Connect Common Object Model. The strongly typed WSDL can be accessed from the following URL with a standard HTTP GET request. The standard WSDL can include support for both business objects and event subscriptions. This enables you to receive either a business object or an event subscription as a request from the Oracle RightNow application. Event subscriptions are supported only if the Oracle RightNow application version is equal to or greater than version 15.5 (May 2015 release). Otherwise, only business objects are visible for selection in the configuration wizard.

```
<a target="_blank" href="http://">http://</a><host_name>/cgi-bin/  
<interface>.cfg/services/soap?wsdl=typed
```

Because the Standard WSDL is tied to a specific Oracle RightNow Cx Instance for an Organization, it will change if modifications or customizations are made to the instance configuration.

- **Partner WSDL.** This WSDL should be used by integration designers building integrations that function across multiple instances of Oracle RightNow Cx. It provides the ability to work with generic objects that can be used across multiple

instances of Oracle RightNow. The generic WSDL can be accessed from the following URL with a standard HTTP GET request.

```
<a target="_blank" href="http://">http://</a><host_name>/cgi-bin/<interface>.cfg/
services/soap?wsdl=generic
```

Since the WSDL is static and does not change across organizations, it will not have any customizations or modifications made to the Organization's specific RightNow Cx instance. It is used primarily by Partners, hence the name Partner WSDL.

The Oracle RightNow adapter enables customers to perform integration with a specific Oracle RightNow Cx instance through the Standard WSDL. However, Partner WSDL-based integration is currently unsupported.

The Standard WSDL exposes categories of operations, including:

- Basic CRUD Operations (Create, Get, Update, Destroy Business Objects in RightNow)
- ROQL (Query data in RightNow as objects only)
- Batch Operation (a batch of one or more of the other operations in one operation)

The above operations, more specifically the CRUD Operations, are polymorphic in nature. Though this might appear to simplify the integration interface by needing to expose just four generic CRUD operations (Create, Get, Update and Destroy) across all supported business objects in the application, it also poses challenges during the integration process, especially during data mapping. For more information, see [Understanding BPEL Integration with Service Components \(BPEL/Mediator\)](#) and [Developing Oracle Service Bus Integrations with the Oracle RightNow Adapter](#).

[Example 1-1](#) shows a RightNow Standard WSDL with generic CRUD operations shown.

Example 1-1 Generic CRUD Operations in a RightNow Standard WSDL

```
<wsdl:operation name="Create">
    <wsdl:input message="rnw_v1_2:CreateRequest"/>
    <wsdl:output message="rnw_v1_2:CreateResponse"/>
    <wsdl:fault message="rnw_v1_2:RequestErrorFault"
name="RequestErrorFault"/>
    <wsdl:fault message="rnw_v1_2:ServerErrorFault"
name="ServerErrorFault"/>
    <wsdl:fault message="rnw_v1_2:
UnexpectedErrorFault" name="UnexpectedErrorFault"/>
</wsdl:operation>
<wsdl:operation name="Get">
    <wsdl:input message="rnw_v1_2:GetRequest"/>
    <wsdl:output message="rnw_v1_2:GetResponse"/>
    <wsdl:fault message="rnw_v1_2:RequestErrorFault"
name="RequestErrorFault"/>
    <wsdl:fault message="rnw_v1_2:ServerErrorFault"
name="ServerErrorFault"/>
    <wsdl:fault message="rnw_v1_2:
UnexpectedErrorFault" name="UnexpectedErrorFault"/>
</wsdl:operation>
<wsdl:operation name="Get">
    <wsdl:input message="rnw_v1_2:GetRequest"/>
    <wsdl:output message="rnw_v1_2:GetResponse"/>
    <wsdl:fault message="rnw_v1_2:RequestErrorFault"
name="RequestErrorFault"/>
    <wsdl:fault message="rnw_v1_2:ServerErrorFault"
name="ServerErrorFault"/>
    <wsdl:fault message="rnw_v1_2:
```

```

        UnexpectedErrorFault" name="UnexpectedErrorFault"/>
    </wsdl:operation>
    <wsdl:operation name="Update">
        <wsdl:input message="rnw_v1_2:UpdateRequest"/>
        <wsdl:output
message="rnw_v1_2:UpdateResponse"/>
        <wsdl:fault message="rnw_v1_2:RequestErrorFault"
name="RequestErrorFault"/>
        <wsdl:fault message="rnw_v1_2:ServerErrorFault"
name="ServerErrorFault"/>
        <wsdl:fault message="rnw_v1_2:UnexpectedErrorFault"
name="UnexpectedErrorFault"/>
    </wsdl:operation>
    <wsdl:operation name="Destroy">
        <wsdl:input message="rnw_v1_2:DestroyRequest"/>
        <wsdl:output message="rnw_v1_2:DestroyResponse"/>
        <wsdl:fault message="rnw_v1_2:RequestErrorFault"
name="RequestErrorFault"/>
        <wsdl:fault message="rnw_v1_2:ServerErrorFault"
name="ServerErrorFault"/>
        <wsdl:fault message="rnw_v1_2:
UnexpectedErrorFault" name="UnexpectedErrorFault"/>
    </wsdl:operation>

```

RightNow Object Query Language (ROQL pronounced "Rockwell") provides a query subsystem that enables clients of the API to perform SQL-like queries against the Oracle RightNow Cx platform. The language evolved from Object Query Language (OQL), a query language standard developed by the Object Data Management Group (ODMG) for object-oriented databases modeled after SQL.

ROQL supports querying objects only. **QueryObject** enables calling applications to retrieve data as a list of objects.

Example 1-2 ROQL Query Example to Retrieve Details of an Incident with a Specific ID

```
select Incident from Incident I where I.ID=102345
```

The Oracle RightNow adapter exposes the capabilities defined in the Standard WSDL in a simpler graphical object-operation view hiding the complexities of the interface from the integration modeler. In contrast to the polymorphic interface definition, the Oracle RightNow adapter generates a strongly-typed service operation from the design-time configuration. This significantly simplifies the data mapping exercise.

Prerequisites to Using the Oracle RightNow Adapter

The following are the prerequisites for you to start modeling integrations using the Oracle RightNow adapter with either the SOA Suite or Oracle Service Bus.

In addition to these prerequisites, you must ensure that you have the correct supported version of the SOA Suite and the Oracle Service Bus. For information on supported versions and platforms, see the release certification matrix at <http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html>.

- **Obtain the standard WSDL.** For more information on the Standard WSDL, see the [Oracle RightNow Connect Web Services for SOAP Developer Guide](#) "WSDL Retrieval."

- **Ensure you have valid RightNow Cx credentials.** For more information, refer to the section "Oracle Cloud Adapter for Service Cloud Connection Parameters," in the *Oracle RightNow Connect Web Services for SOAP Developer Guide*.
- **Obtain client certificates.** For more information, refer to "Service Cloud Certificate into Client/Server," in the *Oracle RightNow Connect Web Services for SOAP Developer Guide*.

Oracle RightNow Adapter Design Overview

The Oracle RightNow adapter can have multiple adapter instances. An adapter instance is basically a configured Oracle RightNow adapter, which can connect with the RightNow CX Server and invoke the RightNow Cx cloud operation which you have selected during configuration.

Each adapter instance has its own artifacts, for example, Integration WSDL and JCA file.

Because each adapter instance points to a single RightNow Cx cloud operation, there is a one-to-one correspondence from adapter instances to RightNow Cx cloud operations. For the list of supported operation, see [Understanding Create, Read, Update, and Delete Operations](#).

The adapter instances are part of the SOA composites. Each time the adapter wizard is run, it creates one instance of the Oracle RightNow adapter.

An Oracle RightNow adapter instance consists of a JCA file, a WSDL, and a reference element added to the composite.xml.

The Oracle RightNow adapter supports RightNow making outbound synchronous calls from the Oracle SOA Suite.

The Oracle RightNow adapter runtime framework uses the artifacts generated in the above steps.

[Table 1-1](#) shows the adapter configuration wizard-generated SOA composite adapter artifacts, together with notes.

Table 1-1 Oracle RightNow Adapter Artifacts

Artifact	Notes
rightnowReference.wsdl	The Oracle RightNow adapter supports Standard WSDL only.
<serviceName>_rightnow.jca	The JCA file contains the internal implementation details used by the adapter during run-time. It contains the different interaction and connection properties used by the adapter. The operations describe the action that must be taken against the end point, such as Create, Update, etc. The contents of the file are determined by choices made during the Adapter Configuration.

Supported Versions and Platforms

For information on supported versions and platforms, see the release certification matrix at <http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html>.

WSDLs Supported by Oracle RightNow Adapter

The Oracle RightNow adapter supports the Standard WSDL only. There is no support for the Partner WSDL. The API version which the RightNow adapter supports is 1.3. See also [Obtaining the Standard WSDL](#).

For more information on the Standard WSDL, see "WSDL Retrieval" in the Oracle RightNow Connect Web Services for SOAP Developer Guide, *Getting Started: Introduction to Connect to Web Services*.

2

Getting Started with the Oracle RightNow Adapter

This chapter explains how to get started with the Oracle RightNow adapter. For information on running specific use cases once you have prepared the design time and run time features of the Oracle RightNow adapter, see [Oracle RightNow Adapter Use Cases](#). It provides information on quickly getting started with the Oracle RightNow adapter and contains the following sections:

- [Using Oracle RightNow Adapter Connection Parameters](#)
- [Obtaining the Standard WSDL](#)
- [Understanding the Oracle RightNow Adapter in Design Time and Runtime](#)
- [Unsupported Features](#)

Using Oracle RightNow Adapter Connection Parameters

This section describes the Oracle RightNow adapter connection parameters that enable you to perform operations on business objects

The Oracle RightNow adapter requires your login credentials to enable you to begin using the Oracle RightNow adapter configuration wizard.

The required connection parameters are:

- Username
- Password
- Authentication key, or Credential Store Framework (CSF) key. This is a key you use to inject runtime credentials. The adapter uses the CSF key to retrieve the username and password required for RightNow authentication. This key identifies a user's Oracle RightNow CX login credentials during design time. During runtime, the key is automatically created while deploying the SOA composite application to the server. `oracle.wsm.security`. The CSF key rules work as follows:
 - If the CSF key credentials do not exist, then create them.
 - If the CSF key credentials already exist, do not overlay them. This causes an error during deployment.
 - If the CSF key credentials already exist, the deployment credentials are compared with the credentials on the server. If they do not exactly match, an exception occurs and deployment fails. You must manually modify the CSF key, and retry deployment.See [Credential Store Configuration for Managing RightNow Credentials](#) for more information.
- For additional information, see [Authenticating on the Oracle RightNow Cx Server with Account Passwords](#).

Obtaining the Standard WSDL

To obtain the standard WSDL for use with the RightNow adapter:

1. Collect the following details from your Oracle RightNow Cx Account:
 - – Host
 - Interface name
 - Username and password
2. Open your web browser and enter the following URL to obtain the Standard WSDL, replacing the host name and interface details as appropriate.

```
https://<host_name>/cgi-bin/<interface>.cfg/services/soap?wsdl=typed
```

For example:

```
https://integration-test.rightnowdemo.com/cgi-bin/integration_test.cfg/  
services/soap?wsdl=typed
```

Note:

Permissions for Public SOAP API must be enabled for the user account to enable use of the Oracle RightNow Connect Web Services for SOAP API.

Permissions for Public SOAP API enable staff members with this profile to access the public SOAP API through account or session authentication.

The Oracle RightNow adapter does not support the partner WSDL/generic WSDL. Therefore, the following URL is not supported:

```
http://integration-test.rightnowdemo.com/cgi-bin/integration_test.cfg/  
services/soap?wsdl=generic
```

Importing the Oracle RightNow Application's Certificate into the Client/Server

To import the Oracle RightNow adapter certificate into the client/server:

1. Open your web browser and type the following URL, replacing the `host_name` and `interface details`.

```
https://<host_name>/cgi-bin/<interface>.cfg/services/soap?wsdl=typed
```

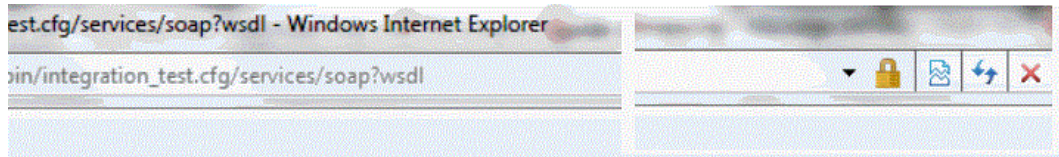
An example is:

```
http://integration-test.rightnowdemo.com/cgi-bin/integration_test.cfg/  
services/soap?wsdl=typed
```

Where `host_name` is `integration-test.rightnowdemo.com` and `interface` is `integration_test`

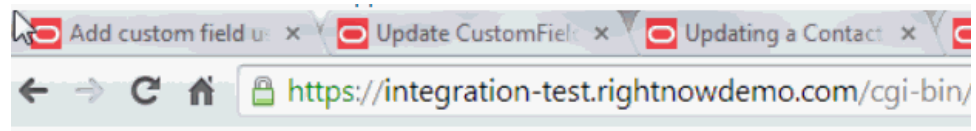
2. Click the lock icon, as shown in [Figure 2-1](#).

Figure 2-1 The Lock Icon in the Browser Window for Internet Explorer Browser



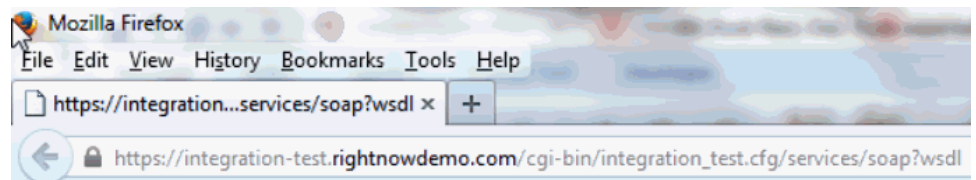
[Figure 2-2](#) shows the location of the lock icon in the Chrome Browser.

Figure 2-2 Location of Lock Icon in Chrome Browser Indicated by Arrow



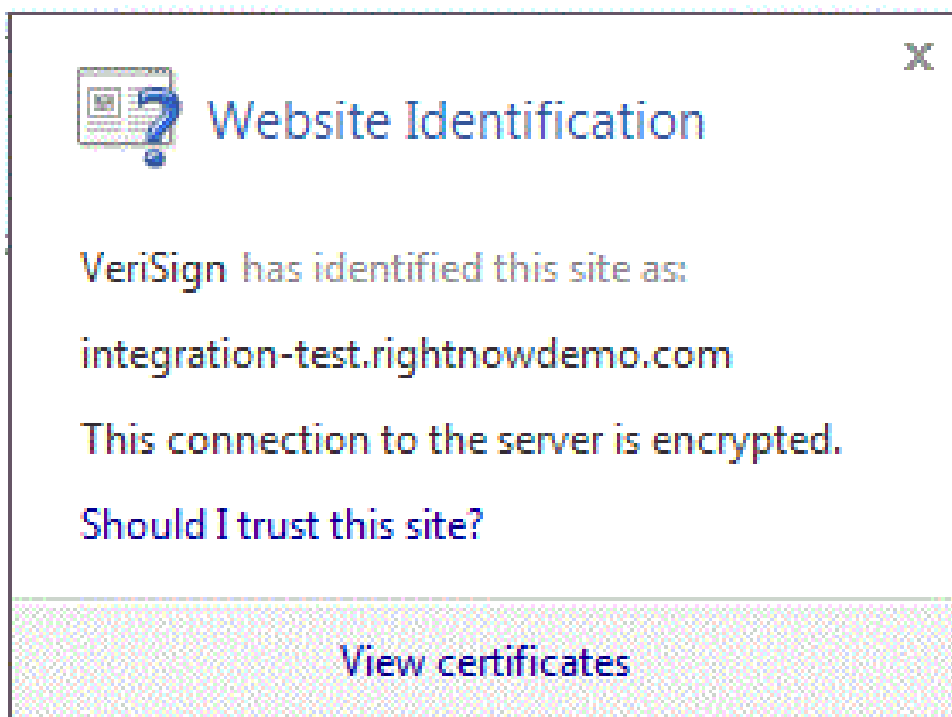
[Figure 2-3](#) shows the location of the lock icon in the Mozilla Firefox browser.

Figure 2-3 Location of Lock Icon in Mozilla Firefox Browser Indicated by Arrow



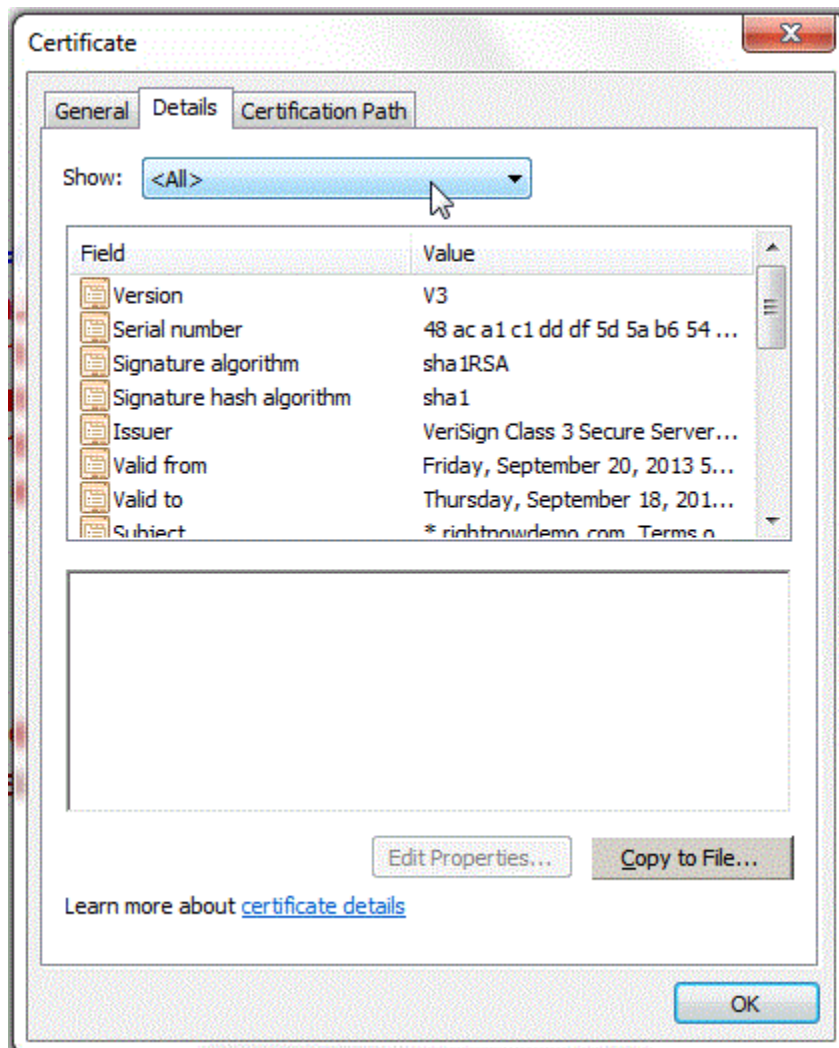
A small window pops up. Click **View certificates**, at the bottom of the pop-up, as shown in [Figure 2-4](#).

Figure 2-4 View Certificates in Pop-up



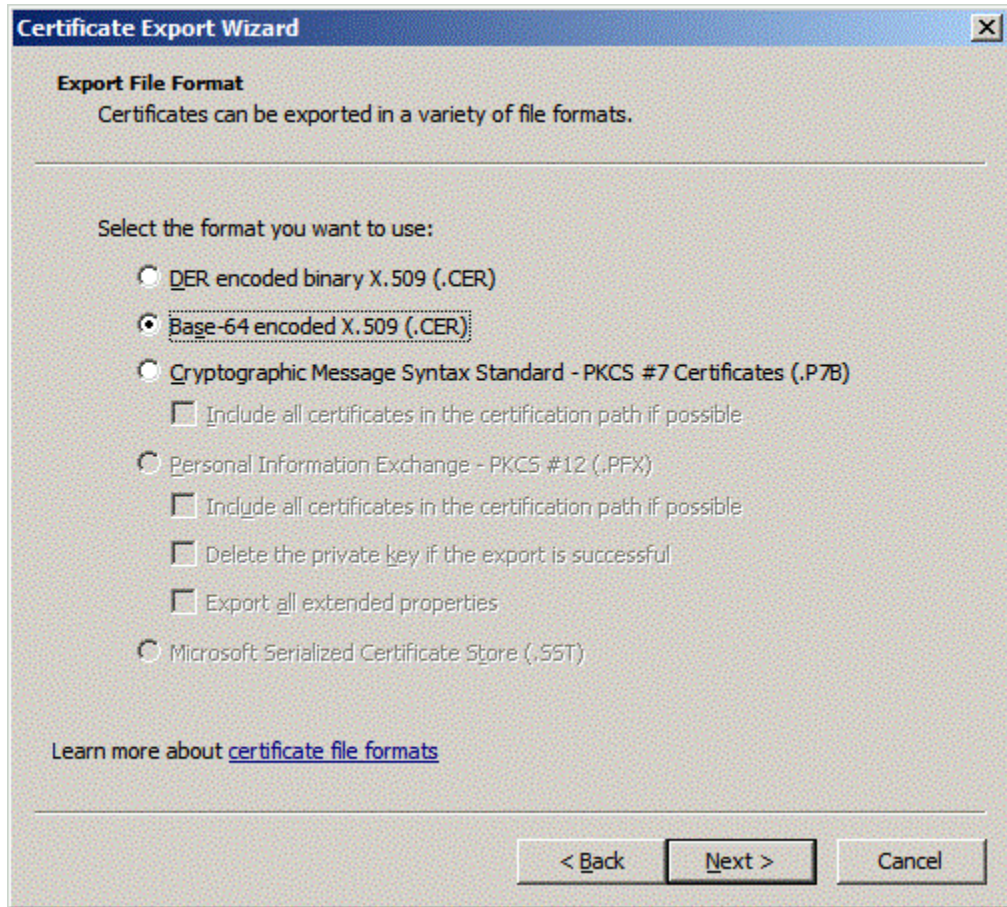
3. After clicking **View Certificates**, another window is displayed, providing the details of the certificate. Open the **Details** tab and click **Copy to File**, as shown in Figure 2-5.

Figure 2-5 Certificate Details Pop-up



4. The Windows Certificate export wizard opens. Click **Next** and select Base-64 encoded X.509 (.CER) option, See [Figure 2-6](#).

Figure 2-6 The Certificate Wizard, with Base-64 encoded X.509(.CER) Selected



5. Click **Next** and browse to the location where you want to save the certificate. Provide an appropriate name to the certificate file and save it. For example, you can copy the certificate, say `rightnowdemo.crt` to the folder, `FMW_HOME/wlserver/server/lib`.
6. Import the downloaded certificate into your application server, and configure your application server to request the client certificate. Re-import the certificate in case certification expiration has occurred.

Importing the Oracle RightNow Application's Public Certificate into WebLogic Server Using Keytool

You must import the Oracle RightNow application's public certificate into Oracle WebLogic Server using the keytool.

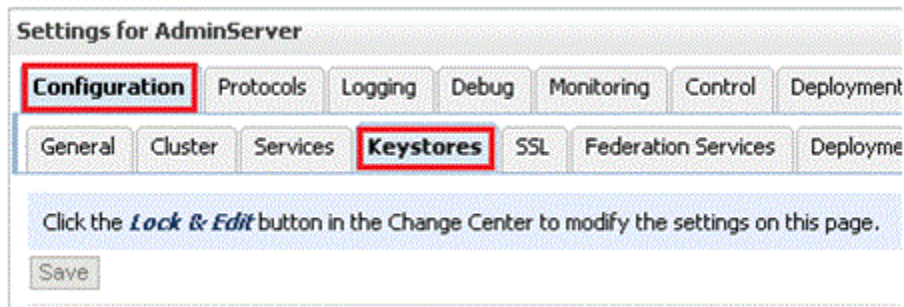
Before you follow the steps for importing, ensure that parameter **Hostname Verification** field (under the tab SSL in the console) is set to `NONE` on the server side.

To import the Oracle RightNow adapter's public certificate into the Oracle WebLogic Server keytool:

1. Provide a suitable location on your system to save the certificate authority. Mark it as trusted. Save it on a suitable location on your system.

2. To find the WebLogic server's trust keystore location, log in to the admin console `http://url:port/console/`
3. On the home page, proceed to **Servers** under **Environment** subsection.
4. Select the **Admin server** from the list of servers displayed.
5. Proceed to the **Keystores** tab, as shown in [Figure 2-7](#).

Figure 2-7 The Keystores Tab



6. Under the **Keystores** tab, select the **Demo Trust Keystore** path. This is the path where the keystore resides.

The path is similar to `{Middleware_Home} \wlserver_10.3\server\lib`.

7. Import this certificate from the authority into WebLogic server's trust store. If you are using Windows, use the command prompt or if you're using Unix/Linux, use your command shell and navigate to the path mentioned above.
8. Once at the path where the keystore resides, run the following keytool command:

```
keytool -import -trustcacerts -alias OracleRightNowCA -file <Filename with location> -keystore DemoTrust.jks -storepass DemoTrustKeyStorePassPhrase
```

For example, assuming you keep the downloaded certificate at the location as mentioned in Step 7 and the name of the certificate is `OracleServiceCloudCA.cer`, the keytool command you use is similar to:

```
keytool -import -trustcacerts -alias OracleRightNowCA -file OracleServiceCloudCA.cer -keystore DemoTrust.jks -storepass DemoTrustKeyStorePassPhrase
```

9. A message that the certificate was added to keystore is displayed, which confirms your successful import of the certificate. When prompted if you can trust this certificate, enter **Yes** and select **Enter**.
10. You can verify that the certificate was added to the keystore by listing all certificates using the following command:

```
keytool -list -keystore DemoTrust.jks -storepass DemoTrustKeyStorePassPhrase
```

The newly imported certificate appears as part of existing certificates in the keystore.

11. Restart the server to bring modifications made in the previous steps into effect.

Configuring Oracle RightNow Adapter Permissions

To configure permissions to enable you to make calls for CRUD operations and query operations:

1. Install Oracle RightNow CX client.
2. Log in to Oracle RightNow CX client, See the *Oracle RightNow CX User Guide*.
3. Navigate to **Staff Management**, and then click **Profiles**
4. Select the Profile, the user account that must be enabled.
5. Click the **Permissions** tab.
6. Check **Select All** for Public SOAP API.
7. Check **Account Authentication** under **Public SOAP API**.
8. Select object-specific permissions from object-specific tabs. See the next section.

Details for Object-specific Permissions

See [Table 2-1](#) for information on these permissions. See the *Oracle RightNow CX Cloud Service Server August 2014 User Guide* for additional information.

Table 2-1 Finding Information on Objects

Information on...	Can be found in this location in the Oracle RightNow Cx User Guide
Organization Permissions	Navigate to Core Features -->Staff Management-->Customizing Profiles --> Organization Permissions
Contact Permissions	Navigate to Core Features -->Staff Management -->Customizing Profiles -->Contact Permissions
Service Permissions	Navigate to Core Features -->Staff Management-->Customizing Profiles ' Service Permissions
Opportunity Tracking Permissions	Navigate to Core Features-->Staff Management -->Customizing Profiles-->Opportunity Tracking Permissions
Custom Object Permissions	Navigate to Core Features-->Staff Management-->Customizing Profiles -->Custom Object Permissions

For related permissions information, specifically, information on RightNow CX IP Address Range and Restrictions, see the *Oracle RightNow Cx Server May 2013 Release Notes*.

Authenticating on the Oracle RightNow Cx Server with Account Passwords

The following section provides information on authenticating on the Oracle RightNow Cx Server with account passwords.

Oracle Cloud Connect Web Services for SOAP API Access Control

When the Oracle Cloud Connect Web Services for SOAP API receives a request, a series of access control measures are enforced:

1. The site configuration is checked to ensure the API has been enabled at a site level.
2. The user credentials supplied in the request are validated

3. The profile for the supplied account is checked to ensure the correct profile bit is enabled. The profile is the mechanism for controlling access to administrative functions and for assigning staff members specific permissions, default workspaces, a default navigation set, and report access.

 **Note:**

Server-side access control is enforced on all core API calls made by Oracle Cloud Connect Web Services for SOAP. The current permissions map to read, edit, delete, and move check boxes on the Profile Permissions editor in Oracle RightNow. Although server-side access is enabled by default on new May 2013 sites and later, it is disabled on upgraded sites before the May 2013 release. If you are an existing Oracle RightNow customer and plan to upgrade your site to a May 2013 or later build, contact customer care to have this security-enhancing functionality enabled.

If you already have server-side access control enabled on your site, be careful of changes you make to Profile permissions. If an Oracle RightNow administrator changes the permissions on a profile for a specific Oracle Cloud Connect Web Services for SOAP integration, such changes might break that integration.

Understanding the Oracle RightNow Adapter in Design Time and Runtime

This section provides an overview that enables you to access the Oracle RightNow adapter in both design time and runtime.

The Oracle RightNow adapter has two components:

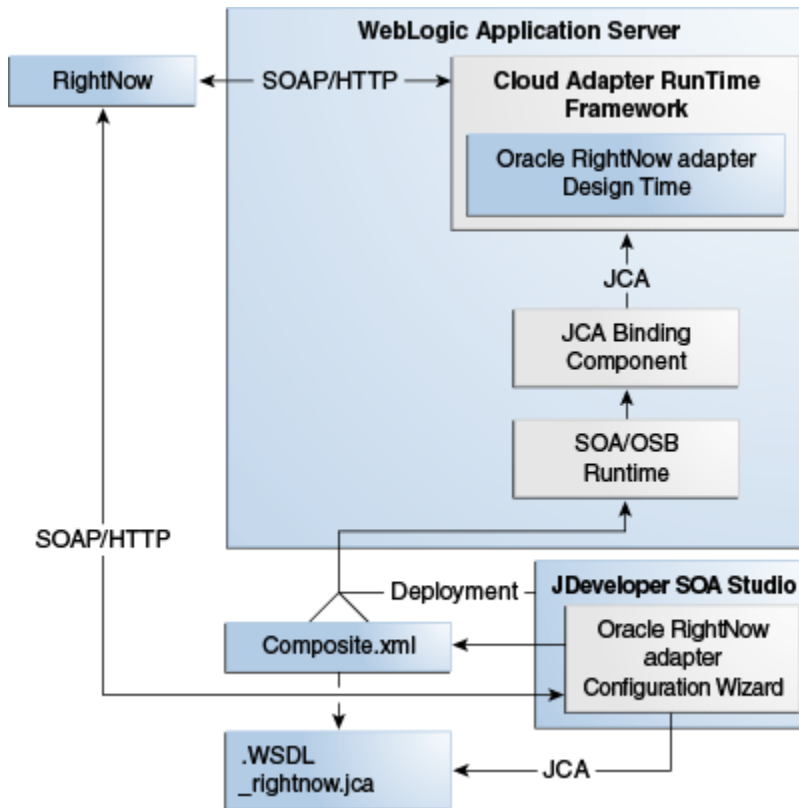
- Design time. The design-time component of the Oracle RightNow adapter is the configuration wizard. The wizard enables generation of artifacts that are needed to invoke and consume Web services. It consists of configuration windows that create the artifacts needed to communicate with the RightNow Cx.

Oracle JDeveloper design time for the Oracle RightNow adapter provides the user interface that facilitates creating an on-premise connector/adapter to the RightNow Cx. It supplies the following features:

- Ability to input the RightNow Cx WSDL on which the connection is to the RightNow Cx is to be made.
- Validation of the RightNow Cx WSDL together with its associated CSF key.
- Testing the Oracle RightNow connection for success.
- Browsing standard objects or event subscriptions that are available to you in RightNow CX.
- Enabling you to select/query the RightNow CX business objects in two ways:
 - * Ability to use the shuttle-based business object browser widget.
 - * Ability to test and validate the ROQL query during design time.

The flowchart shown in [Figure 2-8](#) explains the complete design-time lifecycle- (the actions you perform in configuring the Oracle RightNow adapter). It shows the Adapter Configuration Wizard for the runtime and how the design time relates to its SOA context.

Figure 2-8 Oracle RightNow Adapter Design Time Flowchart



- The adapter also has a runtime component. You use the runtime part of the adapter for delivering the information generated during design time to the service endpoint. This is where the invocation of the Web Service occurs.

You can install the Oracle RightNow adapter for both new and existing customers of Oracle SOA Suite 12.2.1.

Unsupported Features

The adapter does not support the following features:

- Adapter runtime retry configuration properties such as `jca.retry.count`, `jca.retry.backoff`, `jca.retry.interval`, and `jca.retry.maxInterval`.
- Message recovery in the Error Hospital in Oracle Enterprise Manager Fusion Middleware Control.
- The display of properties in the **Properties** tab for a reference (outbound) adapter in Oracle Enterprise Manager Fusion Middleware Control (for example, service WSDL URL, CSF key used, and others). These are the reference adapters that you select on the Services and References page.

- Rejected message handling
- Metrics such as the number of invocations.
- The following message encryption and decryption features available when you right-click a cloud adapter in the **Exposed Service** swimlane or **External References** swimlane in Oracle JDeveloper:
 - **Protect Sensitive Data > Encrypt Request Data** for cloud adapters in the **Exposed Service** swimlane.
 - **Protect Sensitive Data > Decrypt Sensitive Data** for cloud adapters in the **External References** swimlane.
- The policy attachments feature available when you right-click a cloud adapter in the **Exposed Service** swimlane or **External References** swimlane in Oracle JDeveloper.

3

Walkthrough of the Oracle RightNow Adapter Configuration Wizard

This chapter describes common configuration steps for the Oracle RightNow adapter using Oracle JDeveloper, various operations available with the adapter that are related to create, read, update and delete, features available with those operations, and use of the RightNow Object Query Language (ROQL) query language.

The chapter includes the following sections:

- [Performing Common JDeveloper Configuration Steps](#)
- [Understanding Create, Read, Update, and Delete Operations](#)
- [Working with ROQL](#)

Many of the sections summarize the operation or option and point to other chapters where the information is discussed in more depth.

Performing Common JDeveloper Configuration Steps

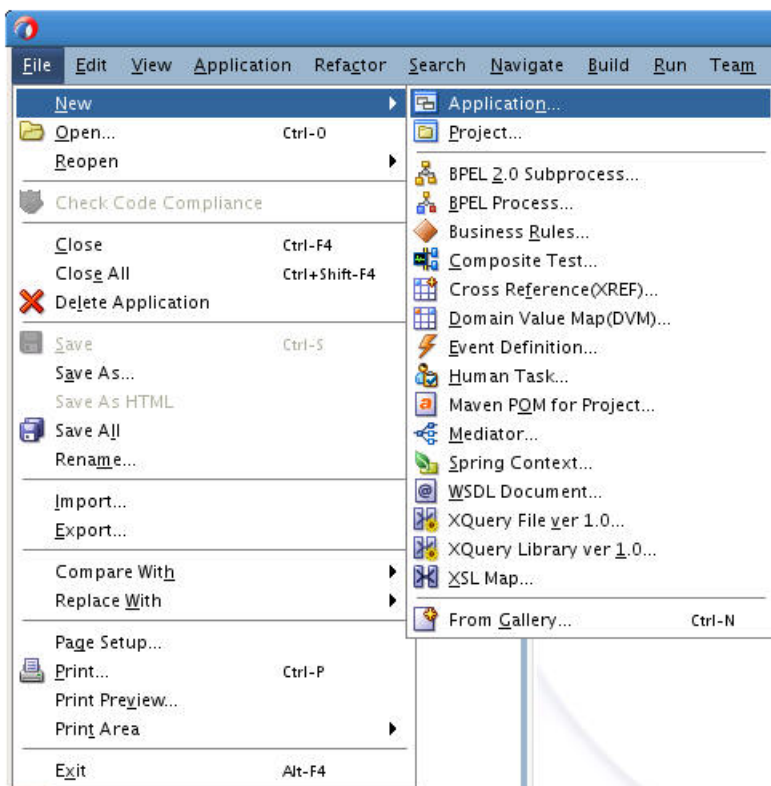
This section provides a summary of the common configuration steps for beginning an Oracle RightNow adapter project using Oracle JDeveloper. While you can use Oracle JDeveloper to configure an Oracle RightNow adapter and create a BPEL project, you can also configure the adapter for use with other service engines, such as Oracle Service Bus.

Creating a SOA Application Project in JDeveloper

To configure an Oracle RightNow adapter for use as an outbound or inbound service using Oracle JDeveloper, first create the SOA application project.

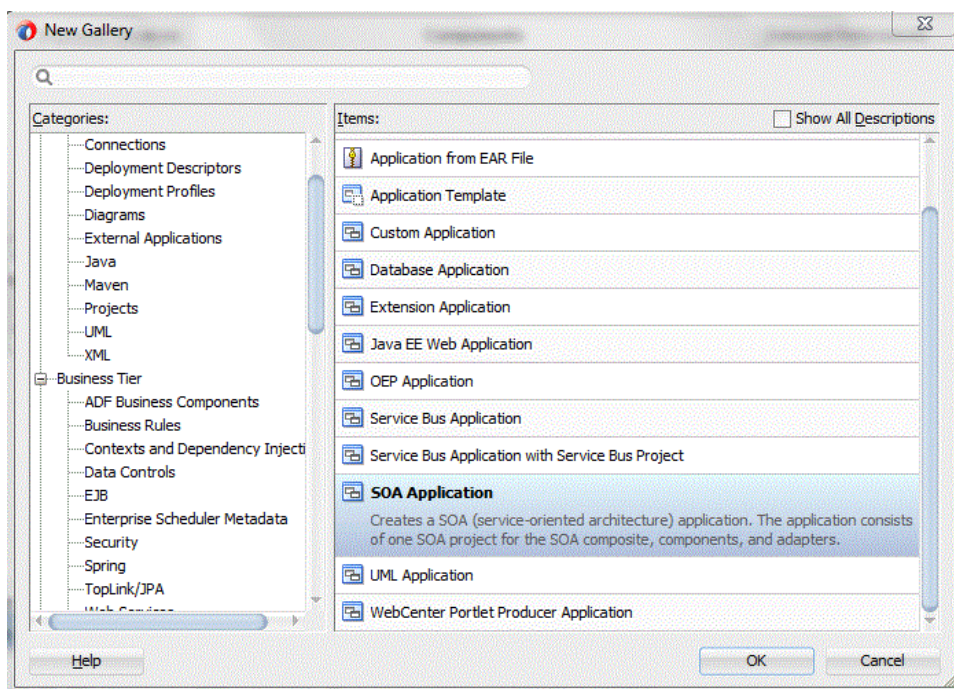
1. Click **New** and select **Application** from the **File** menu of Oracle JDeveloper.

Figure 3-1 Navigation



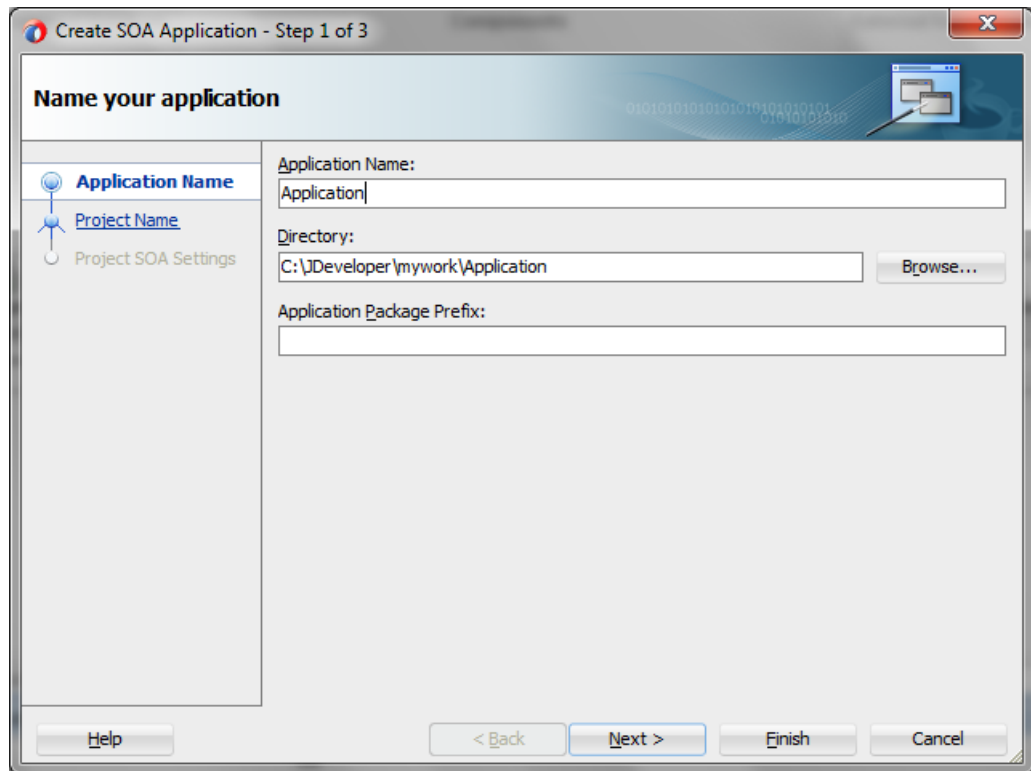
2. The **New Gallery** page is displayed. Select **SOA Application** from the **Items** list.

Figure 3-2 Create SOA Application



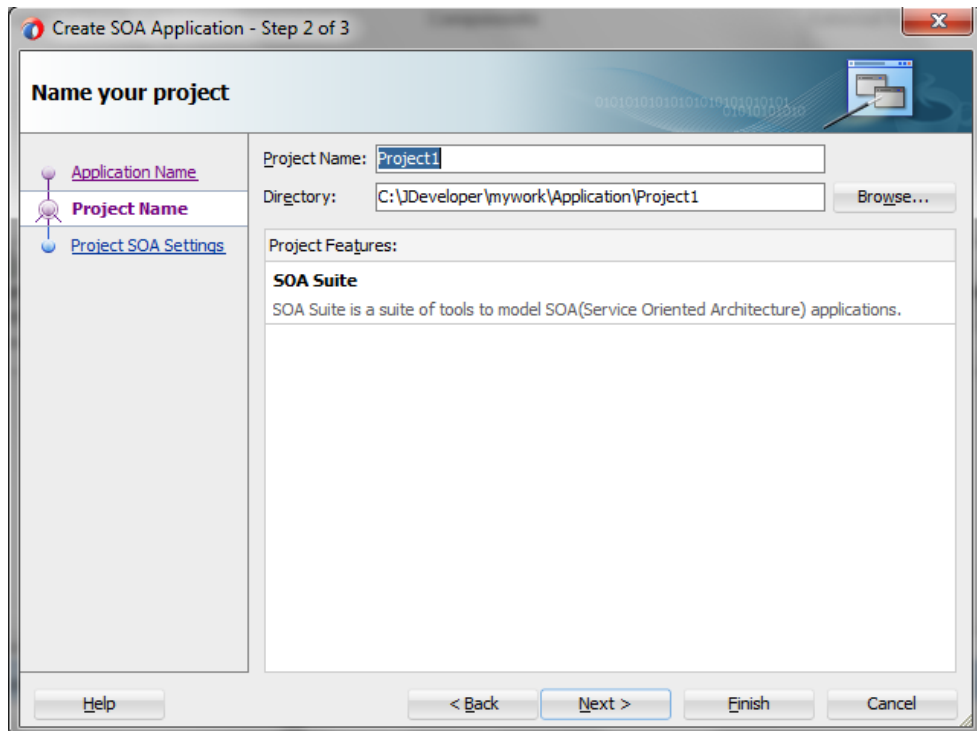
3. Provide a suitable name to your application.

Figure 3-3 Name Your Application



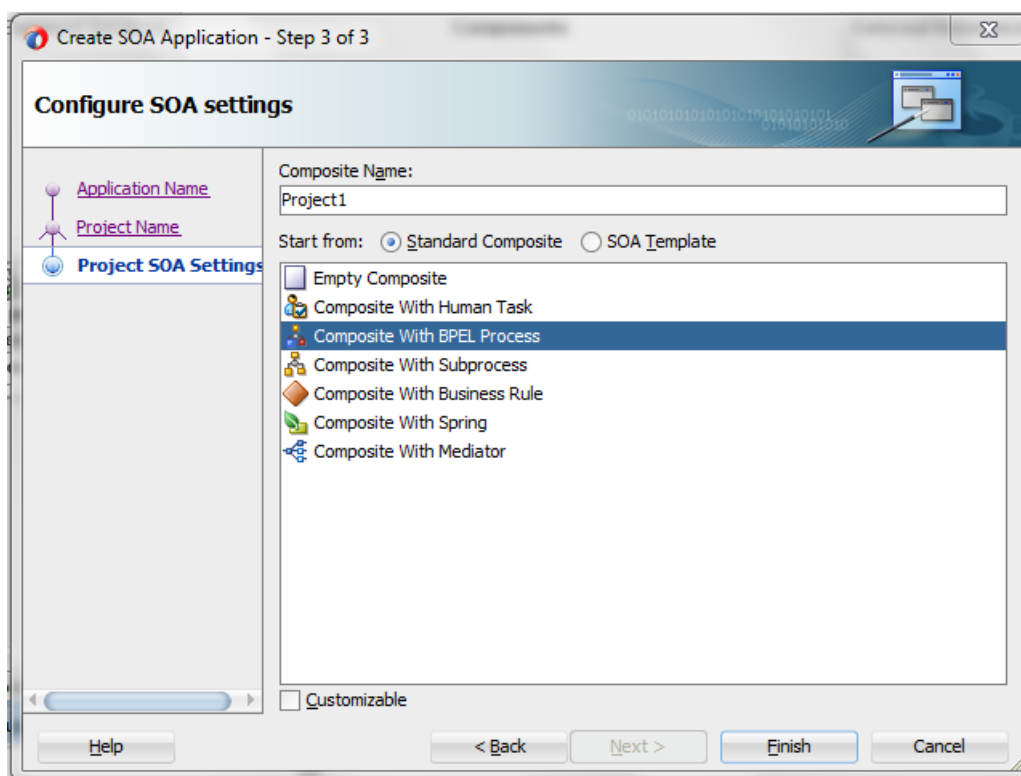
4. Click **Next** and provide a suitable name to your project.

Figure 3-4 Providing a Name for Your Project



5. Click **Next**.
6. Select **Standard Composite**.
7. Select **Composite with BPEL Process**.

Figure 3-5 Configuring SOA Settings

8. Click **Finish**.

The SOA composite application is displayed for designing in the SOA Composite Editor. Note that when dragging and dropping service and reference cloud adapters to the **Exposed Service** and **External References** swimlanes, the following features are *not* supported:

- The message encryption and decryption features available when you right-click a cloud adapter in the **Exposed Service** swimlane or **External References** swimlane in Oracle JDeveloper:
 - **Protect Sensitive Data > Encrypt Request Data** for cloud adapters in the **Exposed Service** swimlane.
 - **Protect Sensitive Data > Decrypt Sensitive Data** for cloud adapters in the **External References** swimlane.
- The policy attachments feature available when you right-click a cloud adapter in the **Exposed Service** swimlane or **External References** swimlane in Oracle JDeveloper.

Configuring an Oracle RightNow Adapter for Inbound Services

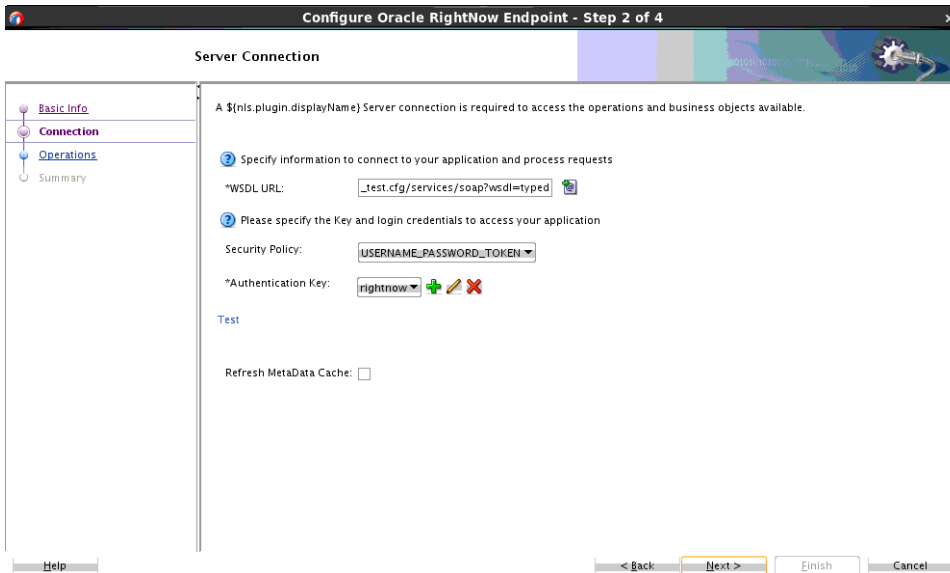
To configure an Oracle RightNow adapter for use as an inbound service using Oracle JDeveloper:

1. Drag and drop the Oracle RightNow adapter component from the **Components** in Oracle JDeveloper to the **Exposed Services** swimlane.
2. Click the Oracle RightNow adapter icon in the swimlane. The Oracle RightNow adapter Basic Info screen appears.

- Enter basic information to connect to the Oracle RightNow adapter.

Configure	Example/Information
What do you want to call your endpoint?	Enter a meaningful name.
What does your endpoint do?	Enter a description.

- Click **Next**. The Connection page appears.



- Enter connection information.

Configure	Example/Information
WSDL URL	Obtain the WSDL from your RightNow administrator.
Security Policy	Select a policy.
Authentication Key	You can obtain the authentication key from your RightNow administrator.
Test	Test the connection to validate the credentials.

- Click **Next**.
- Select the business object or event subscription that you want to receive from Oracle RightNow Cx as a request document to start this integration, then select **Next**. The standard WSDL can include support for both business objects and event subscriptions. This enables you to receive either a business object or an event subscriptions as a request from the Oracle RightNow application. Event subscriptions are supported only if the Oracle RightNow application version is equal to or greater than version 15.5 (May 2015 release). Otherwise, only business objects are visible for selection in the configuration wizard.
- Select a response type and optional business object for the response.
 - Select **None** if a response is not required.

- Select **Immediate**, then select a business object that you want the integration to send as a response document to Oracle RightNow Cx.
9. Click **Next**.
The Summary page is displayed.
 10. Click **Finish**.

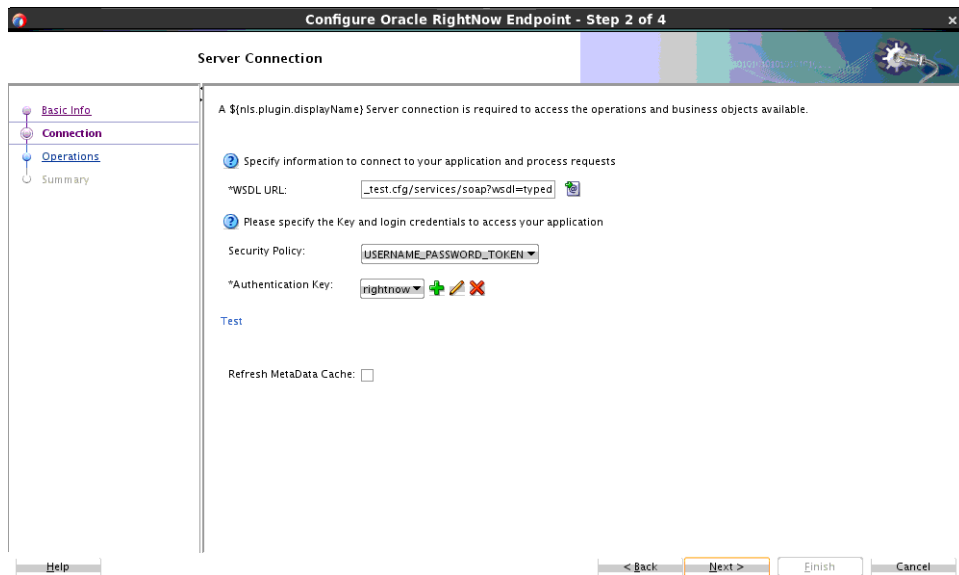
Configuring an Oracle RightNow Adapter for Outbound Services

To configure an Oracle RightNow adapter for use as an outbound service using Oracle JDeveloper:

1. Drag and drop the Oracle RightNow adapter component from the **Components** list in Oracle JDeveloper to the references swimlane.
2. Click the RightNow adapter icon in the swimlane. The Basic Info screen appears.
3. Enter basic information to connect to the Oracle RightNow adapter.

Configure	Example/Information
What do you want to call your endpoint?	Enter a meaningful name.
What does your endpoint do?	Enter a description.

4. Click **Next**. The Connection page appears.



5. Enter connection information.

Configure	Example/Information
WSDL URL	Obtain the WSDL from your RightNow administrator.
Security Policy	Select a policy.

Configure	Example/Information
Authentication Key	You can obtain the authentication key from your RightNow administrator.
Test	Test the connection to validate the credentials.

6. Click **Next**. The RightNow adapter configuration wizard displays additional information for you to select:

- The operation you want to perform.
- The objects against which you perform the operation.
- Any operation-specific configurations.

At this point, you can indicate to either perform single CRUD operations or perform operations in a batch:

- **Single Operation** - Select this option to work with a single operation.
- **Batch Operation** - Select this operation to work with multiple operations.

The following figure shows the Operation screen in which you perform the large part of your work related to selecting operations.

7. Click **Next**.

The Summary page is displayed.

8. Click **Finish**.

Understanding Create, Read, Update, and Delete Operations

The operations available with the Oracle RightNow adapter include create, read, update, and delete, or CRUD operations.

The CRUD operations enable the creation, reading, updating and deleting of objects contained in the Oracle RightNow Cx system.

All CRUD operations behave in a polymorphic manner as defined in the Polymorphic Behavior section. Therefore, any CRUD operation can accept as input parameters 1 to N heterogeneous primary objects, which means a mix of object types can be supplied to any CRUD operation in a single request.

For example, a Contact, Incident, and Organization object can be supplied to a single invocation of the Create method.

There is a hard limit of 1000 objects that may be supplied in a single CRUD request – however, due to operational constraints, supplying the maximum objects might result in an error.

The return value of `Create` and `Get (Read)` is a list containing 1 to N `RNObjects`. The size of the list will match the size of the list provided in the operation request. The `Update` and `Destroy` methods do not return a value upon success. If a CRUD operation fails, a SOAP fault is returned to the client.

However, the `Create` operation returns the ID of the created business object if you have disabled `suppressResponse` but the `Get` operation returns the entire business object.

When a client of Oracle Cloud Connect Web Services for SOAP invokes a `Create` operation, an object or list of objects will be returned. If you require the rest of the data associated with the object, a `Get` operation must be performed.

The `Create` operation can be performed directly on all primary objects.

When a client of the Oracle Cloud Connect Web Services invokes a `Get` operation, an object or list of objects is returned.

The `Destroy` operation destroys primary objects and sub-objects.

Supported Features

The following sections discuss the list of features supported by Oracle RightNow adapter.

- [Using CRUD Operations](#)
- [Using the Batching Feature](#)
- [Chaining](#)
- [Using Chaining](#)

Using CRUD Operations

The Oracle RightNow adapter supports CRUD, or create, read, update, and destroy operations. The basic operations supported include the following:

- [Creating One or Multiple Business Objects](#)
- [Retrieving Data from One or Multiple Objects](#)
- [Updating One or Multiple Business Objects](#)
- [Deleting one or Multiple Business Objects](#)

Creating One or Multiple Business Objects

You create one or multiple business objects (standard or custom) on RightNow Cx using the Oracle RightNow adapter. For example, you create `Organization`, `Contact` and `Incident` objects all as part of a single request or as three independent requests.

For example, on the Operation screen, you can select the `Organization`, `Contact`, and `Incident` objects as part of one request.

Retrieving Data from One or Multiple Objects

You can retrieve data either from one or multiple objects available on the RightNow CX cloud platform using the Oracle RightNow adapter. For example, you can use the Oracle RightNow adapter to retrieve data just related to just organizations or the information could be a combination of organizations, contacts and incidents in one request.

For example, you can retrieve data from just `Organization`, by specifying the `Get` operation in Operations screen and selecting the `Organization` object.

1. Choose the **Get** operation from the **Select an Operation Type** list.
2. Use the arrow to move the **Organization** object from the **Available** list to the **Selected** list.

3. Click **Next**.

Updating One or Multiple Business Objects

Use the `Update` operation to update any primary object and associated subobjects. You can update one or multiple business objects (standard or custom) on the RightNow CX cloud platform using the `.update` method. For example, you can update `Organization`, `Contact` and `Incident` objects as part of a single request or as three independent requests.

For example, you can update the `Organization`, `Contact` and `Incident` objects as part of a single **Update** request on the Operation screen.

To perform an Update operation:

1. Select **Update** from the **Select an Operation Type** list.
2. Select one or more business objects from the **Available** list.
3. Use the arrows to move the business objects to the **Selected** list.
4. Click **Next**.

You can update one object as part of a series of updates to three objects.

Deleting one or Multiple Business Objects

You can delete one or multiple business objects (standard or custom) on the RightNow Cx cloud platform using the Oracle RightNow adapter. For example, you can delete `Organization`, `Contact` and `Incident` objects all as part of a single request or as three independent requests.

In the following screenshot, you use the Oracle RightNow adapter Operation screen to delete `Organization`, `Contact`, and `Incident` objects.

To delete multiple business objects:

1. Choose the **Destroy** operation from the **Select an Operation Type** list.
2. Use the arrow to move the `Organization`, `Contact` and `Incident` objects from the **Available** list to the **Selected** list.
3. Click **Next**.

Using the Batching Feature

Batching is a unique feature of the Oracle RightNow adapter that enables one or more heterogeneous operations to be sent to RightNow Cx server through a single operation. This feature enables the integration developer to update an existing organization, create a contact for an existing organization, delete a note for an existing incident, or create a new incident. Using batching, all these instructions can be consolidated and sent to Oracle RightNow Cx server as a single operation. The Oracle RightNow adapter extends this capability by providing the necessary tooling to configure batch operations and batching options.

The adapter also provides an integration-friendly interface for batch operations and processing options. You can select the **Batch Operation** option to configure this option.

Other features of batching include:

- Each operation in a batch has separate processing options. The adapter configuration wizard provides a graphical and intuitive way for users to configure the processing options.
- Operations within a batch are normally executed in a single transaction, but these operations can be grouped into different units of work using the `commitAfter` property. This property groups multiple operations in a single transaction. At runtime, when a set of operations in a batch are defined as part of a single operation, this action is sent after the last operation in that transaction boundary.

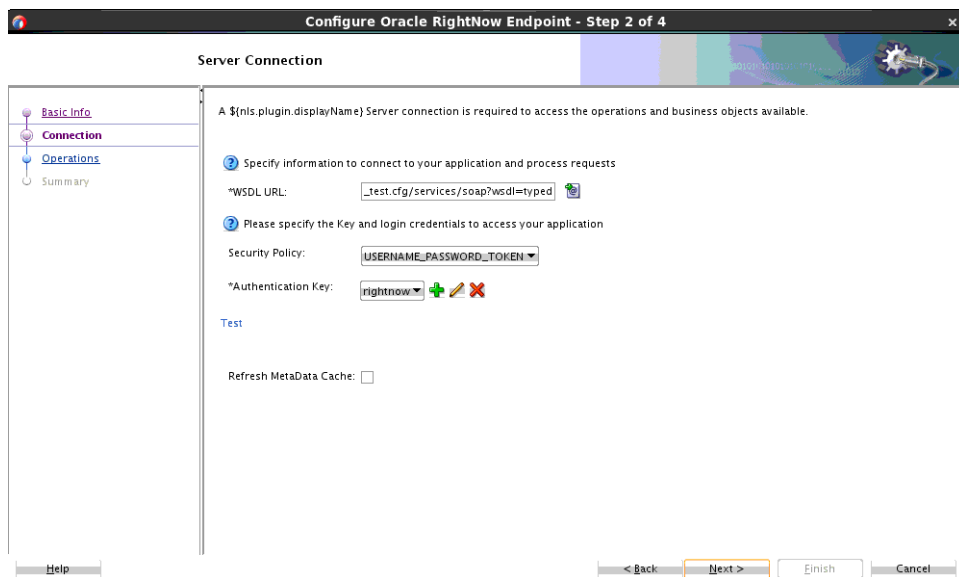
Oracle RightNow Adapter User Interface Support for Batching

Batching is a unique feature of the Oracle RightNow adapter that allows one or more operations to be sent to Oracle RightNow Cx through a single operation.

The Oracle RightNow adapter extends batching capability by providing the necessary tooling to configure batch operations and batching options. It also provides an integration-friendly interface for batch operations and processing options.

The following section describes how you can use the adapter configuration wizard to model the Oracle RightNow adapter for batch operations:

1. In a SOA project or a service bus project, drag and drop the Oracle RightNow adapter from Components to the composite swim lane. Provide a valid connection name.
2. Provide connection details.



3. In the Operations page, select the **Batch Operation** option to configure a batch operation.
4. Selecting this option enables you to configure multiple operations in a batch.
5. You can then select and add an operation in the batch operation.
6. Once added, the operations appear listed with the appropriate business object.

7. Each operation in a batch process has separate processing options that can be specified in the Properties tab. For example, the Add Operation has three properties you can specify: **Suppress External Events**, **Suppress Rules**, and **Commit After**.
8. Select **Next** to complete the adapter wizard. The confirmation dialog shows the generated artifacts.

Operations within a batch are normally executed in a single transaction; however, these operations can be grouped into separate units of work using the `commitAfter` property.

Batch Process WSDL

The following examples represent different parts of a sample WSDL from a batch process. The first example shows the port type and operation defined within the integration WSDL for the batch operation:

Example 3-1 PortType and Operation

```
<wsdl:portType name="rightnowReferencePortType">
  <wsdl:operation name="Batch">
    <cloud:CloudOperation xmlns:cloud="http://xml.oracle.com/types"
targetOperation="Batch"/>
    <wsdl:input message="ns0:BatchRequestMessage"/>
    <wsdl:output message="ns0:BatchResponseMessage"/>
    <wsdl:fault name="ServerErrorFault"
      message="ns0:ServerErrorFault"/>
    <wsdl:fault name="RequestErrorFault"
      message="ns0:RequestErrorFault"/>
    <wsdl:fault name="UnexpectedErrorFault"
      message="ns0:UnexpectedErrorFault"/>
  </wsdl:operation>
</wsdl:portType>
```

The second example shows the input message type defined in the Integration WSDL Batch operation.

Example 3-2 Input Message Type Defined in Integration WSDL Batch Operation:

```
<xs:element name="Batch" type="ns2:BatchRequestType"/>
<xs:complexType name="BatchRequestType">
  <xs:sequence>
    <xs:element name="Create"
      type="ns2:CreateRequestType"/>
    <xs:element name="Update"
      type="ns2:UpdateRequestType"/>
    <xs:element name="Get"
      type="ns2:GetRequestType"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="CreateRequestType">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" minOccurs="0" type="ns7:Account"
      name="Account"/>
  </xs:sequence>
</xs:complexType>
```

The next example shows the output message type defined in the integration WSDL Batch operation.

Example 3-3 Output Message Type Defined in Integration WSDL Batch Operation:

```
<xs:element name="BatchResponse" type="ns2:BatchResponseType"/>
  <xs:complexType name="BatchResponseType">
    <xs:sequence>
      <xs:element name="Create" type="ns2:CreateResponseType"/>
      <xs:element name="Update" type="ns2:UpdateResponseType"/>
      <xs:element name="Get" type="ns2:GetResponseType"/>
    </xs:sequence>
  </xs:complexType>

<xs:complexType name="CreateResponseType">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" minOccurs="0"
      type="ns7:Account" name="Account"/>
    <xs:element name="RequestErrorFault" maxOccurs="1"
      minOccurs="0"
      type="ns9:RequestErrorFaultType"/>
    <xs:element name="UnexpectedErrorFault"
      maxOccurs="1" minOccurs="0"
      type="ns9:UnexpectedErrorFaultType"/>
    <xs:element name="ServerErrorFault"
      maxOccurs="1" minOccurs="0"
      type="ns9:ServerErrorFaultType"/>
  </xs:sequence>
</xs:complexType>
```

Chaining

Chaining is an Oracle RightNow adapter feature that you can use to correlate multiple operations within a single batch request. Specifically, you use chaining together with batching to execute related operations. For operations to be chained together, the source and target operations of a chain must be in the same unit of work.

 **Note:**

When configuring the Oracle RightNow Cloud Adapter in the outbound direction, do not select the **Commit After** processing option if you are using chaining. For information about configuring the outbound direction, see [Oracle RightNow Adapter User Interface Support for Batching](#).

For example, the following request has three operations which are all part of the same sample batch request.

1. Create a Contact.
2. Create an Incident (the primary Contact for this Incident is the one you created in the first step).
3. Get the Incident (you must return the Incident just created).

Using the attributes highlighted in the example in [Example 3-4](#), provide a look at how this is accomplished in code.

Example 3-4 XML for Chaining

```

<Batch
xmlns="http://xmlns.oracle.com/pcbpel/adapter/
    rightnow/RNDemo01/RNBatchDemo01/rightnowReference"
xmlns:rna_v1_2="urn:metadata.ws.rightnow.com/v1_2" xmlns:wSDL="http://
schemas.xmlsoap.org/wSDL/"
    xmlns:rnm_v1_2="urn:messages.ws.rightnow.com/v1_2"
    xmlns:rnn_v1_2="urn:nullfields.ws.rightnow.com/v1_2"
    xmlns:rnf_v1_2="urn:faults.ws.rightnow.com/v1_2"
xmlns:ns1="urn:base.ws.rightnow.com/v1_2"
    xmlns:rno_v1_2="urn:objects.ws.rightnow.com/v1_2" xmlns:plnk="http://
docs.oasis-open.org/wsbpel/2.0/plnktype"
    xmlns:http="http://schemas.xmlsoap.org/wSDL/http/" xmlns:soap="http://
schemas.xmlsoap.org/wSDL/soap/"
    xmlns:rng_v1_2="urn:generic.ws.rightnow.com/v1_2"
    xmlns:rnw_v1_2="urn:wSDL.ws.rightnow.com/v1_2"
xmlns:tns="http://xmlns.oracle.com/pcbpel/adapter/
    rightnow/RNDemo01/RNBatchDemo01/rightnowReference"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <tns:CreateContact>
    <tns:Contact>
      <ns1:ID xsi:type="ns1:ChainSourceID"
        variableName="MyContact" />
      <rno_v1_2:Name>
        <rno_v1_2:First>John</rno_v1_2:First>
        <rno_v1_2:Last>Doe</rno_v1_2:Last>
      </rno_v1_2:Name>
    </tns:Contact>
  </tns:CreateContact>
  <tns:CreateIncident>
    <tns:Incident>
      <ns1:ID xsi:type="ns1:ChainSourceID"
        variableName="MyIncident" />
      <rno_v1_2:PrimaryContact>
        <rno_v1_2:Contact>
          <ns1:ID xsi:type="ns1:ChainDestinationID"
            variableName="MyContact" />
        </rno_v1_2:Contact>
      </rno_v1_2:PrimaryContact>
      <rno_v1_2:Subject>This is a test subject.
    </rno_v1_2:Subject>
    </tns:Incident>
  </tns:CreateIncident>
  <tns:GetIncident>
    <tns:Incident>
      <ns1:ID xsi:type="ns1:ChainDestinationID"
        variableName="MyIncident" />
    </tns:Incident>
  </tns:GetIncident>
</Batch>

```

There are request and response payloads associated with [Example 3-5](#) provides an example of an integration request payload.

Example 3-5 Integration Request Payload

```

<Batch
xmlns="http://xmlns.oracle.com/pcbpel/adapter/
    rightnow/RNDemo01/RNBatchDemo01/rightnowReference"
xmlns:rna_v1_2="urn:metadata.ws.rightnow.com/v1_2" xmlns:wSDL="http://
schemas.xmlsoap.org/wSDL/"

```

```

xmlns:rnm_v1_2="urn:messages.ws.rightnow.com/v1_2"
    xmlns:rnn_v1_2="urn:nullfields.ws.rightnow.com/v1_2"
    xmlns:rnf_v1_2="urn:faults.ws.rightnow.com/v1_2"
xmlns:ns1="urn:base.ws.rightnow.com/v1_2"
    xmlns:rno_v1_2="urn:objects.ws.rightnow.com/v1_2" xmlns:plnk="http://docs.oasis-
open.org/wsbpel/2.0/plnktype"
    xmlns:http="http://schemas.xmlsoap.org/wsdl/http/" xmlns:soap="http://
schemas.xmlsoap.org/wsdl/soap/"
    xmlns:rng_v1_2="urn:generic.ws.rightnow.com/v1_2"
xmlns:rnw_v1_2="urn:wsdl.ws.rightnow.com/v1_2"
    xmlns:tns="http://xmlns.oracle.com/pcbpel/
    adapter/rightnow/RNDemo01/RNBatchDemo01/rightnowReference"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<tns:CreateContact>
    <tns:Contact>
        <ns1:ID xsi:type="ns1:ChainSourceID" variableName="MyContact" />
        <rno_v1_2:Name>
            <rno_v1_2:First>John</rno_v1_2:First>
            <rno_v1_2:Last>Doe</rno_v1_2:Last>
        </rno_v1_2:Name>
    </tns:Contact>
</tns:CreateContact>
<tns:CreateIncident>
    <tns:Incident>
        <ns1:ID xsi:type="ns1:ChainSourceID"
            variableName="MyIncident" />
        <rno_v1_2:PrimaryContact>
            <rno_v1_2:Contact>
                <ns1:ID xsi:type="ns1:ChainDestinationID"
                    variableName="MyContact" />
            </rno_v1_2:Contact>
        </rno_v1_2:PrimaryContact>
        <rno_v1_2:Subject>This is a test
            subject.</rno_v1_2:Subject>
    </tns:Incident>
</tns:CreateIncident>
<tns:GetIncident>
    <tns:Incident>
        <ns1:ID xsi:type="ns1:ChainDestinationID"
            variableName="MyIncident" />
    </tns:Incident>
</tns:GetIncident>
</Batch>

```

The response payload is shown in [Example 3-6](#):

Example 3-6 Integration Response Payload

```

<itns:BatchResponse xmlns:n0=
    "urn:messages.ws.rightnow.com/v1_2"
    xmlns:n2="urn:base.ws.rightnow.com/v1_2" xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance"
    xmlns:n1="urn:objects.ws.rightnow.com/v1_2"
xmlns:itns="urn:oracle.cloud.adapter.rightnow/1214">
    <itns:Create>

        <itns:Contact>
            <n2:ID id="1903" />
        </itns:Contact>
    </itns:Create>

```

```

<itns:Create>

  <itns:Incident>
    <n2:ID id="455" />
  </itns:Incident>
</itns:Create>
<itns:Get>

  <itns:Incident>
    <n2:ID id="455" />
    <n2:LookupName>140623-000003</n2:LookupName>
    <n2:CreatedTime>2014-06-23T14:44:03.000Z</n2:CreatedTime>
    <n2:UpdatedTime>2014-06-23T14:44:03.000Z</n2:UpdatedTime>
    <n1:CreatedByAccount>
      <n2:ID id="2" />
    </n1:CreatedByAccount>
    <n1:InitialResponseDueTime>2014-06-24T00:00:00.000Z
    </n1:InitialResponseDueTime>
    <n1:Interface>
      <n2:ID id="1" />
    </n1:Interface>
    <n1:Language>
      <n2:ID id="1" />
    </n1:Language>
    <n1:PrimaryContact>
      <n1:Contact>
        <n2:ID id="1903" />
      </n1:Contact>
    </n1:PrimaryContact>
    <n1:Queue>
      <n2:ID id="2" />
    </n1:Queue>
    <n1:ReferenceNumber>140623-000003</n1:ReferenceNumber>
    <n1:Source>
      <n2:ID id="6006" />
      <n2:Parents xsi:type="n2:NamedReadOnlyID">
        <n2:ID id="32007" />
      </n2:Parents>
    </n1:Source>
    <n1:StatusWithType>
      <n1:Status>
        <n2:ID id="1" />
      </n1:Status>
      <n1:StatusType>
        <n2:ID id="1" />
      </n1:StatusType>
    </n1:StatusWithType>
    <n1:Subject>This is a test subject.</n1:Subject>
  </itns:Incident>
</itns:Get>
</itns:BatchResponse>

```

Using Chaining

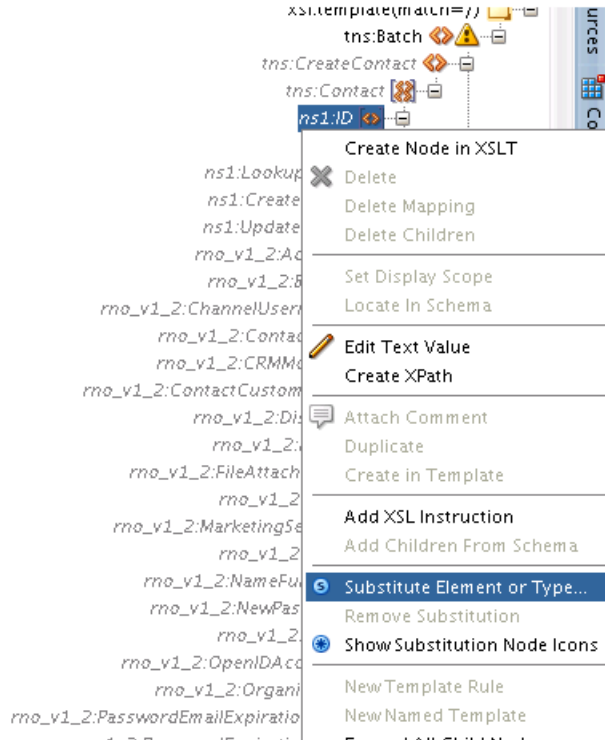
Chaining is always used together with batching and does not require any extra step in the Oracle RightNow adapter batch configuration wizard.

However, to use chaining, you must link the right chain source and destination in the adapter request, as illustrated in the sample request above.

The following steps illustrate how you can achieve chaining during transformation with the Oracle XSLT mapper.

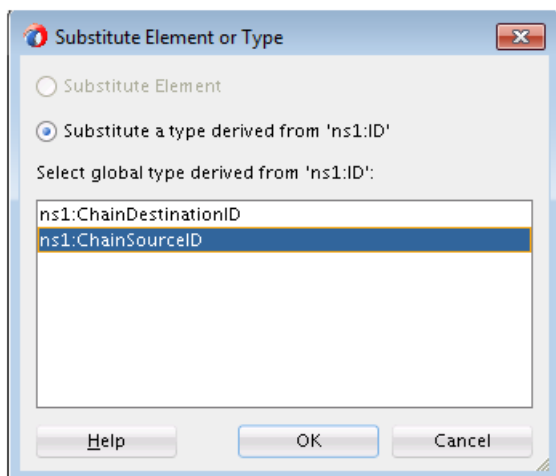
1. In the Oracle XSLT Mapper, load the Oracle RightNow adapter reference/business service request type as the target type.
2. When creating a contact object which must be chained to a different object example, Incident), substitute the Contact ID with the extension ChainSourceID.

Figure 3-6 Choosing a Substitute Element or Type in the XSLT Mapper



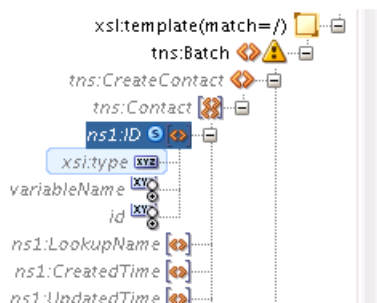
3. Expand the Contact object.
4. Right-click the ID element and select **Substitute Element or Type** from the popup.
5. This opens the **Substitute Element or Type dialog**. In the dialog, select ChainSourceID.

Figure 3-7 Substitute Element or Type Dialog



This substitution extends the Contact ID type.

Figure 3-8 Contact ID Type Expanded



Set the `variableName` property with a unique string (for example: `MyContact`) that uniquely identifies this chain head.

6. During the **Create Incident** operation, set the following: in the `PrimaryContact` field of Incident, set the `ChainDestinationID` so the Incident is created for the Contact as they are Chained.

In other words, `ChainDestinationID` of `MyContact` is set on the `PrimaryContact` field.

```
<rno_v1_2:PrimaryContact>
  <rno_v1_2:Contact>
    <ns1:ID xsi:type="ns1:ChainDestinationID"
      variableName="{string ('MyContact' )}"/>
  </rno_v1_2:Contact>
</rno_v1_2:PrimaryContact>
```

7. Similarly, to create Incident and subsequently perform a Get on this incident, substitute the Incident ID with the `chainSourceID`. Set the `variableName` property with a unique string (example: `MyIncident`).

8. Next, in the `Get` operation, substitute the Incident ID with the extension `ChainDestinationID` and set the `variableName` property to the variable name of the `chainSourceID` (that is, `MyIncident`).
9. Map other types as appropriate.

Supported Processing Options

Use processing options to enable and disable certain aspects of server-side processing when performing a RightNow cloud operation. Processing options are created and supplied to the various WSDL operations that use processing options. Following is a list of all supported processing options, along with their usage and default values. This section includes the following subsections:

- [CreateProcessingOptions](#)
- [Using the Batching Feature](#)
- [Chaining](#)
- [Using Chaining](#)

CreateProcessingOptions

You can use `CreateProcessingOptions` together with the `Create` operation, by specifying them on the **Create Properties Tab**. `CreateProcessingOptions` contain properties listed in [Table 3-1](#).

Table 3-1 CreateProcessing Options

Field	Description
<code>SuppressExternalEvents</code>	Used to indicate that external events should not run after the <code>Create</code> operation completes. The default value is language specific, refer to your documentation and generated client code for more information on the default value.
<code>SuppressResponse</code>	RightNow adapter-specific option. This property, which takes boolean values, indicates if an ID must be returned for a <code>Create</code> operation.
<code>SuppressRules</code>	Used to indicate that business rules should not run after the <code>Create</code> operation completes. Refer to your documentation and generated client code for more information on the default value.

DestroyProcessingOptions

You can use `DestroyProcessingOptions` together with the `Delete` operation, by specifying them on the **Delete Operation Properties** tab. `DestroyProcessingOptions` contain the following properties.

Table 3-2 Destroy Processing Options

Field	Description
<code>SuppressExternalEvents</code>	Used to indicate that external events should not run after the <code>Destroy</code> operation completes. Refer to your documentation and generated client code for more information on the default value.

Table 3-2 (Cont.) Destroy Processing Options

Field	Description
SuppressRules	Used to indicate that business rules should not run after the <code>Destroy</code> operation completes. Refer to your documentation and generated client code for more information on the default value

GetProcessingOptions

You can use `GetProcessingOptions` together with the `Get` operation by specifying them on the **Get Operation Properties Tab**. `GetProcessingOptions` contain the following properties.

Table 3-3 GetProcessing Options

Field	Description
FetchAllNames	Signals to the server that all <code>NamedID</code> types should include both the <code>Name</code> and the <code>ID</code> for that field. Note the use of this if very inefficient and should only be used when all <code>Name</code> and <code>ID</code> fields are required. If all <code>Name</code> and <code>ID</code> fields are not require, this option should not be used, for more information, see the <code>Get</code> operation

UpdateProcessingOptions

You can use `UpdateProcessingOptions` together with the `Update` operation by specifying them on the **Update Operation Properties Tab**. `UpdateProcessingOptions` contain the following properties:

Table 3-4 UpdateProcessingOptions

Field	Description
SuppressExternalEvents	Used to indicate that external events should not run after the <code>Update</code> operation completes. The default value is language specific, refer to your language documentation and generated client code for more information on the default value.
SuppressRules	Used to indicate that business rules should not run after the <code>Update</code> operation completes. The default value is language specific, refer to your language documentation and generated client code for more information on the default value.

Working with ROQL

The RightNow Object Query Language (ROQL) facility enables you to make queries against the RightNow Cx database.

This section includes the following information:

- [Using ROQL](#)
- [ROQL Query Statement](#)

- [Running the ROQL Query Statement](#)
- [Using the ROQL Query Builder](#)
- [Adapter Support for ROQL](#)

Using ROQL

If you select the ROQL operation category on the Operations screen, a field for entering an ROQL query is displayed. Enter the ROQL statement depending on the operation you selected.

ROQL enables you to search your organization's RightNow Cx data for specific information.

This chapter does not focus on discussing ROQL at length. Refer to [Oracle Service Cloud Connect Web Services for SOAP](#).

ROQL Query Statement

The ROQL query statement queries data from Oracle RightNow Cx. The Query statement text box consists of ROQL statements according to Oracle RightNow CX.

Refer to the section on ROQL Operations for more information on the query operation. For detailed information on ROQL, see the [Oracle RightNow Connect Web Services for SOAP Developer's Guide](#) and navigate to the ROQL section.

ROQL Query Statement

Use the ROQL query statement to query data from RightNow Cx. The Query statement text box consists of ROQL statements according to RightNow Cx.

Refer to the section in ROQL Operations for additional information on query operations. For detailed information on ROQL, see the [Oracle RightNow Connect Web Services for SOAP Developer's Guide](#) and navigate to the ROQL section.

Running the ROQL Query Statement

You can run and test the query. When you click the **Test** icon, a test dialogue box appears.

The **Query Test** dialog that appears contains the following areas:

- **Query Statement and Results.** The **Query Statement** text box is for the query itself and the **Results** box shows the result of the query executed. If the query has one or more bind parameters in it, one or more input boxes will appear to provide values for these
- **Parameter Bindings.** Enter values for any parameter bindings that appear in the query statement.
- **Test My Query.** Click to execute the query.
- **Results.** After the successful execution of the query, the text area is filled with results from RightNow Cx.

Using the ROQL Query Builder

This section discusses how to use the ROQL query builder. The ROQL query builder addresses several areas that are often problematic for the integration developer.

This approach helps you in writing complex, error-free queries with greater ease. To accomplish writing such queries, the ROQL Query Builder provides the following features, described in these subsections:

- [Simplifying the Discovery of Standard and Custom Business Objects](#)
- [Suggesting Query Constructs Based on the Context](#)
- [Providing Auto-Completion](#)
- [Providing Alias Support to Improve Readability](#)
- [Using ROQL to Suggest Relationships](#)
- [Using the Query Builder to Obtain Inline and Semantic Validation](#)

Simplifying the Discovery of Standard and Custom Business Objects

The ROQL Query Builder identifies for you potential standard and custom objects that you can use in constructing the queries. To see an example of this feature:

1. Select **ROQL** as the operation type on the Operations screen.
2. Enter **Select** in the **ROQL Editor Text** area and enter **Ctrl+Space**. The Query Builder displays a list of standard and custom objects available on Oracle RightNow Cx.

Note:

If the custom objects you create do not appear in the list of objects shown in the operations page, check the option `Clear Cache` in the connection page, then connect again to obtain the latest metadata from the RightNow Cx system.

3. Alternatively, you can provide a specific package to display all custom objects created in that package.

Suggesting Query Constructs Based on the Context

ROQL Query Builder automatically identifies the context, based on the position of the cursor, for the query string. Using this context, the Query Builder provides recommendations, enabling you to write efficient ROQL queries. This feature operates in the following manner:

1. When you enter **Select** in the ROQL query text area and press **Ctrl+Space**, the Query Builder displays all standard and business objects.
2. Similarly, if you perform the query `Select Contact from Contact where` and enter **Ctrl+Space** after the `where` clause, you are provided with the list of fields of the `Contact` object that you can use in fine-tuning the query, and applicable keywords and functions.

Providing Auto-Completion

The auto-completion feature facilitates building complex ROQL queries in a quick and efficient manner. To see this feature:

- Using the query string `Select Se`, if you perform **Ctrl+Space** after the term, `Se`, the Query Builder displays all objects that start with **Se**.

Providing Alias Support to Improve Readability

The ROQL Query Builder features support for aliasing. It recognizes when aliasing of the RightNow Object (Base class for all primary objects in the Oracle RightNow adapter) is being queried and treats the alias name as the actual object name.

All operations associated with the object can then be performed on the alias.

1. In the query string `Select from ServiceCategory S where`, `S` is set as an alias for object `ServiceCategory`. Thus, you can perform all operations associated with `ServiceCategory` on the alias '`S`'. Some of the operations you can perform on the alias include the following.
2. If you perform **Ctrl+Space** between `Select` and `from` in the query above, the query builder will display `S`, suggesting that the `S` should come in between `Select` and `From`, as shown here - `Select S from ServiceCategory S where`.
3. If you enter a dot after the first `S`, all relationships associated with `Service Category` are displayed.
4. Similarly in this query, `Select S from ServiceCategory S where S`, if you enter a dot after the last `S`, all fields associated with `ServiceCategory` will be displayed.

Using ROQL to Suggest Relationships

ROQL has support for the relationship feature. With this feature you can reach from one primary object to other primary objects through a relationship.

The ROQL Query Builder identifies and lists all reachable relationships from the identified object. It can list relationships of relationships.

For more details see *Oracle RightNow Connect Web Services for SOAP Developer's Guide*

If you must find the parent organization of a particular `Contact`, enter `Select Contact` in the ROQL text area and enter "." which displays all relationships possible on the `Contact` object.

Using the Query Builder to Obtain Inline and Semantic Validation

The Query Builder has a built-in inline validator that highlights problematic text by drawing a red curved line underneath it and also provides suggestions to correct the error in a tooltip message.

The Query Builder validator performs spelling checks on keywords, object names, relationship names, field names and names of functions. All the keywords that are typed correctly will automatically be colored blue, indicating the validity of these keywords.

The ROQL Query builder also has support for semantic validation of the query. It can recognize that the specified relationship or field name is invalid for the currently selected object.

Adapter Support for ROQL

The Oracle RightNow adapter provides a query subsystem that enables you to perform SQL-like queries against the RightNow CX platform using the object query language.

The ROQL query language is based on a subset of the Object Query Language (OQL) and a SQL-like query language that has been extended to handle object notation.

ROQL currently supports only the Query Objects Feature and not Query CS.

Query Arguments

Using the following query as an example:

Use query arguments to fine-tune queries. Therefore, in the above example, `Lin` and `CA` are query arguments.

```
Select Contact from Contact where Contact.Name.First = 'Lin' AND
Contact.Address.City = 'CA'
```

Query parameters are a unique concept through you can parameterize the query arguments, which the adapter substitutes with actual values during query execution.

Much like SQL, the query language has a provision to fine-tune the search by passing in filters in the `WHERE` clause. This fine-tuning is made possible by use of the concept of bind parameters.

Support for Bind Parameters

The Oracle RightNow adapter provides you an option to give inputs to your query statement in the form of bind parameters.

```
Select Contact from Contact where Contact.Name.First = &contact_name AND
Contact.Address.City = &contact_address
```

See the following query example for the Oracle RightNow adapter. The ampersand & symbol prefixed to `orgid` indicates that the ampersand is a bind parameter.

You can run the query to see how it works with bind parameters by clicking **Test My Query**.

As shown above, the query prompts you to provide a value for the bind parameter.

The WSDL generated for an adapter query contains the bind parameter as part of input schema.

Figure 3-9 Part of Generated Input Schema for WSDL Showing Bind Parameter

```
<xs:schema xmlns="http://xml.oracle.com/types" elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://xml.oracle.com/types" xmlns:ns7="http://xml.oracle.com/types">
  <xs:complexType name="QueryObjectsParameters">
    <xs:all>
      <xs:element name="contact_name" type="xs:string" minOccurs="1" maxOccurs="1"/>
      <xs:element name="contact_address" type="xs:string" minOccurs="1" maxOccurs="1"/>
    </xs:all>
  </xs:complexType>
</xs:schema>
```

The JCA file generated for an adapter query can look as follows:

Example 3-7 JCA File Generated when Bind Parameters are Used in Query

```
<adapter-config name="rightnowReferencePortType" adapter="rightnow"
```



```
wsdlLocation="../../../WSDLs/rightnowReference.wsdl" xmlns="http://
platform.integration.oracle/blocks
  /adapter/fw/metadata">
  <connection-factory location=
    "cloud/CloudAdapter">
    <non-managed-connection managedConnectionFactoryClassName="oracle.cloud.connector.
      rightnow.
        RightNowConnectionFactory">
      <property name="targetWSDLURL"
        value="../../../WSDLs/soap.wsdl"/>
      <property name="csfkey" value="csf21"/>
      <property name="appID"
        value=
          "removeWhenAppIdIsHardcodedByRNPlugin"/>
      <property name="applicationVersion" value="1_2"/>
    </non-managed-connection>
  </connection-factory>
</endpoint-interaction
  portType="rightnowReferencePortType"
  operation="Get">
<interaction-spec className="oracle.tip.adapter.cloud.
  CloudInteractionSpec">
  <property name="targetOperation" value="Get"/>
  <property name="operationPath" value="Get"/>
  <property name="gpo.fetchAllNames" value="false"/>
</interaction-spec>
</endpoint-interaction>
</adapter-config>
```

Once queries are parameterized, the Oracle RightNow adapter enables its consumers to pass in the query parameters as part of the request payload.

The adapter dynamically substitutes the query parameter from the request payload to reconstruct the ROQL query with arguments during service invocation.

Thus, by using the adapter to easily define query parameters, you can parameterize query arguments and dynamically inject these parameters at runtime.

4

Understanding Oracle RightNow Adapter Advanced Concepts

This chapter describes the design-time and runtime advanced capabilities of the Oracle RightNow adapter.

This chapter contains information on the following features:

- [Understanding the SOAP API](#)
- [Handling the Polymorphic Behavior of Oracle RightNow Cx Schema](#)
- [Integrating with Custom Objects in the Cloud](#)
- [Understanding Oracle RightNow Adapter Security Management](#)
- [Oracle RightNow Adapter Test Functionality](#)
- [Oracle RightNow Adapter Limit and Restriction Handling](#)

Understanding the SOAP API

The Oracle RightNow adapter requires a connection to enable you to perform operations on business objects. In addition to operations on business objects, the RightNow API model also includes a definition of the types of transactions used when the Oracle RightNow adapter communicates with RightNow Cx.

Understanding Objects

There are two types of objects upon which the Oracle RightNow adapter enables you to perform actions:

- **Standard business objects.** These are objects delivered by the Oracle RightNow SaaS application. Primary objects are objects with a unique ID (primary key) which can be directly created, read, updated, and deleted. All primary objects inherit from the RightNow RNObject. Primary objects have no set lifecycle in the Oracle RightNow Cx platform, meaning that once the objects are created, they exist in the system until they are deleted. While primary objects have their own life cycle, sub objects that could be anywhere between 0 to many for a single primary object, live within the context of primary objects. Hence, their life cycle is based on the life cycle of the primary object. The exact lifecycle behavior for objects can be obtained from the relationship information contained in the metadata or in the object model documentation.
- **Custom business objects.** A custom business object is an object that has been created by a customer. It can be modeled after any standard object, or it can be entirely unique. When created, custom objects are treated and act just like standard, primary objects. The only difference between the standard objects and custom objects is in the name of the object that is used. For the primary objects, you can use the name of the class such as 'Contact'. For custom objects, you can use the combination of the package name and custom object name to uniquely identify the custom object. The package name and object name are joined by a '!'. For example, if there was a custom object package called

'CO' and a custom object named `PurchasedProduct` you would reference this object as `CO$PurchasedProduct`.

Understanding Transactions

The RightNow adapter supports the message exchange patterns supported by RightNow SaaS application. It is a synchronous request - response based message exchange pattern. The BPEL / OSB application makes a synchronous request to RightNow adapter and waits for a response. The adapter in turn does the necessary transformation on the same thread before making a synchronous request to RightNow Cx Server using the RightNow SOAP API.

The response returned by RightNow application after necessary processing is in turn received by the calling thread. The adapter performs the transformation before sending the response back to BPEL / OSB based client application.

Every operation that writes to RightNow Cx object, such as create or update is, by default, committed. Batch Operation does enable the integration developer to override the default. For more information about batching support, see [Using the Batching Feature](#).

Handling the Polymorphic Behavior of Oracle RightNow Cx Schema

Oracle Cloud Connect Web Services for SOAP defines a number of operations which either accept or return one or more instances of `RNObject` (which is the Base class for all primary RightNow object classes).

This feature enables the same operations to behave in a polymorphic manner, in which the input and return values can be any instance of a derived class of `RNObject`.

This feature accomplishes this behavior by passing in subclass instances from program language bindings, and also through the use of the `xsi:type` attribute in the serialized XML for the object. The `xsi:type` specifies the concrete type that is being substituted in the element with the type `RNObject`. This behavior enables developers working with Oracle Cloud Connect Web Services for SOAP to work with any type of object that inherits from the base class, `RNObject` and to pass this object into any operation that expects an instance of `RNObject`. In addition, developers can cast returned instances of `RNObject` to the appropriate subclass. For more information on polymorphic behavior, see *Oracle Service Cloud Connect Web Services for SOAP*.

Due to this polymorphic nature, mapping from source object to target object user experience is somewhat complex for standard objects that inherit `RNObject`. For custom objects and custom attributes, it is more complex.

The Oracle RightNow adapter elevates the element definitions as first-class citizens for standard objects, custom objects and custom fields, reducing the number of steps you must perform to create complex transformations and simplifying your experience mapping source to target definitions.

Example: Mapping A Custom Object

Following is a sample of a mapping experience of a custom object with and without Oracle RightNow adapter. The example might not be typical, but it helps you

understand the mapping experience and the differences between doing so with and without the Oracle RightNow adapter.

One example shows mapping an Oracle RightNow custom object without using an Oracle RightNow adapter. The second example shows the same mapping, the difference being that the second example is greatly simplified; the adapter simplifies the process.

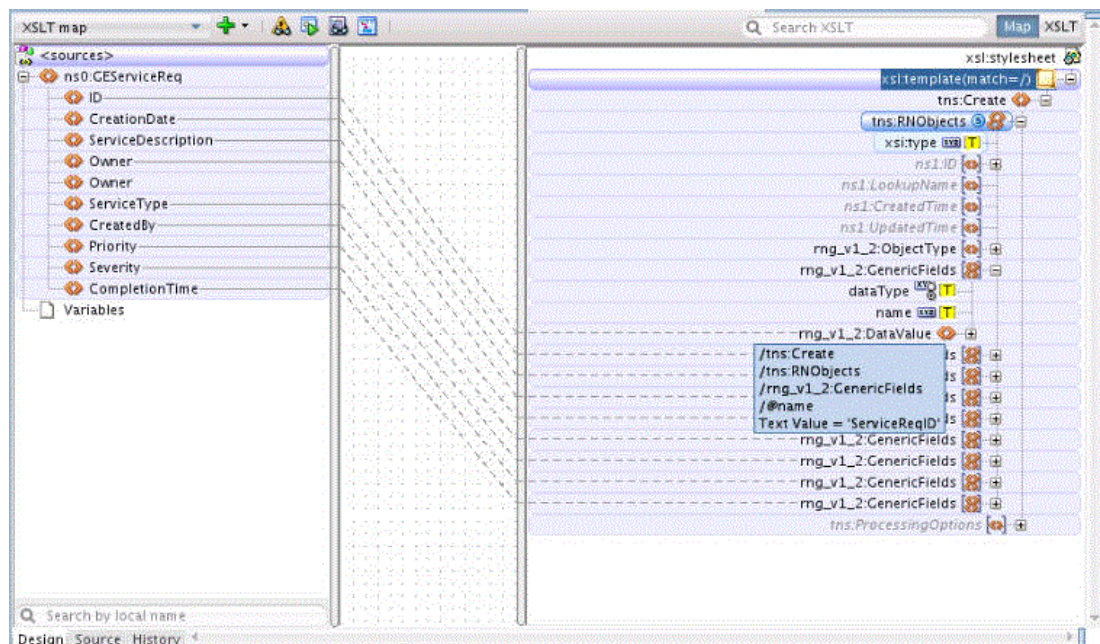
Example: Mapping an Object without Using an Oracle RightNow Adapter

This section provides information about creating a custom object instance without using the Oracle RightNow adapter. In this scenario, you create a SOA Composite and use the Web Service adapter to create a client for RightNow Service. The steps follow that are required when you create a data mapping using XSLT mapper from a client source schema to a custom object schema.

See [Figure 4-1](#).

1. In the XSLT editor, on the target schema node **RNObject**, right-click and select **Substitution Type or Element** then choose **Generic Object**.
2. Set **Object ObjectType**->**Type**: Value of the RightNow CustomObject Name created in RightNow.
3. Set **GenericFields**->**data**: Data type value of the custom attribute. for example, STRING, or INTEGER.
4. Set **GenericFields**->**name**: name of the custom attribute.
5. Set **GenericFields**->**DataValue**->**StringValue**: Value of the attribute.

Figure 4-1 Using XSLT Mapper to Map a RightNow Custom Object for the Schema without Using the Oracle RightNow Adapter-Generated WSDL



The source view is:

Figure 4-2 Sample XSL File in Source Mode

```

<xsl:template match="/">
  <tns:Create>
    <tns:RNOjects xsi:type="rng_v1_2:GenericObject">
      <rng_v1_2:ObjectType>
        <rng_v1_2:TypeName>GECustomServiceReq</rng_v1_2:TypeName>
      </rng_v1_2:ObjectType>
      <rng_v1_2:GenericFields dataType="STRING" name="ServiceReqID">
        <rng_v1_2:DataValue>
          <rng_v1_2:StringValue>
            <xsl:value-of select="/ns0:GEServiceReq/ID"/>
          </rng_v1_2:StringValue>
        </rng_v1_2:DataValue>
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="STRING" name="ServiceReqCreationDate">
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="STRING" name="ServiceReqDescription">
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="STRING" name="ServiceReqOwner">
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="STRING" name="ServiceReqType">
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="STRING" name="ServiceReqCreatedBy">
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="INTEGER" name="Priority">
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="INTEGER" name="Severity">
        <rng_v1_2:DataValue>
          <rng_v1_2:IntegerValue>
            <xsl:value-of select="/ns0:GEServiceReq/Severity"/>
          </rng_v1_2:IntegerValue>
        </rng_v1_2:DataValue>
      </rng_v1_2:GenericFields>
      <rng_v1_2:GenericFields dataType="DATE" name="ExpectedTimeOfCompletion">
        <rng_v1_2:DataValue>
          <rng_v1_2:DateValue>
            <xsl:value-of select="/ns0:GEServiceReq/CompletionTime"/>
          </rng_v1_2:DateValue>
        </rng_v1_2:DataValue>
      </rng_v1_2:GenericFields>
    </tns:RNOjects>
  </tns:Create>
</xsl:template>

```

Example: Mapping an Object with the Oracle RightNow Adapter

This section provides information about creating a custom object instance with the Oracle RightNow adapter. You create a SOA Composite and use the Web Service adapter to create a client for an integration-friendly Oracle RightNow adapter-generated WSDL.

Use the following steps to create the data mapping using the XSLT mapper from a client source schema to a custom object schema (the schema is strongly typed and referred from the integration-friendly WSDL generated by the Oracle RightNow adapter). The custom object is a first class entity in generated Local WSDL Map the fields directly in the mapper as shown below.

Integrating with Custom Objects in the Cloud

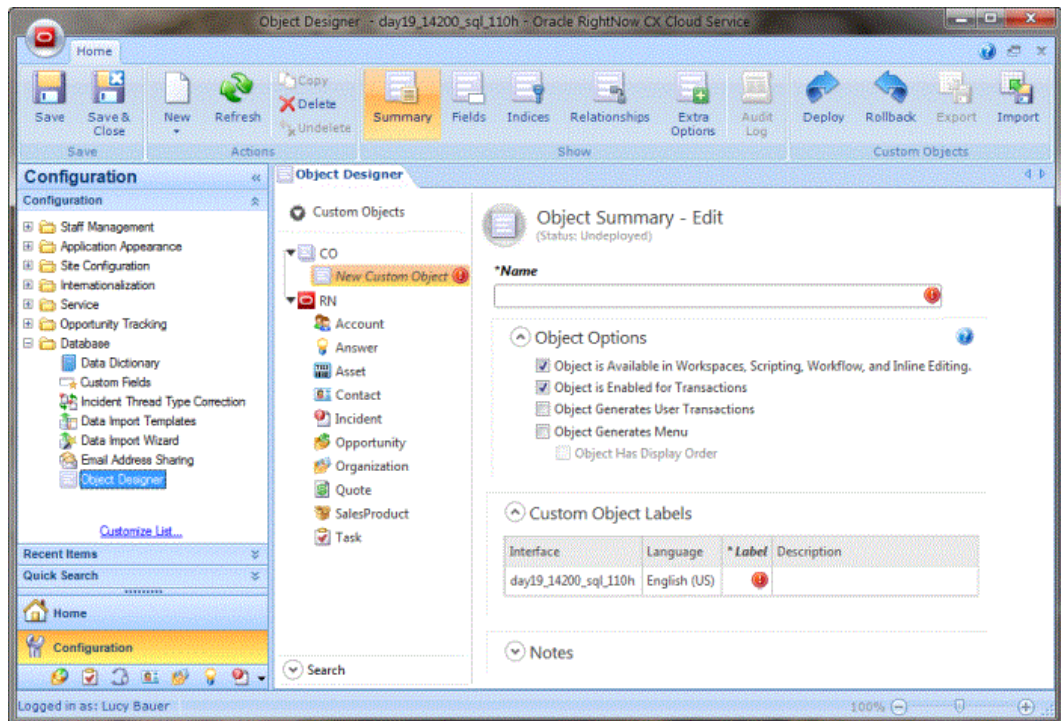
A custom object is an object that has been created by a customer. It can be modeled after any standard object, or it can be entirely unique. It can either be a standalone object or it can be the child of an existing standard object.

Creating Custom Objects in the RightNow Cx Server

Follow these instructions to create custom objects in the RightNow Cx server.

1. Log in to the Oracle RightNow Cx client, and follow instructions in [Configuring Restricted Access Permissions on RightNow Cx](#).
2. Click **Configuration** on the navigation pane.
3. Double-click **Object Designer** under Database. The object designer opens on the content pane.
4. Select a package to which you want to add the custom object, or create a new package for the object by clicking **New** on the ribbon and selecting **Package**. Enter the name you want for the package. Package names must be between two and eleven characters in length.
5. Click **New** on the ribbon and select **Object**. The **Object Summary** page displays.

Figure 4-3 Object Summary Page



6. Enter a name for the object in the **Name** field.
7. Click **Fields** on the ribbon to add predefined or customized fields to the object and add custom fields. For additional information, see the *Oracle RightNow Connect Web Services for SOAP* documentation.

8. Click the **Save** and **Close** button on the ribbon to save changes to the custom object. RightNow performs a validation when either the **Save** or **Save and Close** buttons are clicked. Any validation errors, such as a missing field name, display in a message and must be corrected before the object can be saved.
9. Deploy the custom objects when you are ready.

Selecting Custom Objects to Perform Operations

Once a custom object has been created, you can select the object against which to perform operations on the Operations page.

Once you select the custom object, an Integration-friendly WSDL is generated with custom object schema in strongly typed format. A non-normative sample of the generated custom object schema is shown in [Figure 4-4](#).

Figure 4-4 Example of a Custom Object Schema

```
<xs:schema xmlns="C0" elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="C0" xmlns:ns3="C0" xmlns:ns5="urn:base.ws.rightnow.com/v1_2">
  <xs:import namespace="urn:base.ws.rightnow.com/v1_2"/>
  <xs:complexType name="CustomRightNow">
    <xs:complexContent>
      <xs:extension base="ns5:RNObject">
        <xs:sequence>
          <xs:element name="Age" type="xs:integer" nillable="true" minOccurs="0" maxOccurs="1"/>
          <xs:element name="Department" type="xs:string" nillable="true" minOccurs="0"
            maxOccurs="1"/>
          <xs:element name="EmployeeName" type="xs:string" nillable="true" minOccurs="0"
            maxOccurs="1"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
<xs:schema xmlns="http://xmlns.oracle.com/pcbpe1/adapter/rightnow/Application1/Project1/rightnowReference"
  elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="http://xmlns.or
  xmlns:ns2="http://xmlns.oracle.com/pcbpe1/adapter/rightnow/Application1/Project1/rightnowReference"
  xmlns:ns6="C0">
  <xs:import namespace="C0"/>
  <xs:element name="Create" type="ns2:CreateType"/>
  <xs:complexType name="CreateType">
    <xs:sequence>
      <xs:element name="CustomRightNow" maxOccurs="unbounded" minOccurs="0" type="ns6:CustomRightNow"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="CreateResponse" type="ns2:CreateResponseType"/>
  <xs:complexType name="CreateResponseType">
    <xs:sequence>
      <xs:element name="CustomRightNow" maxOccurs="unbounded" minOccurs="0" type="ns6:CustomRightNow"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

Understanding Oracle RightNow Adapter Security Management

The Oracle RightNow adapter uses the Credentials Store Framework to store credentials captured during the configuration of connections within the Oracle RightNow adapter configuration wizard. This ensures that the credentials captured

during configuration are stored in secured form and are not stored with the SOA Composite or Oracle Service Bus flow.

At runtime, the adapter automatically retrieves the credentials from the Credentials Store Framework based on the CSF_KEY that was specified during design time. These credentials are injected into the SOAP header of the document that is sent to the RightNow Cx Server for authentication.

Authenticating on the Oracle RightNow Cx Server with Account Passwords

The following section provides information about authenticating on the Oracle RightNow Cx Server with account passwords. This section includes:

- [Understanding Access Control on the Oracle RightNow CX Server](#)
- [Configuring Restricted Access Permissions on RightNow Cx](#)

Understanding Access Control on the Oracle RightNow CX Server

When the Oracle Cloud Connect Web Services for SOAP API receives a request, a series of access control measures are enforced:

1. The site configuration is checked to ensure the API has been enabled at a site level.
2. The user credentials supplied in the request are validated.
3. The profile for the supplied account is checked to ensure the correct profile bit is enabled. The profile is the mechanism for controlling access to administrative functions and for assigning staff members specific permissions, default workspaces, a default navigation set, and report access.

Note:

Server-side access control is enforced on all core API calls made by Oracle Cloud Connect Web Services for SOAP. The current permissions map to read, edit, delete, and move check boxes on the Profile Permissions editor in Oracle RightNow. Although server-side access is enabled by default on new May 2013 sites and later, it is disabled on upgraded sites before the May 2013 release. If you are an existing Oracle RightNow customer and plan to upgrade your site to a May 2013 or later build, contact customer care to have this security-enhancing functionality enabled.

If you already have server-side access control enabled on your site, be careful of changes you make to Profile permissions. If an Oracle RightNow administrator changes the permissions on a profile for an Oracle Cloud Connect Web Services for SOAP integration, they might break that integration.

Oracle Cloud Connect Web Services for SOAP Site Configuration

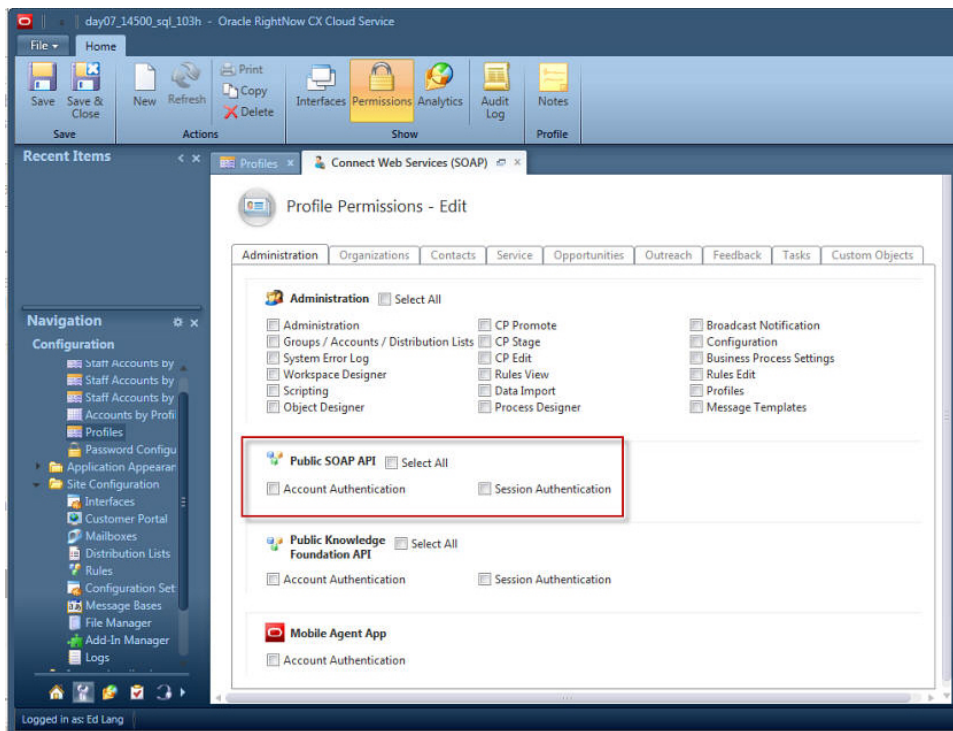
Access to the Oracle Cloud Connect Web Services for SOAP is available only on those sites that have it enabled. If Oracle Cloud Connect Web Services for SOAP is not enabled, contact your Oracle account manager, as the API will not function and a request error will be returned.

Request errors are generated any time there is a validation failure or a data related error of the inbound request. The exception code will be `ACCESS_DENIED` and the message will be the message base string for `SOAP_SERVER_DISABLED`.

For complete information on request errors and exception codes, see *Oracle Connect Web Services for SOAP*.

Before staff accounts can be authenticated through Oracle RightNow Cx, their profile(s) must be updated on the **Profile Permissions** editor in Oracle RightNow Cx. The permissions check boxes are located at **Staff Management > Profiles > Permissions**.

Figure 4-5 Location of Permissions Checkboxes



In addition, RightNow Cx administrators can restrict access to Oracle Cloud Connect Web Services for SOAP integrations by IP address using the configuration settings in the Oracle RightNow Cx platform. The following setting is located at **Site Configuration > Configuration Setting**.

- `SEC_PAPI_INTEG_HOSTS_SOAP`: Defines which hosts are allowed to access the SOAP interface. Valid entries include a comma-separated list of domain names with wild cards, specific IP addresses, or IP subnet masks (for example, `*.rightnow.com,1.2.3.4, 10.11.12.0/255.255.255.0`).

Only users logging in from hosts matching entries in this list are allowed access to the SOAP interface. The default is blank.

Configuring Restricted Access Permissions on RightNow Cx

To configure restricted access permissions:

1. Install the Oracle RightNow Cx client.
2. Log in to the Oracle RightNow Cx client installed on your workstation. You can immediately begin configuring and customizing the application.

To access the same site in the future, you can launch the client by selecting **Start menu > All Programs > RightNow > RightNow (<site_name>)**. The client application is site-based, meaning that a separate client must be deployed for each site you access.

However, a single client application can be used to access all interfaces on a single site. Interfaces are added to the client in the same way the client is deployed.

Access the interface's Launch page and click the **Install Oracle RightNow CX Cloud Service** button (as described in the *Oracle RightNow Cx User's Guide*), and the deployment tool adds the interface to the Interface drop-down menu on the client's Login window.

3. Configure the `SEC_PAPI_INTEG_HOSTS_SOAP` setting. Refer to the *Oracle RightNow Cx User's Guide*.

Validating Account Credentials

When a request is sent to the API and the site configuration has been validated, the next step is to validate the account credentials. If the credentials do not verify, a request error is returned. The exception code will be `INVALID_LOGIN`, and the message will be the message base string `LOGIN_ID_PASSWD_COMBINATION_INV_MSG`.

Profile Configuration

The profile for the staff account which is used in the security header must have the Public SOAP API profile bit enabled. If this bit is not enabled, a request error is returned. The exception code will be `ACCESS_DENIED`, and the message will be the message base string `PROFILE_NO_SOAP_ACCESS_MSG`.

Password-based Authentication

Oracle Cloud Connect Web Service for SOAP utilizes Web Services Policy 1.2 is defined by <http://specs.xmlsoap.org/ws/2004/09/policy/ws-policy.pdf> for client authentication.

The supporting XSD for the security policy is located at <http://schemas.xmlsoap.org/ws/2004/09/policy/ws-policy.xsd>.

To authenticate with single sign-on, refer to *Authenticating with SAML 2.0*.

The WS-Security specification calls for a Security tag in the SOAP Header with a namespace of

<http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd>.

Inside the `Security` tag is a `UsernameToken` tag (part of the WS-Security UsernameToken Profile 1.0 specification). The `UsernameToken` tag contains elements for `Username`, `Password`, `Nonce`, and `Created`. The `Password` element has a `Type` attribute which specifies if the content of the `Password` element is `PasswordText`. Oracle Cloud Connect Web Services for SOAP does not support `PasswordDigest`.

The `Nonce` and `Created` elements are not supported. If a request is received that contains the `PasswordDigest` type or the `Created/Nonce` elements, the server rejects the request as a malformed request.

The following is an example SOAP request with username and password credentials:

Example 4-1 Example SOAP Request with Username and Password Credentials

```
soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      soapenv:mustUnderstand="1">
      <wsse:UsernameToken
        xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
        wsu:Id="UsernameToken-3902281">
        <wsse:Username>comland</wsse:Username>
        <wsse:Password Type=
          "http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0
            #PasswordText">Connect1</wsse:Password>
        </wsse:UsernameToken>
      </wsse:Security>
    </soapenv:Header>
  </soapenv:Envelope>
```

Oracle RightNow Adapter Test Functionality

Test functionality is a distinctive feature of the Oracle RightNow adapter that is available in two forms.

One form enables you to test the connection parameters. The second form enables you to validate and execute a ROQL query.

The section below provides more information about these two features.

Design-Time Test Functionality Details

Design-time test functionality includes the following test features:

Note:

Ensure that you set up proxy settings in Oracle JDeveloper to connect to the external SaaS application URL. Otherwise, time out errors can occur.

- **Test Right Now CX Cloud Connection:** There is a **Test** button on the Connection page of the Oracle RightNow adapter configuration wizard.
By clicking **Test**, you receive either of the following messages:
 - Success! - For successful connection
 - Failure! - For any exception during login
- **Query Test Tool:** This tool runs and tests your queries. When you select **ROQL** on the Operations page of the Oracle RightNow adapter configuration wizard, a

test dialogue box appears with a **Query Statement** text box and a **Results** box for showing the query result.

Oracle RightNow Adapter Limit and Restriction Handling

The following limits and restrictions apply to this adapter. They include:

- [Delete-Cascading Delete Effect](#)
- [API Limits Enforced by the RightNow Cx Server](#)

Delete-Cascading Delete Effect

There is a cascading delete effect when using Oracle RightNow adapter for a Destroy Delete operation.

Primary objects are deleted directly through the Delete operation. To destroy a primary object, an instance of the object must be instantiated and the ID property set, but no other fields require population. When a primary object is deleted, this operation may also "cascade" to related primary objects.

For additional information on cascading delete effects, and a summary of aggregations that will cause a cascading delete effect, see the *Oracle RightNow Connect Web Services for SOAP Developer Guide*.

API Limits Enforced by the RightNow Cx Server

While usage of Oracle Cloud Connect Web Services for SOAP is unlimited, there are practical limits which are enforced by the RightNow Cx server.

There are two important limits relevant to the use of the Oracle RightNow adapter:

- **100 Batch items per SOAP request.** The Batch operation enforces a hard limit of 100 items. If this limit is exceeded, a fault is returned before completing any operations. If the limit is exceeded, batch items are not processed.
- Each individual Create, Get, Update, and Destroy operation is limited to 1000 items. RightNow Cx server checks the number of items in the request at the beginning and if the number of items is more than 1000, or if the number of items causes the combined summation of items to exceed the request maximum, RightNow Cx server throws an exception and does not process the request.
- **10,000 total input objects per SOAP request.** The combination of the multi-object Create, Get, Update and Destroy operations and the Batch operation is limited to 10,000 total input objects per SOAP request. RightNow Cx keeps a running total of objects which is managed by Create, Get, Update, and Destroy operations. Each time one of the bulk operations occurs, the number of items is added to the total number of objects processed in the request.

The processing of the Batch operations occurs until the limit of 10,000 objects is reached. Once reached, the operation causing the 10,000 limit will be terminated and a fault returned. Operations contained within the Batch request that do not contain input objects will continue to execute.

These three limits (100, 1000, 10000) are treated independently. Some operations affect both the bulk limits and the total operation limits (for example, Create, Get, Update, and Destroy).

For additional information, see the see the *Oracle RightNow Connect Web Services for SOAP Developer Guide*.

5

Understanding BPEL Integration with Service Components (BPEL/Mediator)

This chapter includes these sections:

- [Overview](#)
- [Designing a Composite for Service Integration](#)
- [Configuring the Oracle RightNow Adapter](#)
- [Integrating with BPEL](#)
- [Deploying the Composite](#)
- [Testing the Composite](#)

Overview

To integrate with Oracle BPEL Process Manager, the organization's enterprise WSDL must be available to the user. The underlying adapter services are exposed as WSDL files, which are generated during design time in the configuration wizard of the Oracle RightNow adapter.

Use the generated WSDL files to design the appropriate BPEL processes for outbound adapter services. A completed BPEL process must be successfully compiled in JDeveloper and deployed to an SOA Suite server. Upon deployment to a SOA Suite server, each newly-deployed process is viewable in the Oracle Enterprise Manager Fusion Middleware Control, where you can run, monitor, administer BPEL processes, and monitor adapter events.

Understanding the Account Object

You create an Account object and integrate the WSDL with the Oracle BPEL Process Manager. Account is one of the standard objects provided by RightNow, an account generated for a staff member in the RightNow Cx system. Customer service representatives, sales agents, and site administrators use Accounts.

Specifically, an Account object on RightNow Cx represents an individual or business associated with the business.

The Oracle RightNow adapter enables you to create an Account object on RightNow Cx.

Designing a Composite for Service Integration

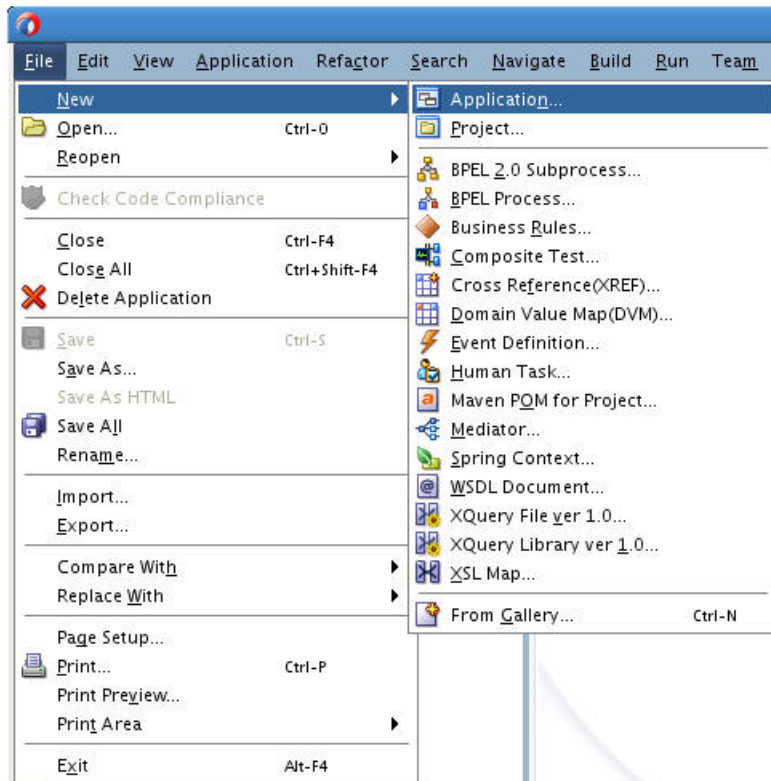
The next steps detail how to design a composite using the Oracle JDeveloper Studio Edition, a comprehensive tool for developing Oracle Fusion Middleware applications. It provides an easy-to-use Integrated Development Environment that enables you to create your integrations efficiently.

Defining a Composite for BPEL and Mediator

To define a composite for BPEL and Mediator:

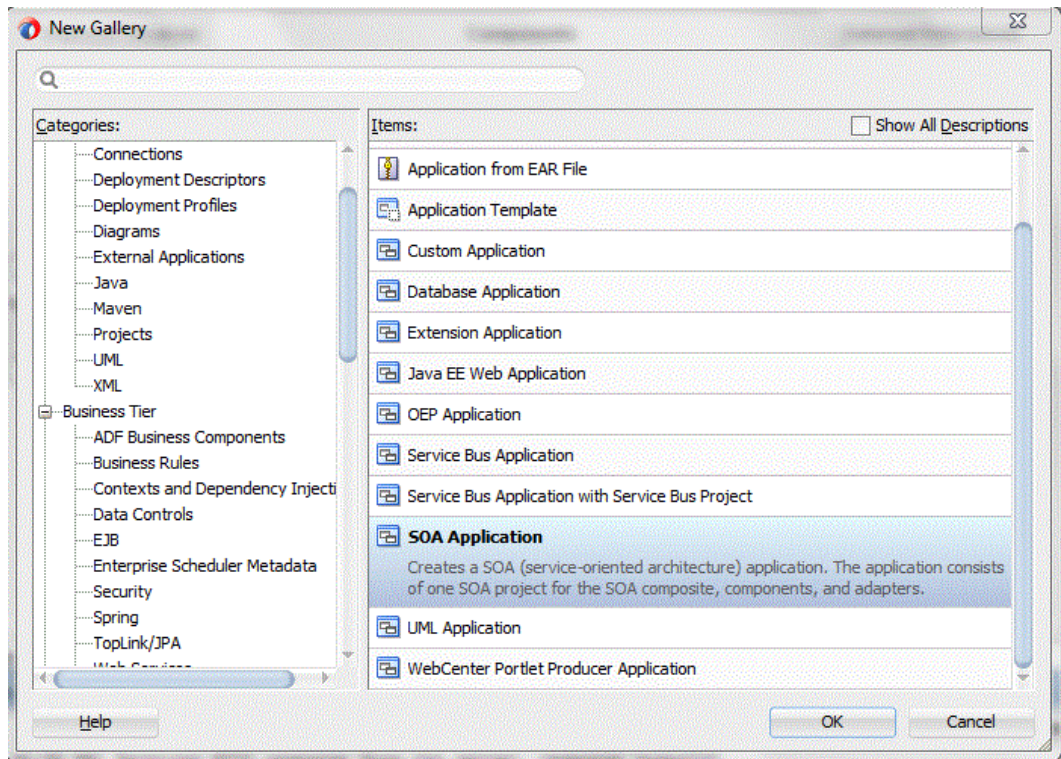
1. In the File menu of JDeveloper, click **New** and select **Application**.

Figure 5-1 Navigation



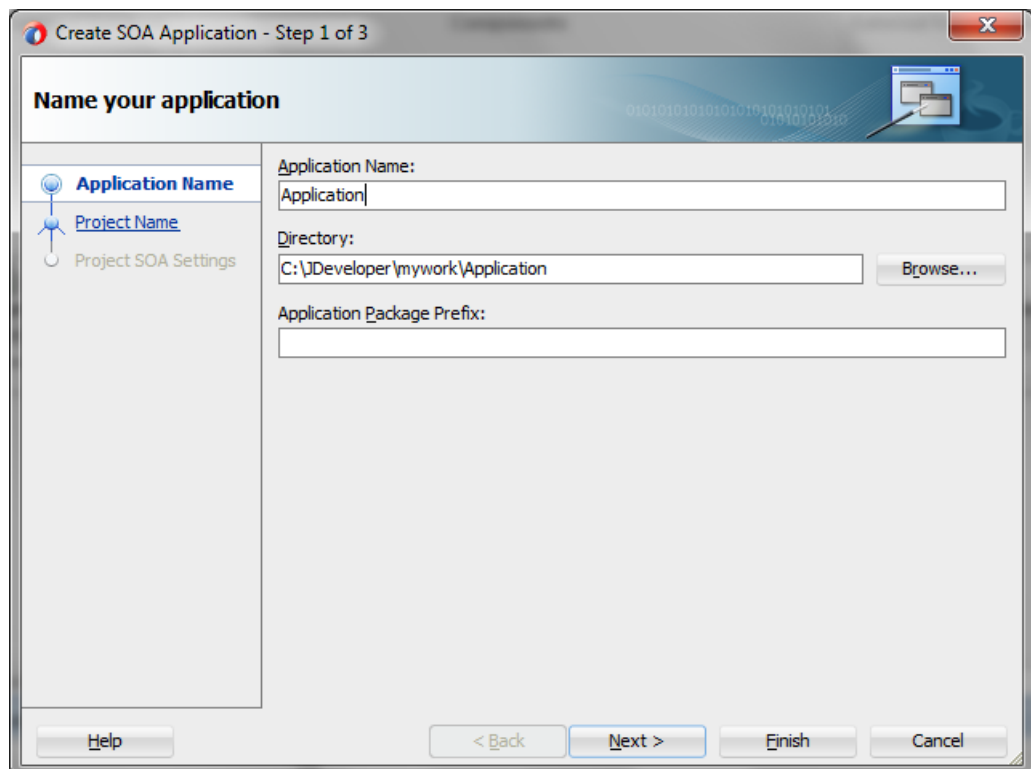
JDeveloper displays the **New Gallery** page. Select **SOA Application** from the **Items** list.

Figure 5-2 Create SOA Application



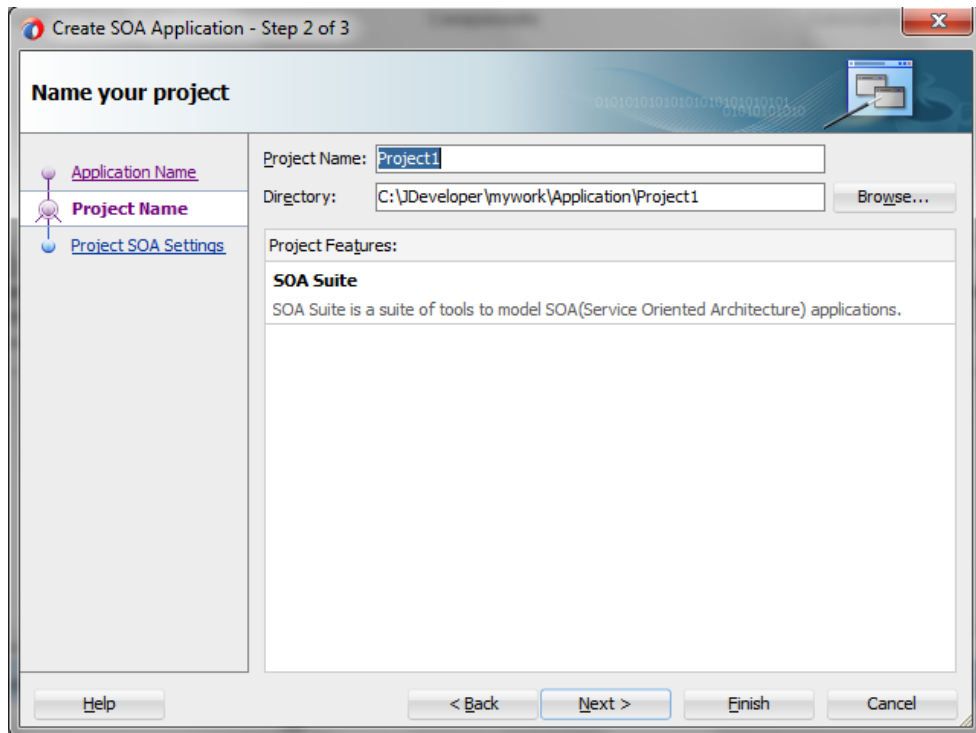
2. Provide a suitable name to your application.

Figure 5-3 Name Your Application



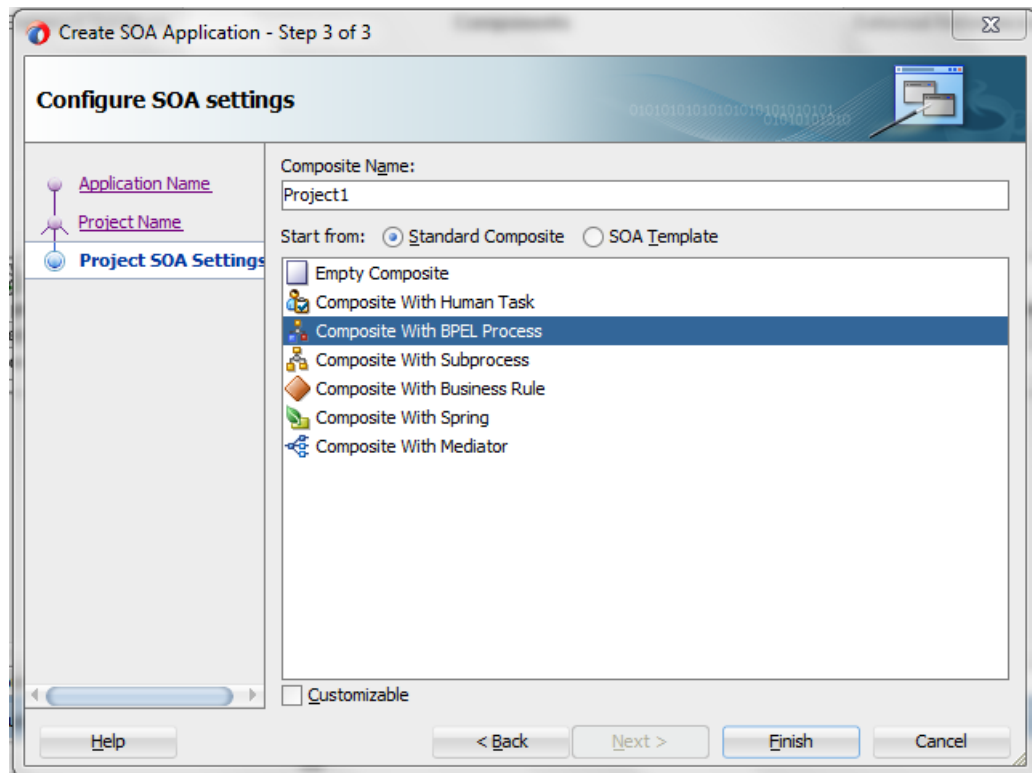
3. Click **Next** and provide a suitable name to your project.

Figure 5-4 Provide a Name for Your Project



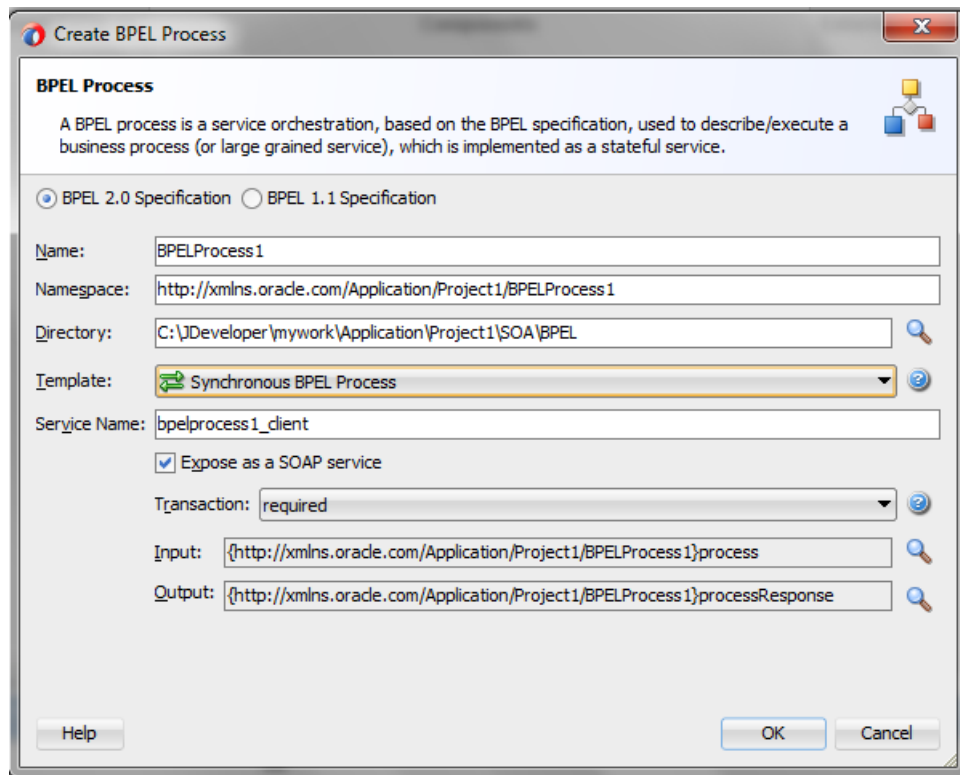
4. Click **Next**.
5. Select **Composite With BPEL Process** from the **Standard Composite** list.

Figure 5-5 Configure SOA Settings



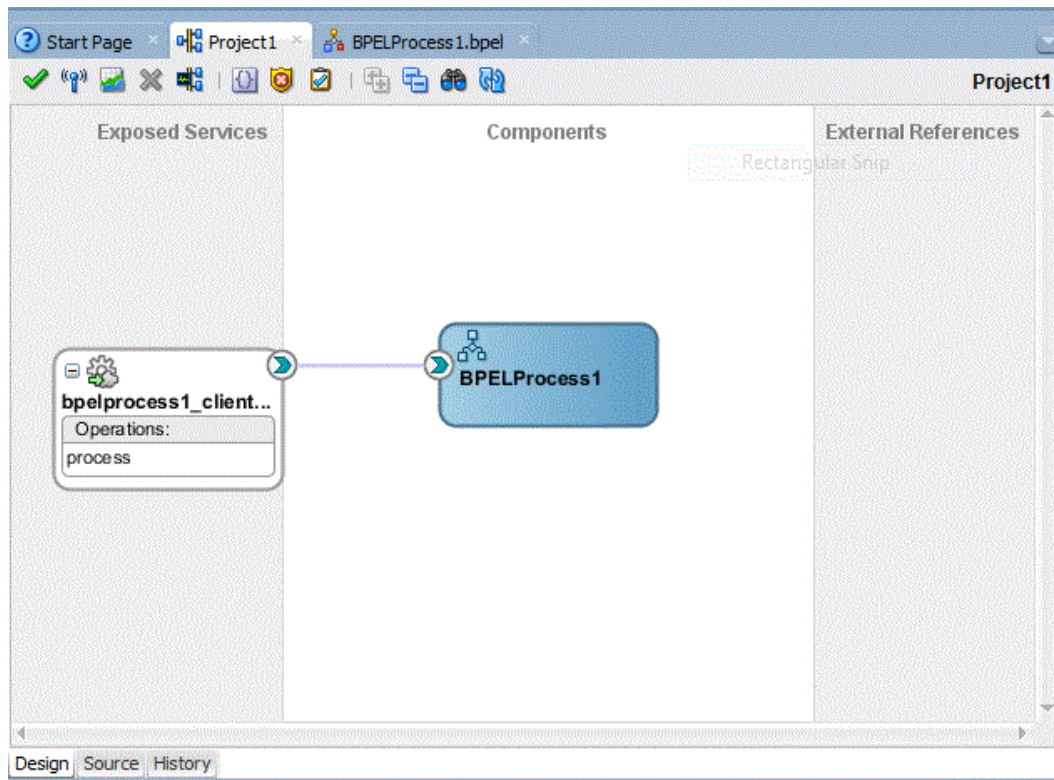
6. Click **Finish**.
7. Select the **Synchronous BPEL Process** from the **Template** drop-down list and click **OK**.

Figure 5-6 Create BPEL Process



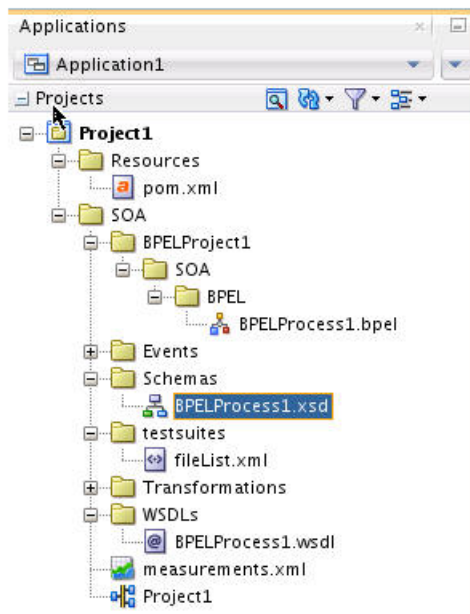
The composite.xml file appears.

Figure 5-7 composite.xml File



8. In the Application Navigator, under the **Schemas** folder, Oracle JDeveloper displays an XML schema file with the name `BPELProcess1.xsd` after BPEL process creation.

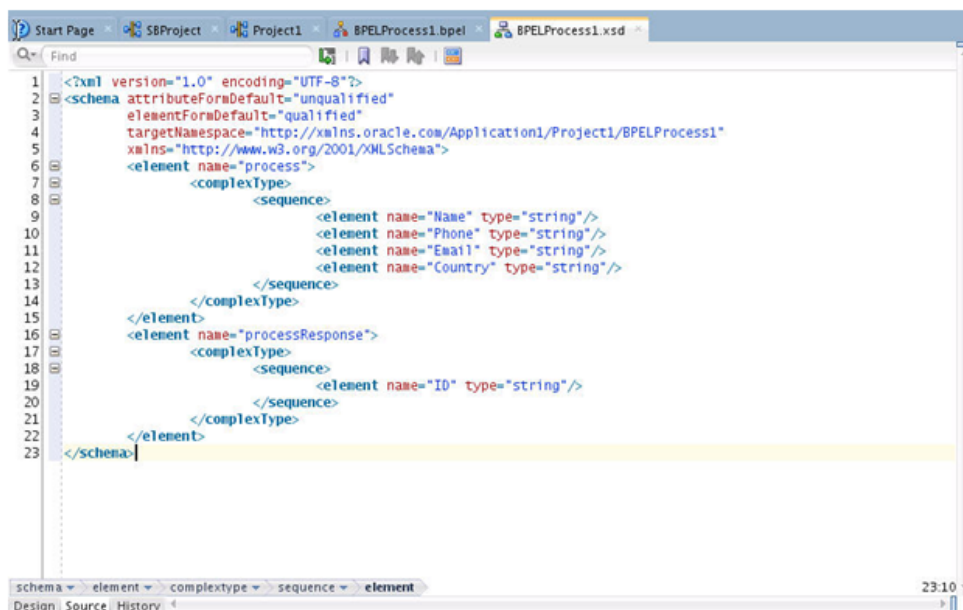
Figure 5-8 XML Schema File



9. Edit this schema file as your business needs require. It is the responsibility of the front-end application to enforce data validations and to ensure that the input sent to the Oracle RightNow Cx Server from SOA is error-free.

The structure of the schema used in this use case is as shown below.

Figure 5-9 Edit XML Schema File



```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <schema attributeFormDefault="unqualified"
3       elementFormDefault="qualified"
4       targetNamespace="http://xmlns.oracle.com/Application1/Project1/BPELProcess1"
5       xmlns="http://www.w3.org/2001/XMLSchema">
6   <element name="process">
7     <complexType>
8       <sequence>
9         <element name="Name" type="string"/>
10        <element name="Phone" type="string"/>
11        <element name="Email" type="string"/>
12        <element name="Country" type="string"/>
13      </sequence>
14    </complexType>
15  </element>
16  <element name="processResponse">
17    <complexType>
18      <sequence>
19        <element name="ID" type="string"/>
20      </sequence>
21    </complexType>
22  </element>
23 </schema>
```

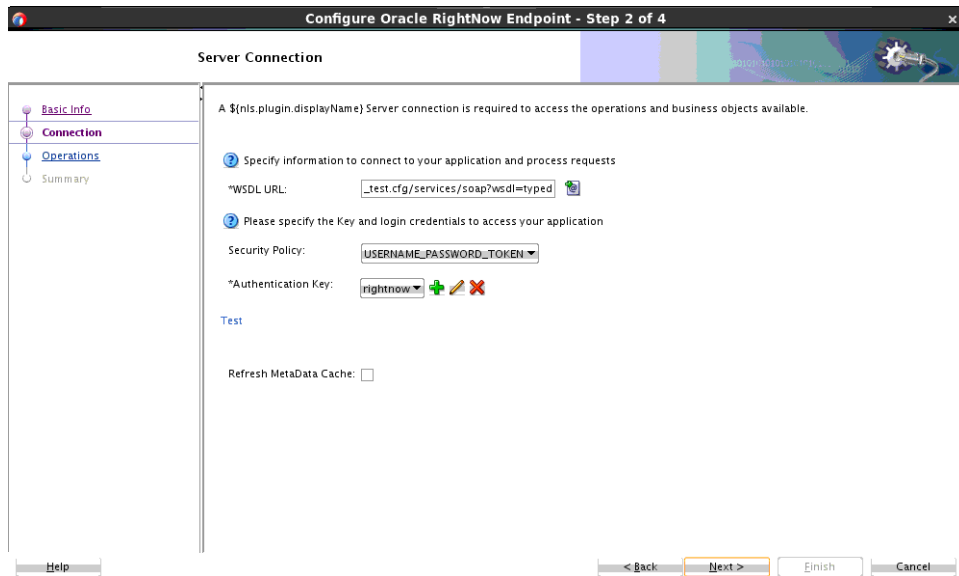
Configuring the Oracle RightNow Adapter

To configure a new Oracle RightNow adapter:

Note:

If the Localize Files dialog is displayed during adapter configuration, click **Cancel**. You cannot localize the WSDL file.

1. In the **External References** swimlane of the `composite.xml` file, right-click and select Oracle RightNow Adapter.
2. Oracle JDeveloper displays the Basic Info screen.
3. Enter a meaningful name and optional description.
4. Click **Next**.
5. JDeveloper displays the Connection page. You must provide the WSDL URL/ location, security policy, and authentication key details.



6. Select the WSDL:

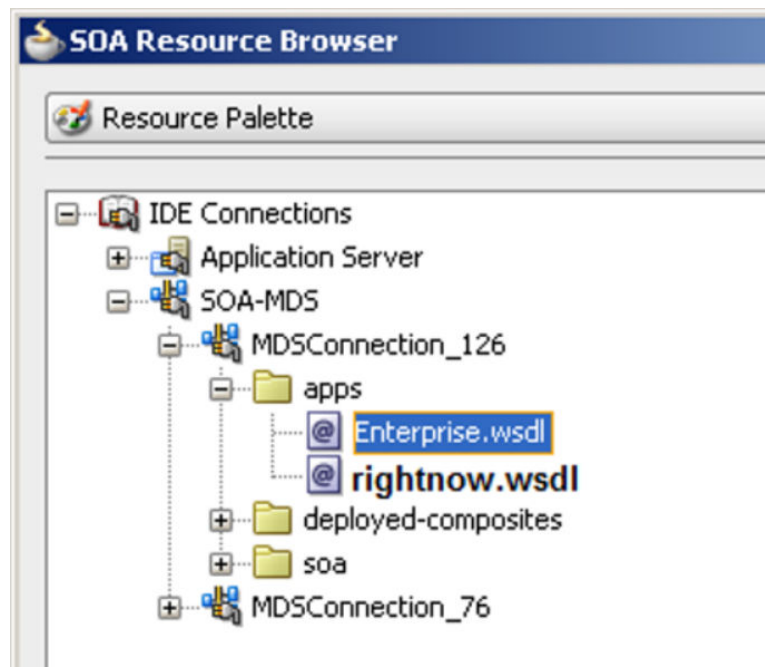
- If you have the WSDL available in the file system, click the **Find existing WSDLs** icon, located to the right of the WSDL on the screen. JDeveloper displays the **WSDL Chooser** dialog. Browse and select the downloaded Enterprise WSDL and click **OK**.

7. Click **OK**.

8. Click **OK**. You are returned to the Connection page.

9. As an alternative, you can store WSDL at an MDS location and access it. The next screenshot shows you storing the WSDL at an MDS location.

Figure 5-10 Storing WSDL at an MDS Location



10. Navigate to **IDE Connections-> SOA-MDS**. Select the appropriate SOA-MDS connection where you placed the Enterprise WSDL. Select the WSDL file to be used in the adapter configuration and click **OK**.

11. Ensure that the WSDL is of the form:

```
oramds:/apps/SOA/WSDLs/Integration/rightnowAPI.wsdl
```

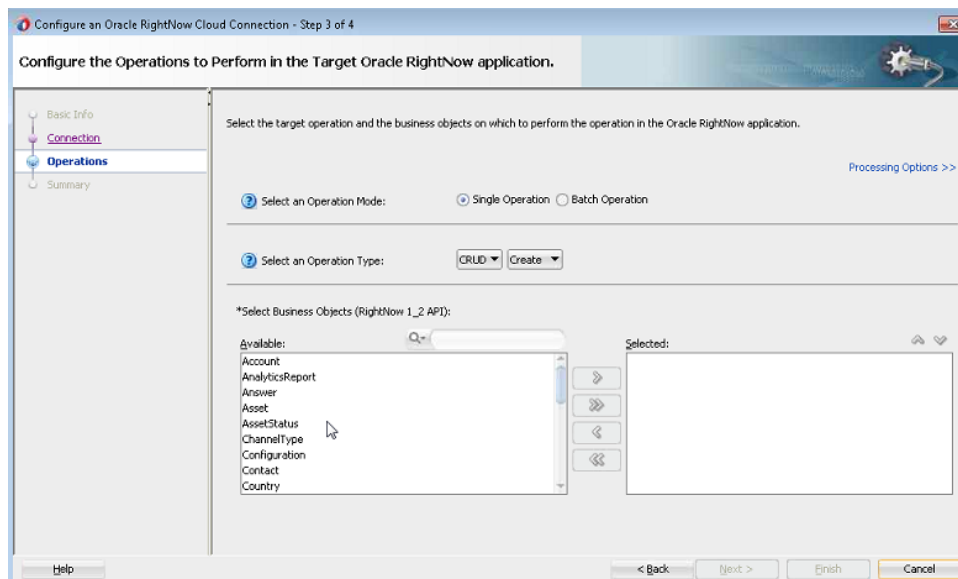
An alternative is to directly provide the https URL:

```
https://integration-test.rightnowdemo.com/cgi-bin/integration_test.cfg/services/soap?wsdl
```

12. Click **OK**.
13. Click "+" button to create a new Authentication Key.
14. Provide a suitable name and the Right Now credentials and click **OK**.
15. Click **the Test** button to validate the Authentication Key.
16. Click **Next**.

Oracle JDeveloper displays the Operations page.

Figure 5-11 Oracle RightNow Adapter Operations Screen



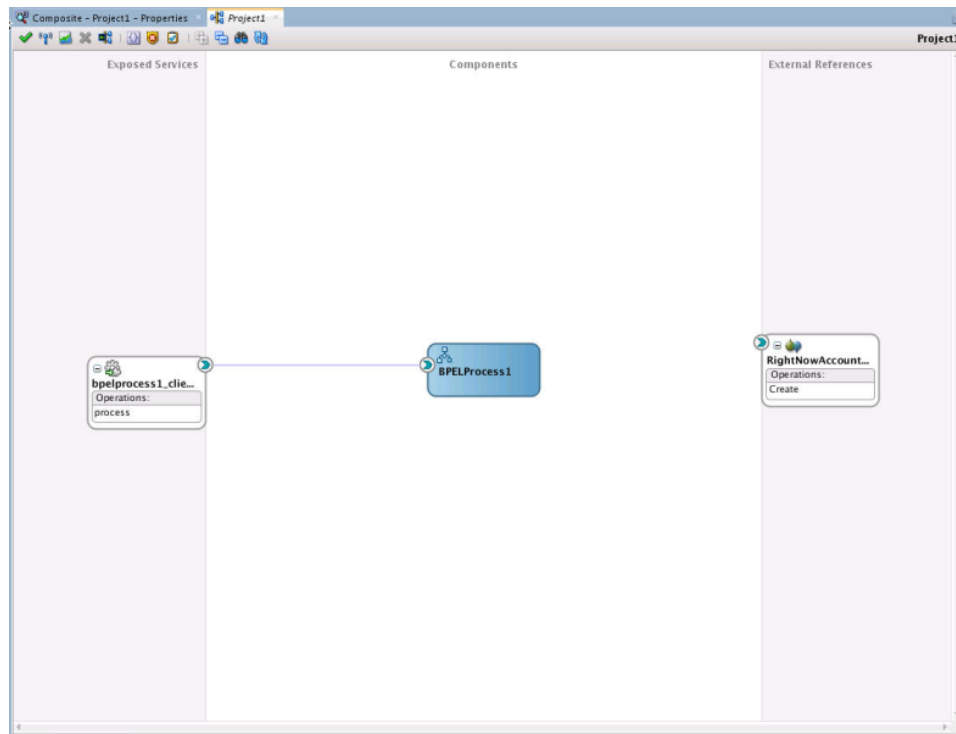
17. Because the requirement is to create an Account on RightNow, select the **CRUD** and **Create** options from the **Select an Operation Type** list.

On the same screen, move `Account` from the list of **Available** objects to the list of the **Selected** objects.

18. Click the **Processing Options** link in the upper right corner of the screen.
19. Select the processing options for your requirement. Properties displayed in this page depend on the operation you selected in the previous page. In this case, the **Suppress Response** checkbox is selected, and suppressing a response is disabled, that is, made false. Once this is selected, the `Create` operation returns a valid ID for a batch operation instance you are creating.

20. Click **Next**. JDeveloper displays the Summary page, which provides a complete summary of the operation selected, the object on which the operation operates and the headers selected for that operation.
21. Click **Done** to complete the Oracle RightNow adapter Configuration wizard.

Figure 5-12 The Services, Components and External References Screen Showing the Adapter in External References Swimlane

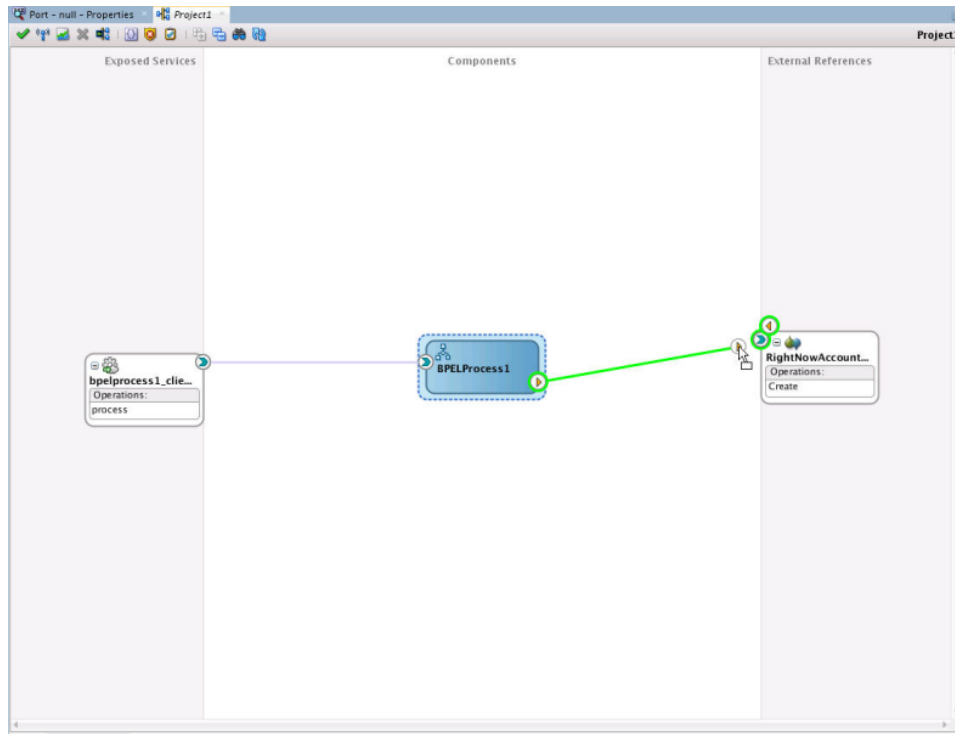


Integrating with BPEL

Perform the following steps to provide integration with BPEL:

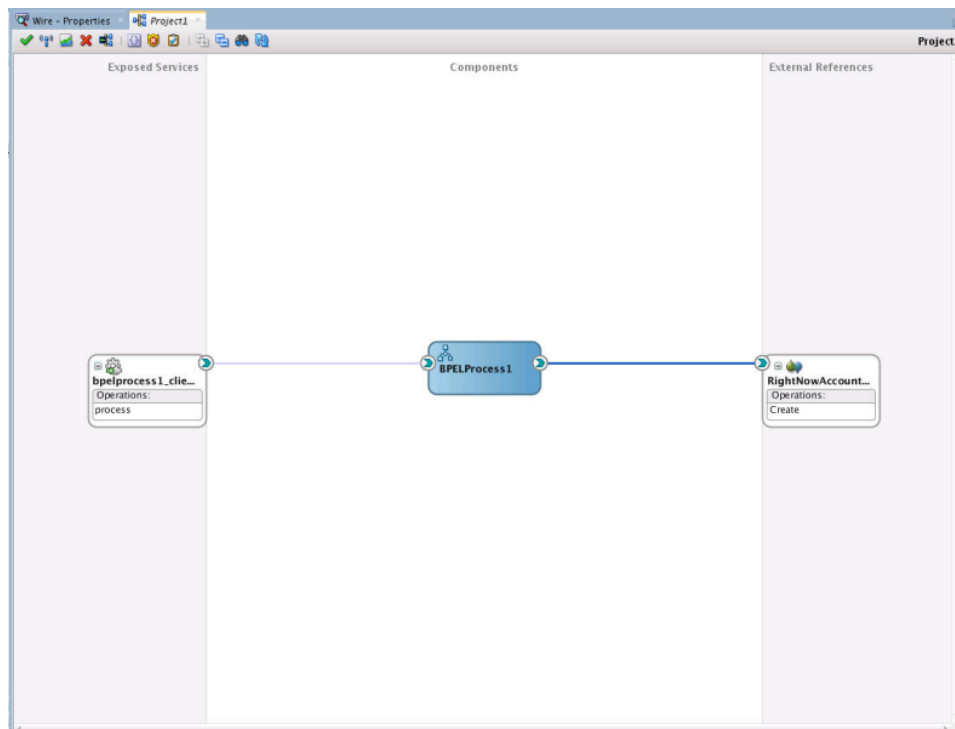
1. Connect `BPELProcess1` and `ServiceCloudCreateAccount` using a wire.

Figure 5-13 BPELProcess1 and RightNowAccount External Reference Connected Through a Wire



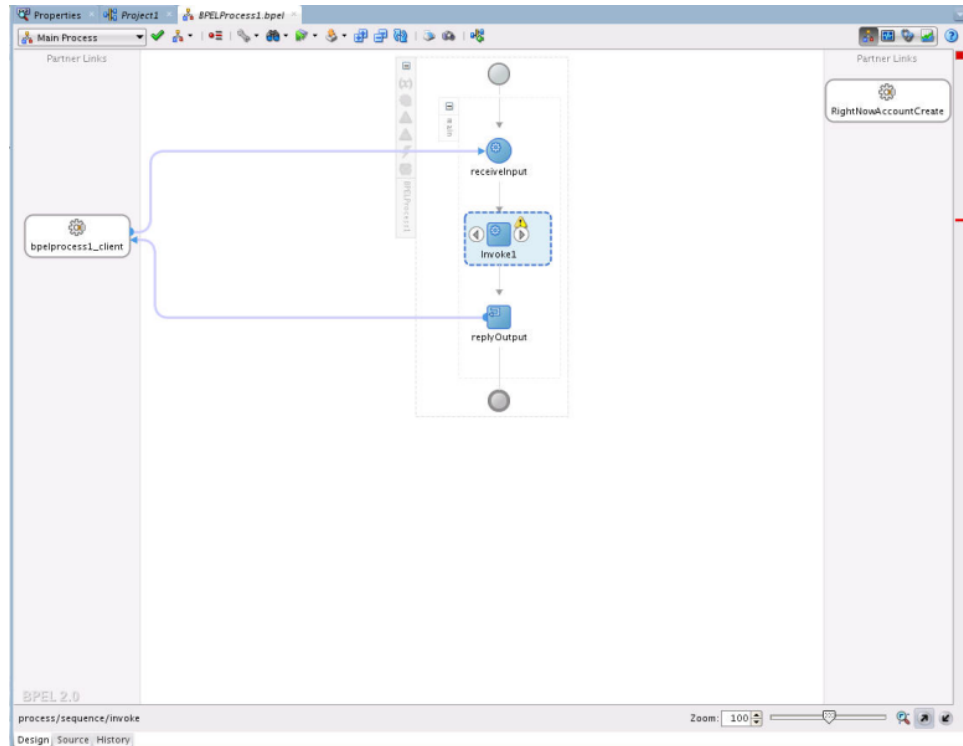
2. After wiring your composite appears.

Figure 5-14 Composite Application with Service, BPELProcess and Reference Wired



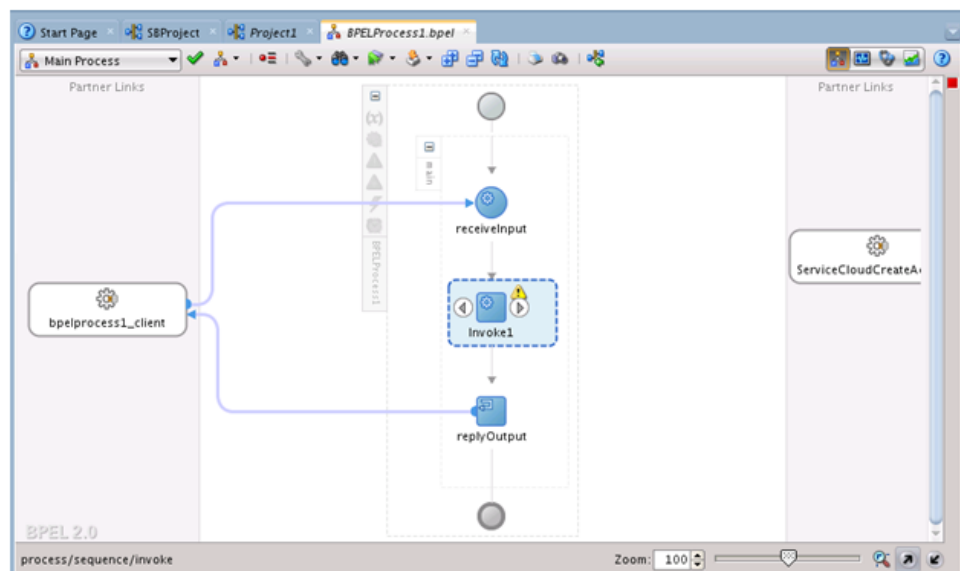
3. Double-click and open `BPELProcess1`. The Oracle RightNow adapter should be present as a part of the Partner Links.

Figure 5-15 Oracle RightNow Reference Adapter Shown as Part of Partner Links



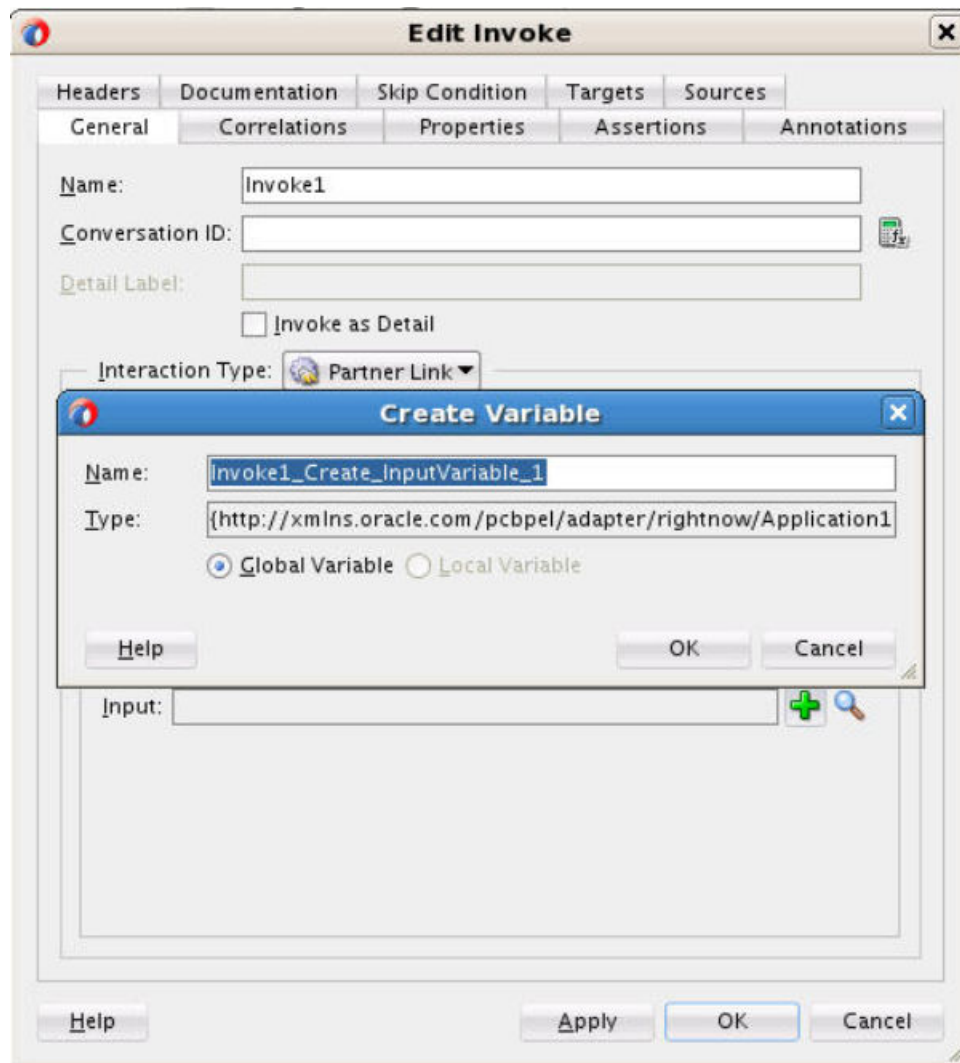
4. Add an **Invoke** activity to invoke the `ServiceCloudCreateAccount` Partner Link. To add the **Invoke** activity:
 - a. Drag and drop the invoke activity from the BPEL constructs.

Figure 5-16 Invoke Activity



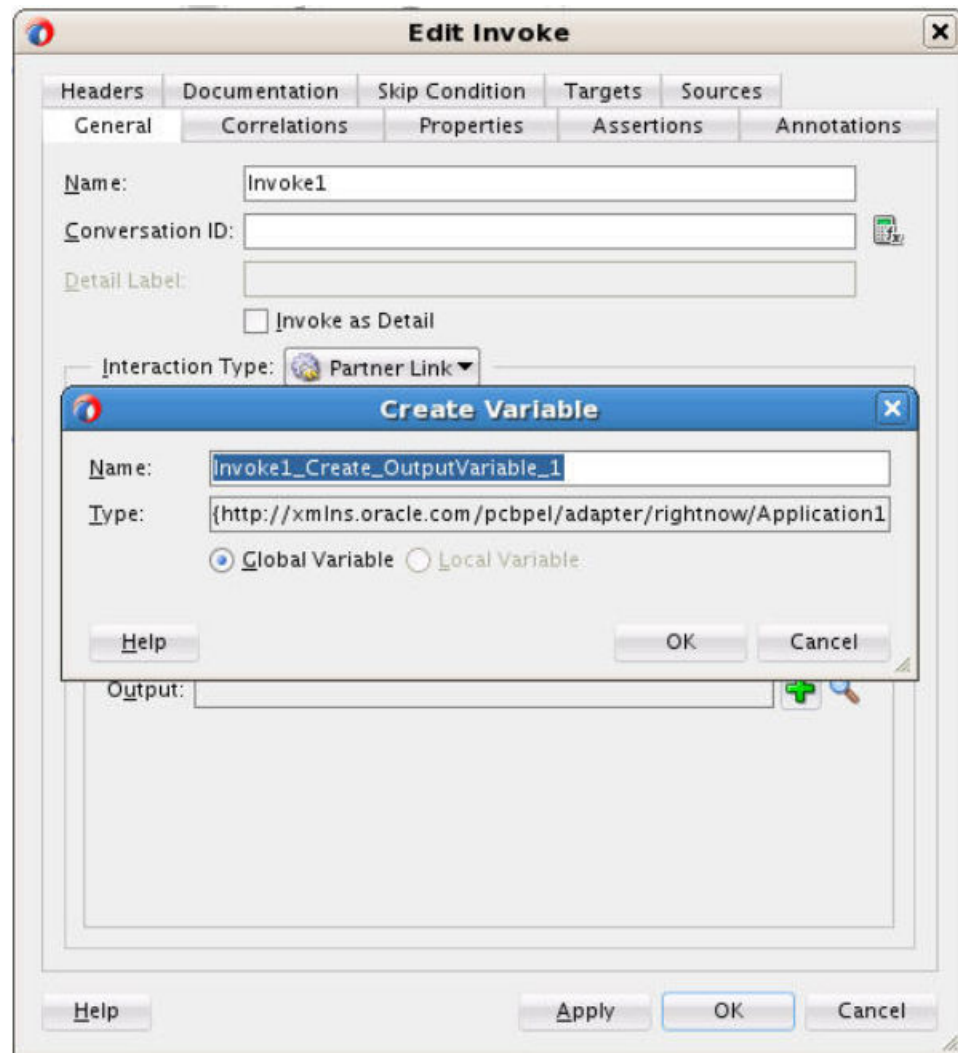
- b. After dropping the **Invoke** property on the canvas, wire the **Invoke** activity to the `ServiceCloudAdapter` partner link.
5. Create an input variable to the partner link by clicking the + button adjacent to **Input** text box in the **Variables** section. JDeveloper displays the **Create Variable** dialog.

Figure 5-17 Create Variable Dialog to Create an Input Variable for the Partner Link



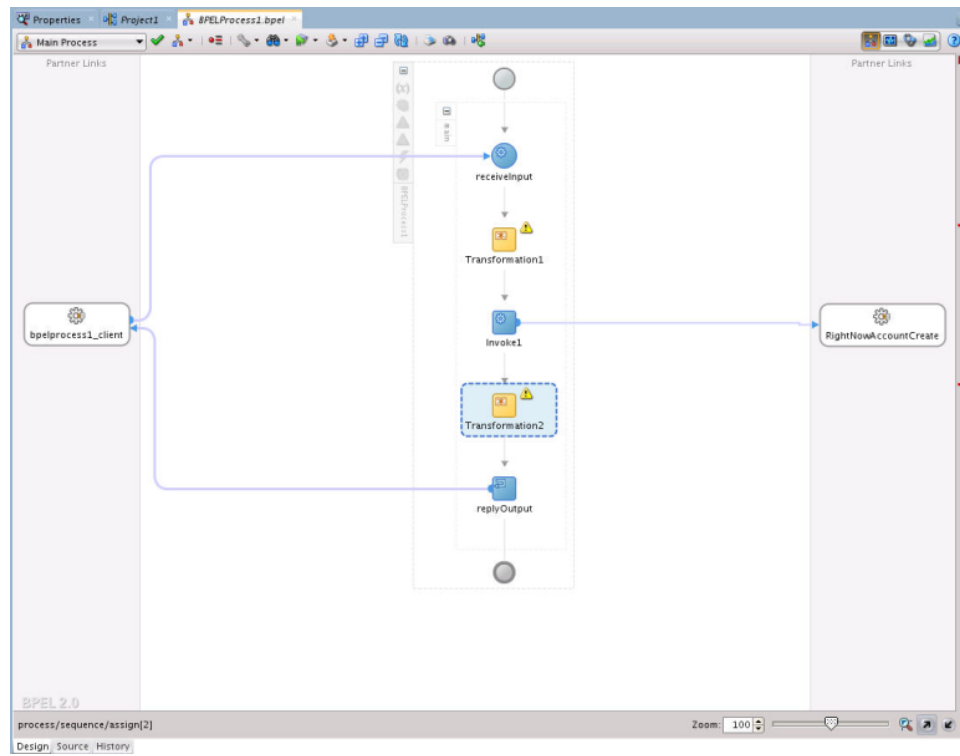
6. Create an output variable from the partner link by clicking the + button adjacent to **Output** text box in the **Variables** section. The wizard displays the **Create Variable** dialog.

Figure 5-18 Create Variable Dialog to Create an Output Variable



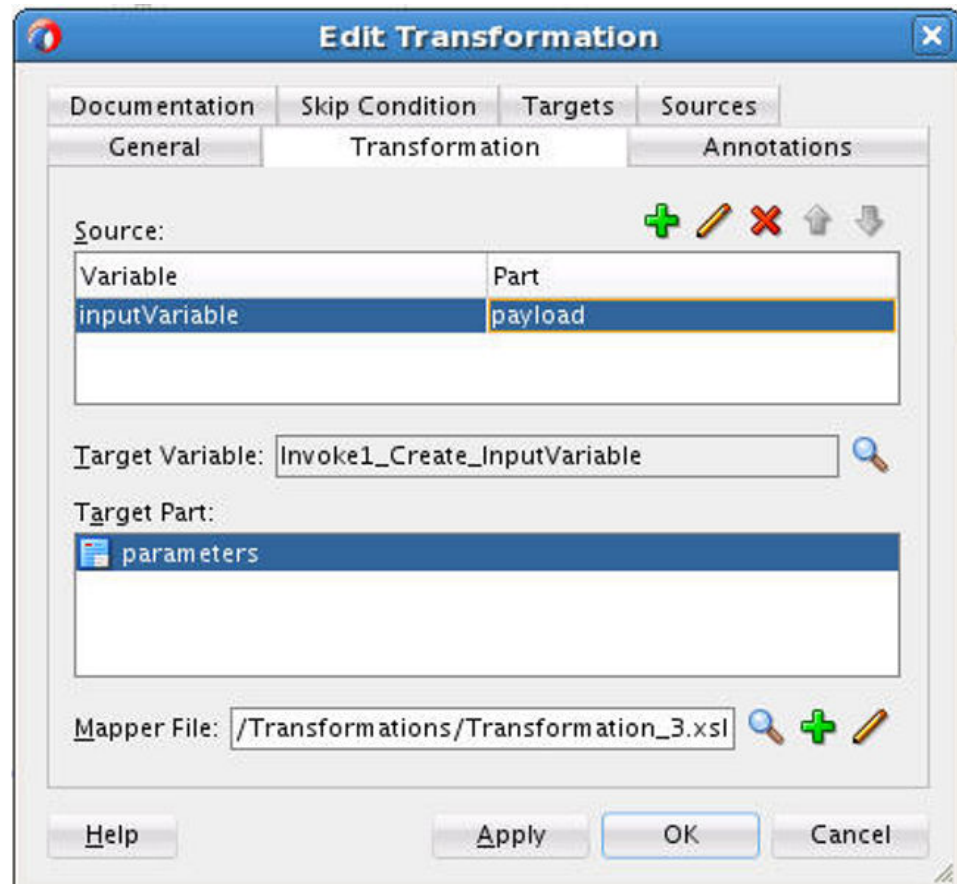
7. Introduce two transform activities, one before the **Invoke** activity and another after it.

Figure 5-19 Two Transform Activities in the BPEL Diagram



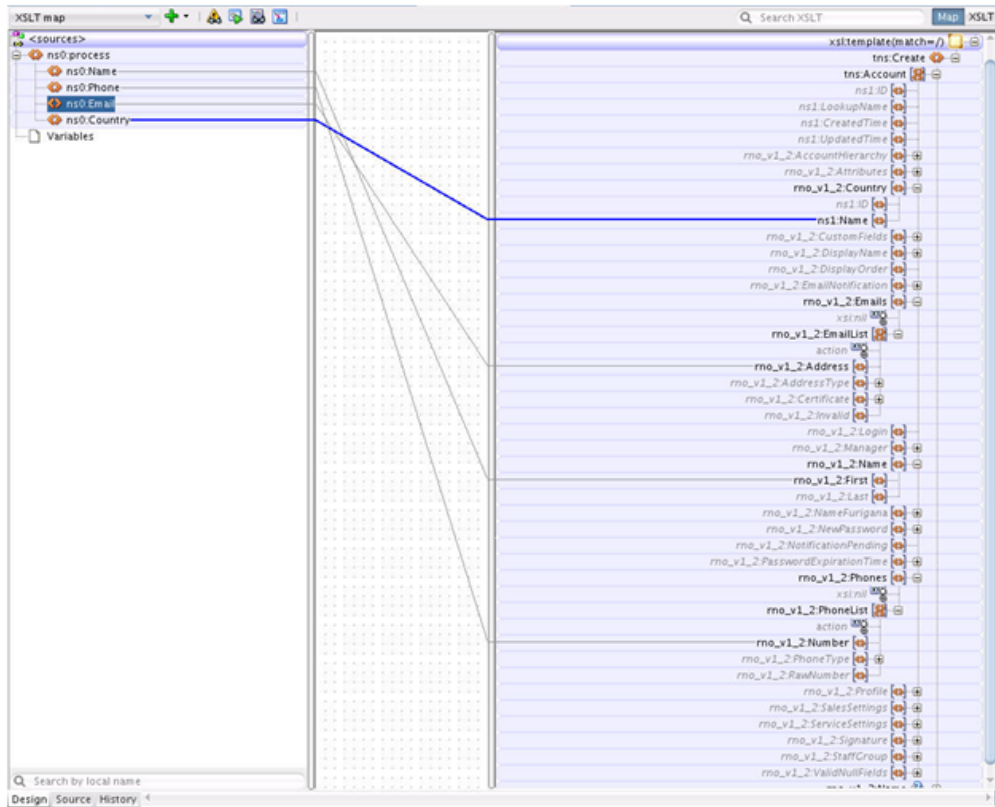
8. Map **Transform1** values from receive activity's input variable to the **Invoke** activity's input variable.

Figure 5-20 Mapping Transform1 Values from Receive Activity's Input Variable to Invoke Activity's Input Variable



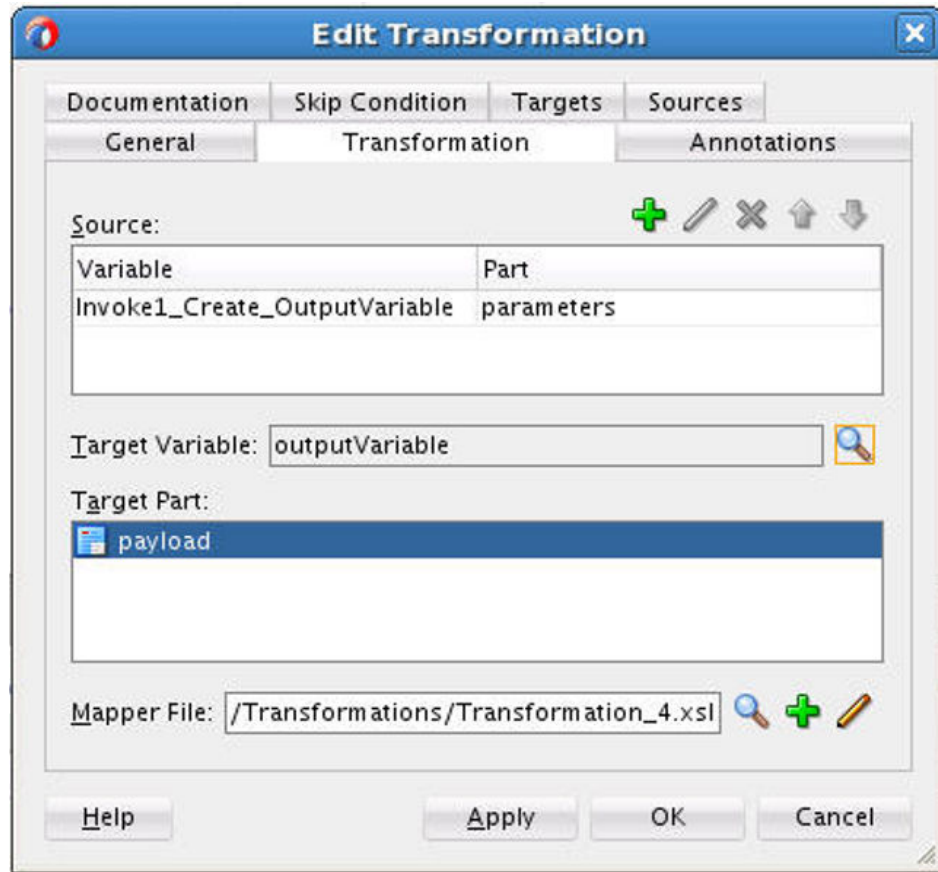
9. Click the + button adjacent to Mapper File text box to open the **Transformation_1.xsl** file.
10. Map between **inputVariable** and **Invoke1_create_InputVariable**:
 - Map **Account_Name** with **Name**.
 - Map **Phone** with **Phone**.
 - Map **Website** with **Website**.
 - Map **Description** with **Description**.

Figure 5-21 Mapping between inputVariable and Invoke1_create_InputVariable



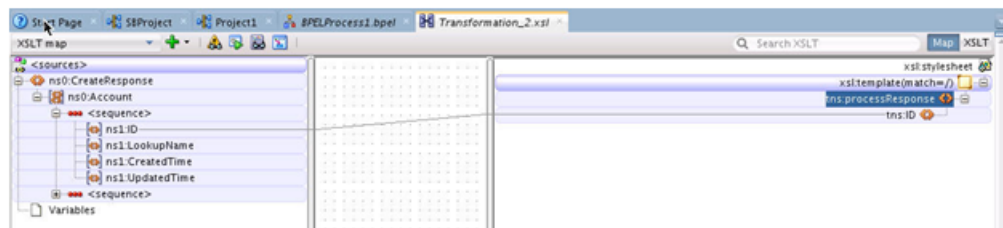
11. Map **Transform2** values from the **Invoke** activity's output variable to the reply activity's input variable.

Figure 5-22 Mapping Transform2 values from Invoke Activity's Output Variable to Reply Activity's Input Variable

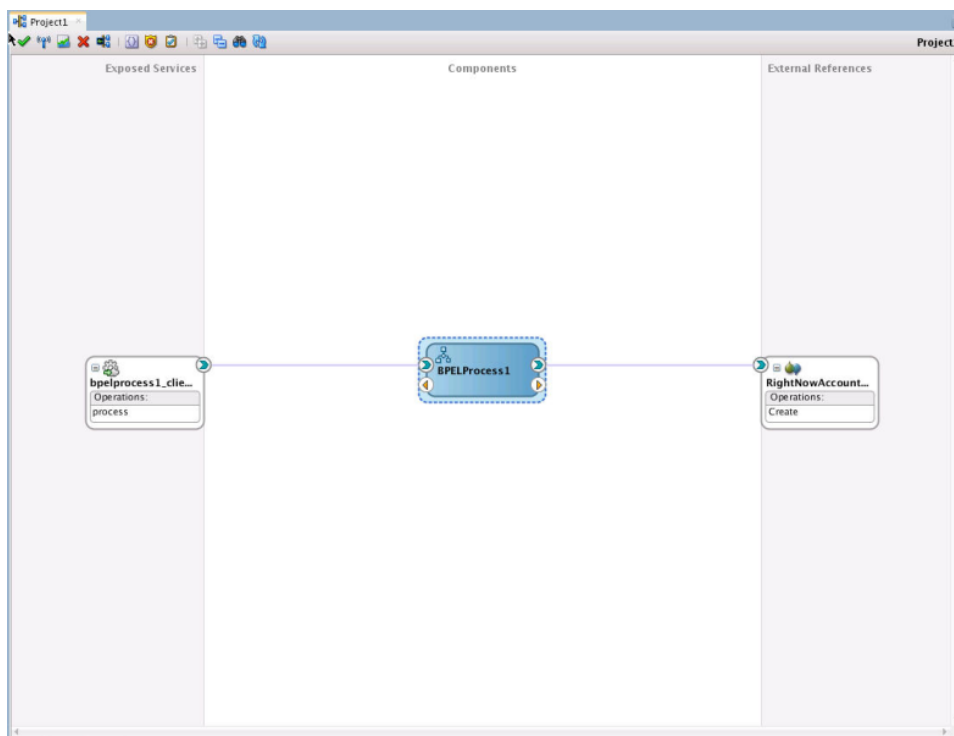


12. Map the output variable.

Figure 5-23 Mappings for Output Variable



This completes the project creation. JDeveloper displays the `composite.xml` file.

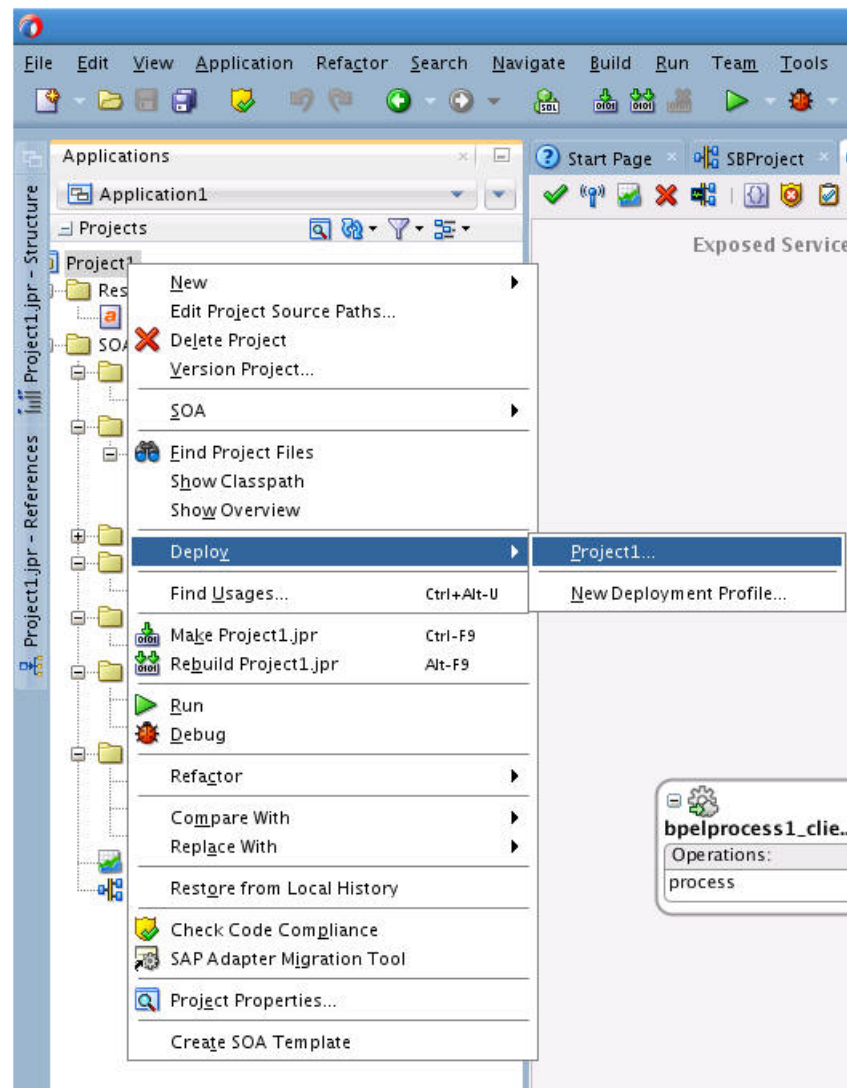


Deploying the Composite

To deploy the composite application:

1. In the **Application Navigator** pane, right-click **Project1** and select **Deploy Project1**.

Figure 5-24 Deploying the Project



2. Select the **Deploy to Application Server** option and follow the instructions. Using this option, you can deploy the composite on the Application server after providing the details of the server.

Testing the Composite

You can run and test the instances of deployed SOA composite applications from the Oracle Fusion Middleware Control Console. Doing so enables you to manage a composite application, initiate and track an instance of a composite and to view detailed component instance audit trails.

The following process shows you how to test the composite.

Testing the Outbound Process

To test the Outbound process:

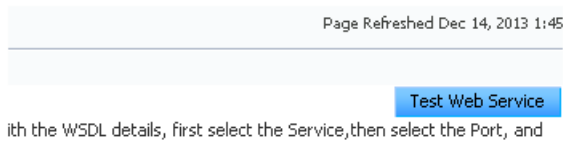
1. Log in to Fusion Middleware Console for the server on which you have deployed your project.
2. Open **Project1** under the **Default** partition.
3. Click the **Test** button to test the Web service.

Figure 5-25 Test Button



4. Provide the input payload and click the **Test Web Service** button.

Figure 5-26 Testing the Web Service



After successful execution, the response contains the id of the account created on RightNow and Status as **success**.

Figure 5-27 Test Response Containing ID of the Account Created on RightNow Cx

The screenshot displays a software interface for viewing test results. It features two tabs: 'Request' and 'Response', with 'Response' currently selected. The interface shows the following information:

- Test Status:** Request successfully received.
- Response Time (ms):** 3849
- Tree View:** A dropdown menu set to 'Tree View'.
- Message:** A new composite instance was generated. A 'Launch Flow Trace' button is located to the right of this message.
- Table:** A table with three columns: Name, Type, and Value. It contains one main entry for 'payload' which is expanded to show a sub-entry for 'Id'.

Name	Type	Value
payload	payload	
Id	string	110124

6

Developing Oracle Service Bus Integrations with the Oracle RightNow Adapter

This section explains how to create Oracle Service Bus projects using the Oracle Service Bus Console and Oracle JDeveloper. To create these projects, you first need to generate Oracle RightNow adapter artifacts using Oracle JDeveloper 12c, and subsequently, use those artifacts while creating Oracle Service Bus projects and services with the Oracle Service Bus Console.

This chapter contains the following topic:

- [Generating Oracle Cloud Adapter Artifacts](#)

Generating Oracle Cloud Adapter Artifacts

To create Oracle Service Bus projects using Oracle Service Bus Console, you must use Oracle RightNow adapter artifacts generated using Oracle JDeveloper. To create a BPEL composite, see the section [Designing a Composite for Service Integration](#).

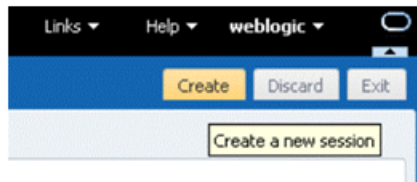
You use the artifacts generated in [Configuring the Oracle RightNow Adapter](#) to create Oracle Service Bus business services in Oracle Service Bus Console.

Creating Oracle Service Bus Projects Using Oracle Service Bus Console

To create Oracle Service Bus projects and services using Oracle Service Bus Console.

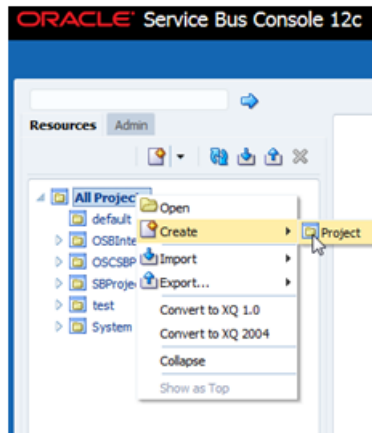
1. Log in to Oracle Service Bus Console: `http://hostname:port/servicebus`.
2. On right side of the page, click **Create**. This opens a new session in the Oracle Service Bus console to enable you to make changes.

Figure 6-1 Create an Oracle Service Bus Session



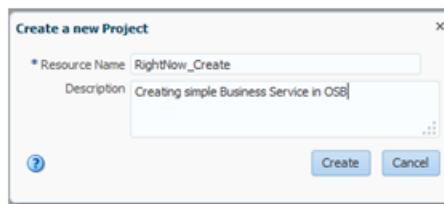
3. Right-click **All Projects** and click **Create - Project**.

Figure 6-2 Adding a New Project to Oracle Service Bus



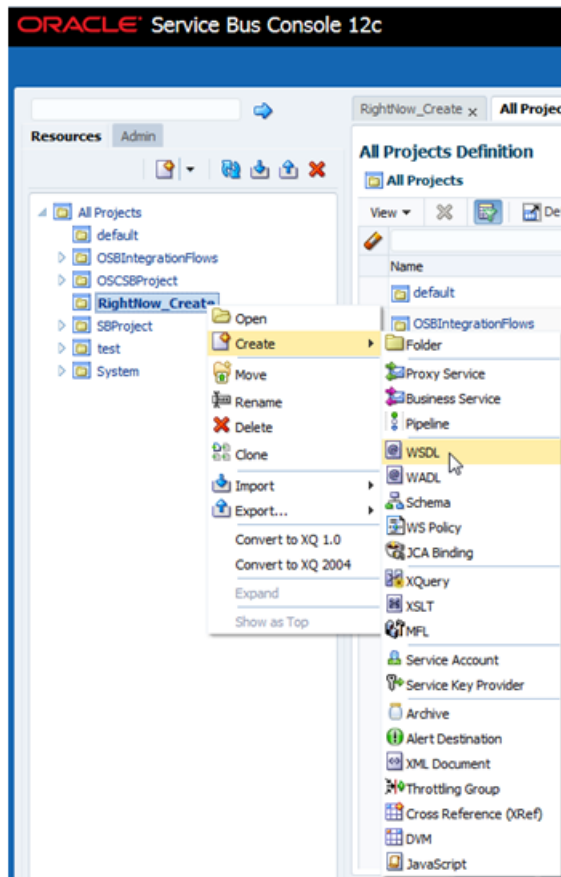
4. The Oracle Service Bus Console displays the **Create a new Project** dialog box.
5. Enter the project name in the **Resource Name** field, and provide the description in **Description** field.

Figure 6-3 Create a New Project Page



6. Click **Create**. A new project named `RightNow Create` appears under **All Projects**.
7. Import the Oracle RightNow adapter artifacts in this project. Right-click the **Project** name just created. Select **Create** and select the WSDL.

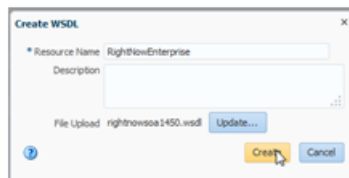
Figure 6-4 Choosing WSDL Reference



The console displays the WSDL Creation page.

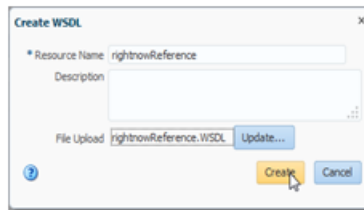
8. Click **Browse** and browse to the directory where you have stored the artifacts received from Oracle JDeveloper. Select the Oracle Cloud Adapter for RightNow WSDL.

Figure 6-5 Creating a WSDL



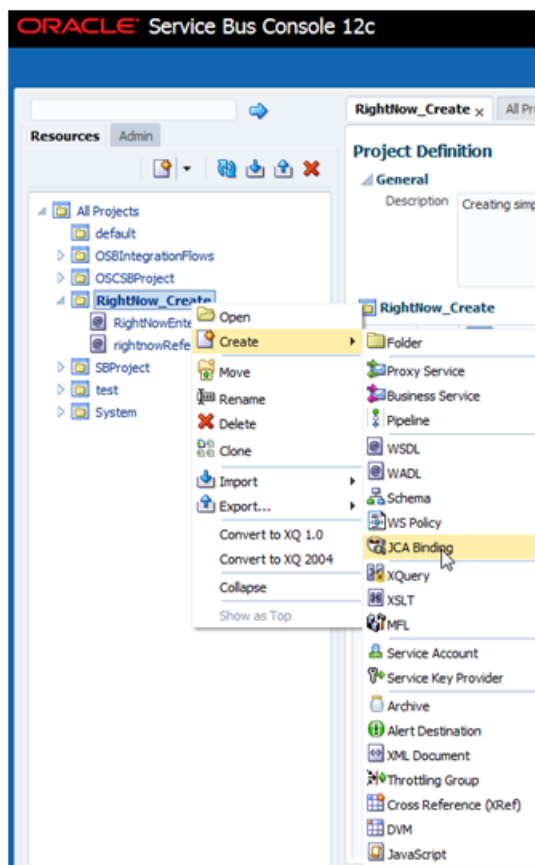
9. Click **Create**.
10. Right-click the **Project** name, from the menu, select **Create**, and then **WSDL**.
11. On the WSDL Creation page, browse for `rightnowReference` WSDL.

Figure 6-6 rightnowReference WSDL



12. Click **Create**.
13. Select **JCA Binding** from the **Create** drop-down list under **Project Name**.

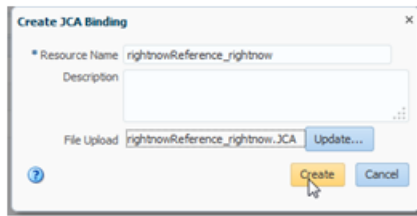
Figure 6-7 Selecting JCA Binding from Create Drop-Down List



The **JCA Binding creation** dialog box is displayed.

14. Click **Browse** and browse to the directory where the artifacts received from the Oracle JDeveloper 12c are stored. Choose the Oracle Cloud Adapter for RightNow JCA file.

Figure 6-8 Choosing the RightNow Adapter JCA File



15. Click **Create**. You are returned to the **Project** page. You might get an error message such as The JCA Binding 'rightnowReference_rightnow' was successfully created with validation errors. View the JCA Binding/Conflicts to see detailed diagnostic messages.

This error is thrown because the JCA binding cannot find the associated WSDL. To rectify the error if you receive it, click the JCA file you created and then click **Edit**.

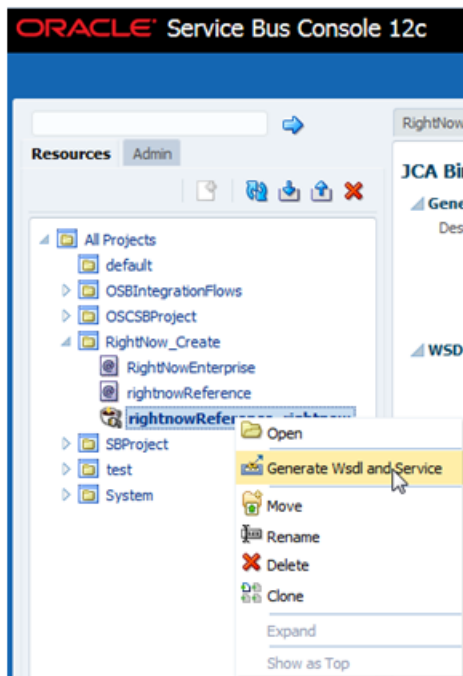
16. Click **Browse**. Search for the WSDL you created and click **Submit** after choosing the WSDL.

Figure 6-9 Edit JCA Binding References



17. Click **Save**.
18. Navigate to the project folder. Right-click the JCA Binding just created, and click **Generate WSDL and Service option**.

Figure 6-10 Generate WSDL and Service from JCA Binding



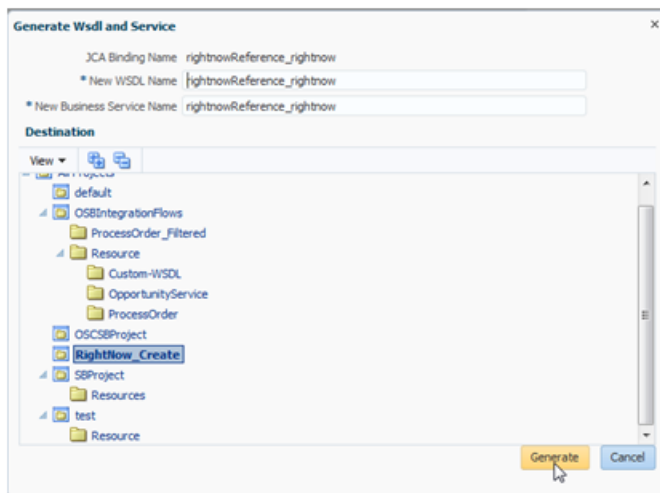
19. Enter a new name for the WSDL name in the **New WSDL Name** field and the service name in the **New Service Name** field.

 **Note:**

Choose the correct location for the new WSDL and service to be generated.

20. Click **Generate**.

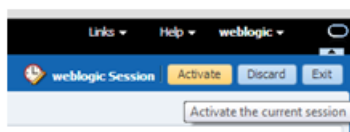
Figure 6-11 Generate WSDL and Service



The console generates the new WSDL and the new business service.

21. Activate the Oracle Service Bus session by clicking **Activate** in the right corner.

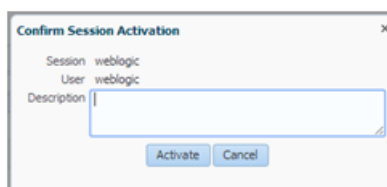
Figure 6-12 Activate Session



The console displays the Confirm Session Activation dialog box.

22. Click **Activate** to activate the session.

Figure 6-13 Confirming Session Activation



23. Click **Activate** to activate a session.

Creating a Service Bus Project, and Generating the Oracle Service Bus JCA Business Service

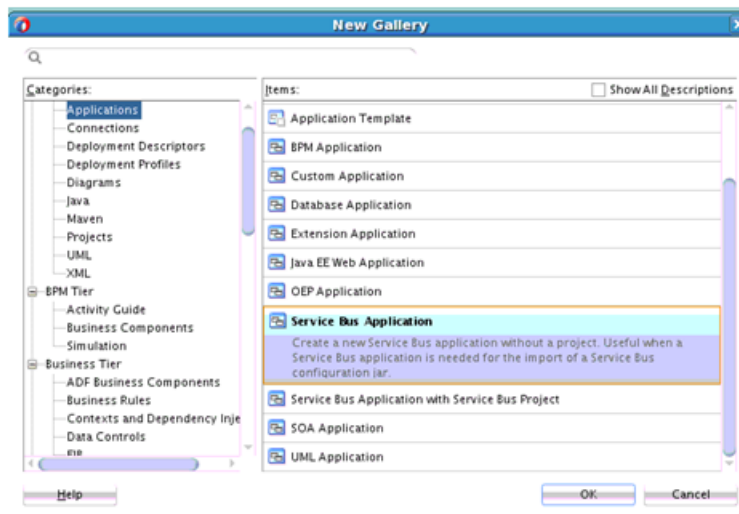
This section describes how to create a Service Bus project using JDeveloper. It also includes information on generating an Oracle Service Bus JCA Business Service using the Oracle RightNow adapter. It includes: creating an empty composite for the Oracle Service Bus, then defining an Oracle Service Bus outbound process, and finally deploying that Oracle Service Bus project on a server.

Creating an Empty Console for the Oracle Service Bus and Creating a New Service Bus Project

To create an empty composite for the Oracle Service Bus:

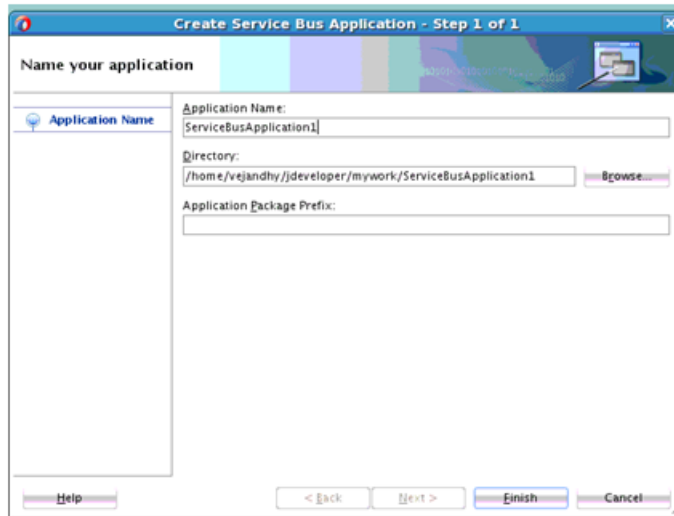
1. Create a new Oracle Service Bus application, Select **File >New >Application**. The **New Gallery** opens, where you can select application components to create.

Figure 6-14 Choosing an Application



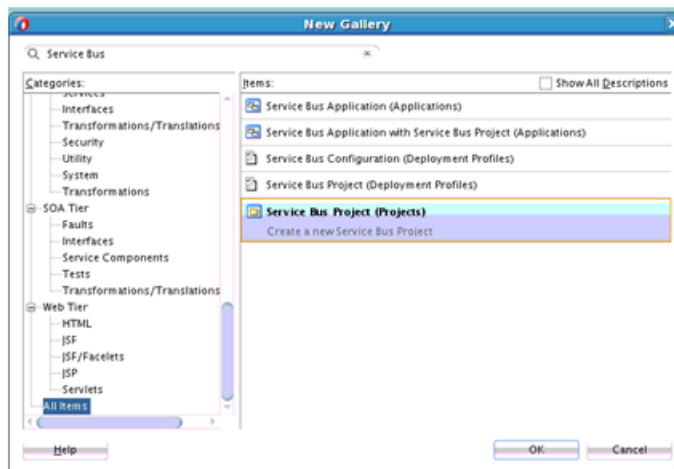
2. On the Name your Application page, optionally change the name and directory location for the application.

Figure 6-15 Name Your Application

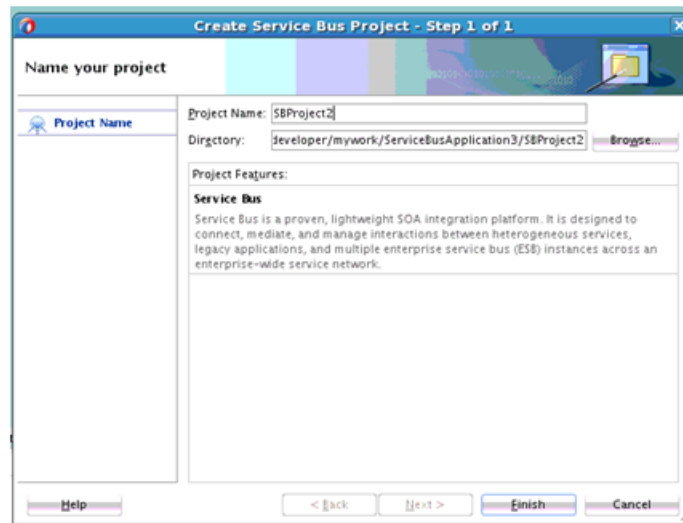


3. Create a new Oracle Service Bus project.

Figure 6-16 Create a New Project



4. On the Name your Project page, optionally change the name of your Oracle Service Bus project. Make sure the project directory is in the application directory (this is the default).

Figure 6-17 Name Your Project Page

5. Click **Finish**.

Defining a Service Bus Business Service with the Oracle RightNow Adapter

This section describes how to define an Oracle Service Bus business service for RightNow integration using the Oracle RightNow adapter, which consists of the following stages:

- [Configuring the Oracle RightNow Adapter Component](#)
- [Configuring a Proxy Service](#)
- [Deploying the Outbound Oracle Service Bus Process](#)

Configuring the Oracle RightNow Adapter Component

To configure an Oracle RightNow adapter component:



Note:

If the Import OSB Resource dialog is displayed during adapter configuration, click **Cancel**. You cannot localize the WSDL file.

1. Open the Service Bus Overview Editor.
2. Drag and drop the Oracle RightNow adapter component from the **Components** panel to the **External Services** swim lane.
The Basic Info page of the adapter configuration wizard is displayed.
3. Enter a connection name for the RightNow adapter in the **Name** field and then click **Next**.
4. On the Connection page, browse for the Enterprise WSDL location by clicking on the **Browse** button.
5. The **WSDL Chooser** dialog is displayed. Browse and select the downloaded Enterprise WSDL and click **OK**.

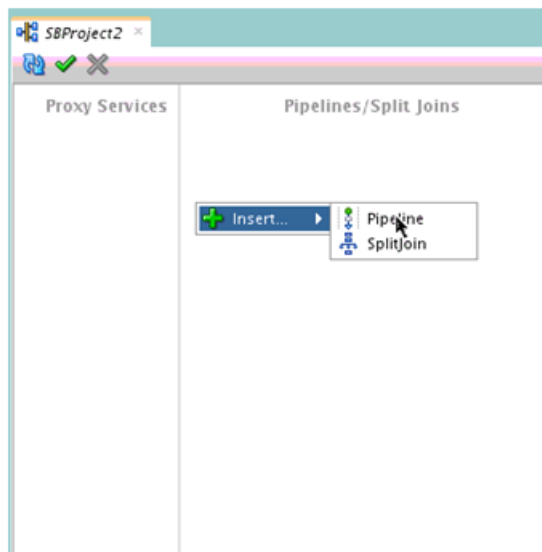
6. Click **OK**.
7. Click **Next**.
8. Click **Finish**. The wizard returns you to the Connection page.
9. Select an authentication key from the dropdown, if available, or create an Authentication key by clicking on **+** button.
10. Click the **Test** button to validate the authentication key.
11. Click **Next**. The Operations page is displayed.
12. The operation by default is **Create**. You can change this operation by selecting an operation name suitable to your business requirement.
13. Select the **Account** business object from the **Available** list, and move to the **Selected** list.
14. Click **Next**, The Summary page is displayed.

Configuring a Proxy Service

To configure an Oracle Service Bus proxy service:

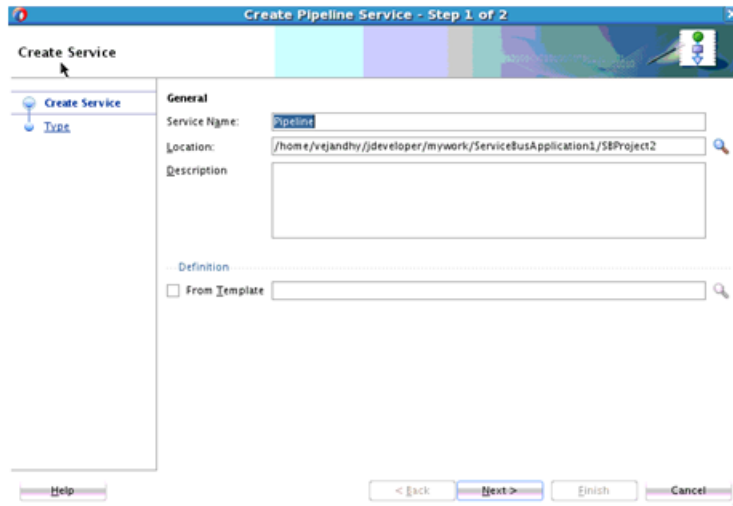
1. Using the Oracle Service Bus Overview Editor, right-click the **Pipeline/Split Joins** lane and click **Insert** and then **Pipeline**.

Figure 6-18 Pipeline Component



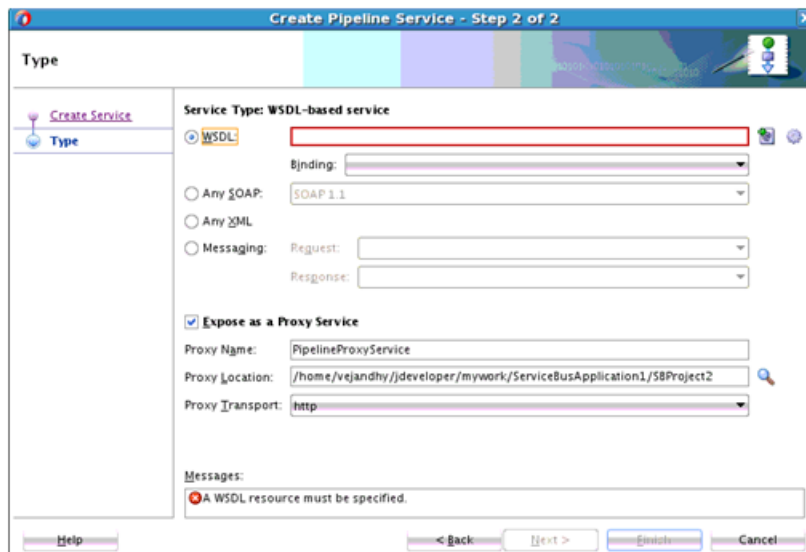
The **Create Pipeline Service** dialog is displayed.

Figure 6-19 Create Pipeline Service Dialog



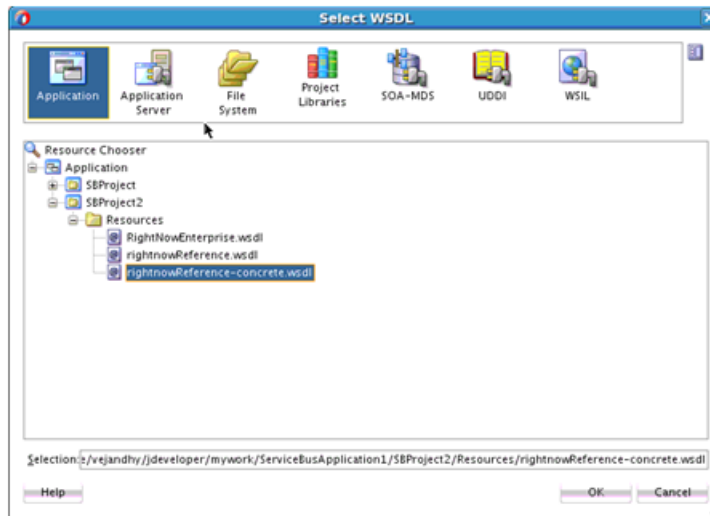
2. In the **Service Name** field, enter a name to identify the pipeline name and select the corresponding location of the project.
3. Click **Next** and select the Service Type as **WSDL**.

Figure 6-20 Creating a Pipeline



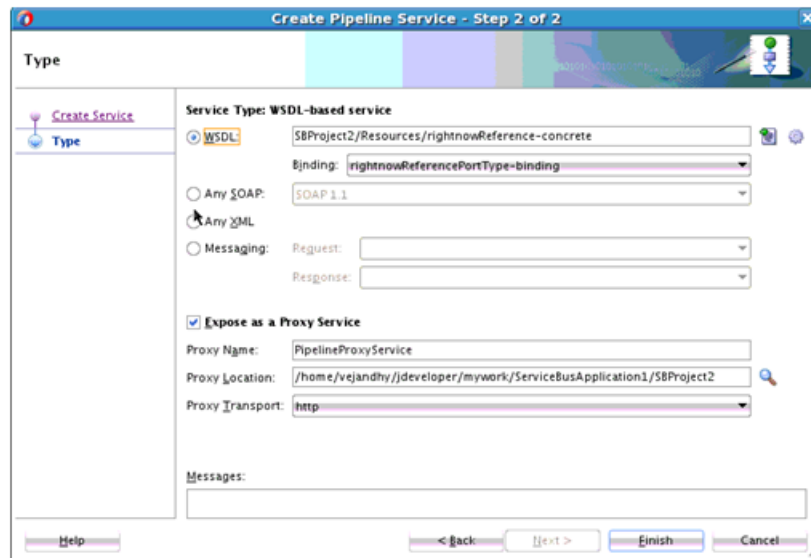
4. Click the **Browse** icon, which is located to the right of the WSDL URL, to select the WSDL from the file system.
5. Select the appropriate WSDL file from the **Application -> Resources**.

Figure 6-21 Select WSDL



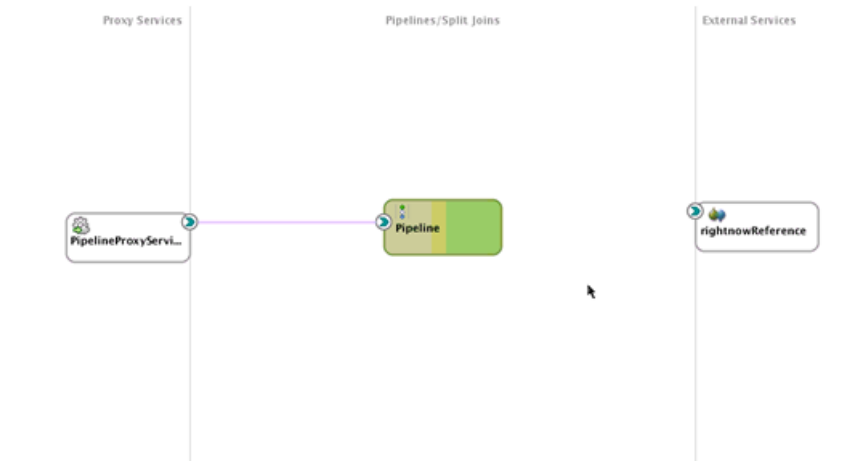
6. Click **OK**. The selected WSDL and corresponding binding is displayed. Ensure the check box for **Expose as a Proxy Service** is selected.

Figure 6-22 Creating a Pipeline Service



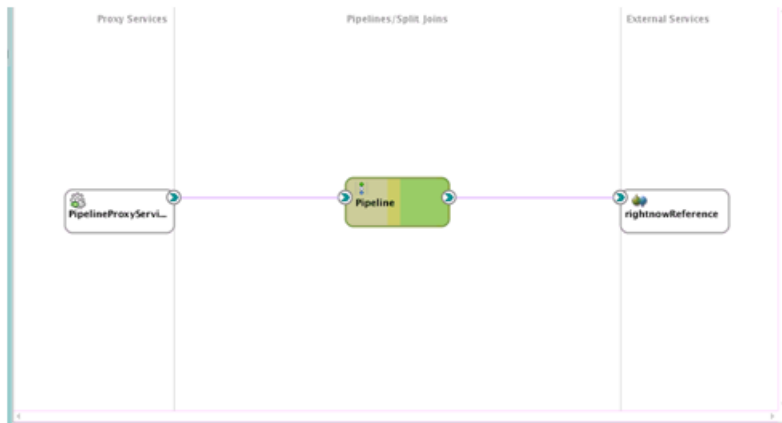
7. Select **Proxy Transport as http**.
8. Click **Finish**. The Pipeline component is displayed.

Figure 6-23 Pipeline Component



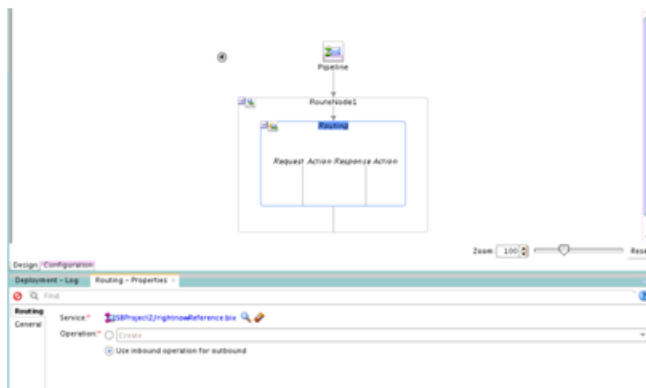
9. Connect the Oracle RightNow adapter in the **External Services** swimlane to the pipeline.

Figure 6-24 Connecting the rightnowReference to the Pipeline Component



10. Open the pipeline which shows the default routing. Verify the service and corresponding operation will be displayed in the **Routing Properties**.

Figure 6-25 Routing Properties



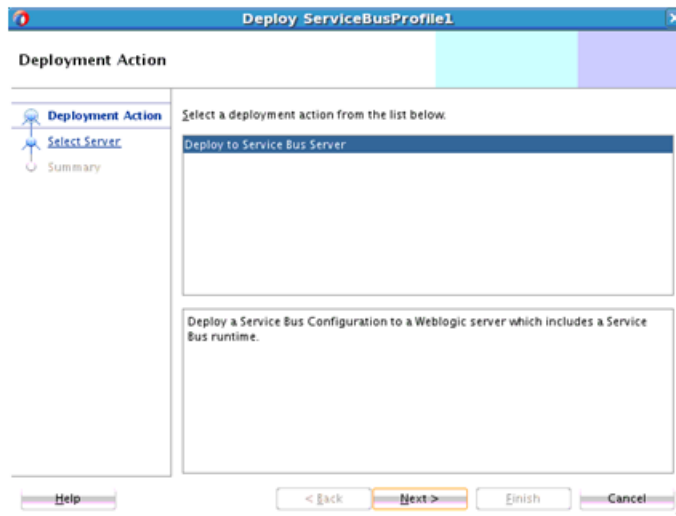
The outbound Service Bus Project is ready to be deployed

Deploying the Outbound Oracle Service Bus Process

To deploy the outbound Oracle Service Bus Project:

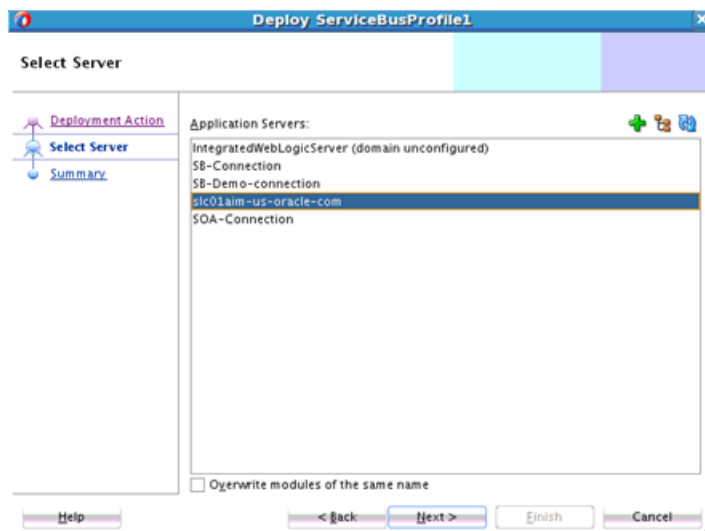
1. Select the project and select **Deploy to Service Bus Server**.

Figure 6-26 Deploy Action



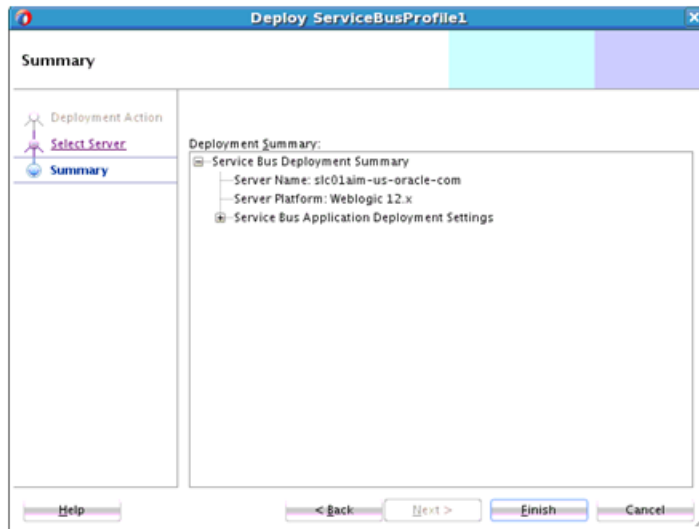
2. Select the already-configured Application Server and click **Next**.

Figure 6-27 Select Server Page.



3. Check the deployment summary and click **Finish**.

Figure 6-28 Summary Page



4. The Success Message page indicates the Project is successfully deployed.

Figure 6-29 Success Message Page



The successfully deployed project can be tested from Service Bus Console.

Testing the Oracle Service Bus Project from the Oracle Service Bus Console

To test the Oracle Service Bus project from the Oracle Service Bus Console:

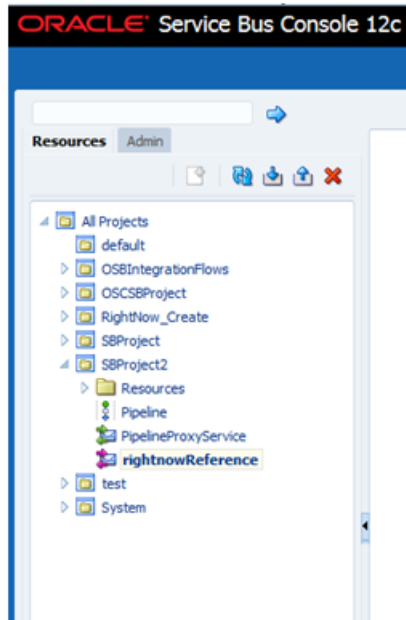
1. Open the Oracle Service Bus Console and enter the user ID and password.

Figure 6-30 Service Bus Console



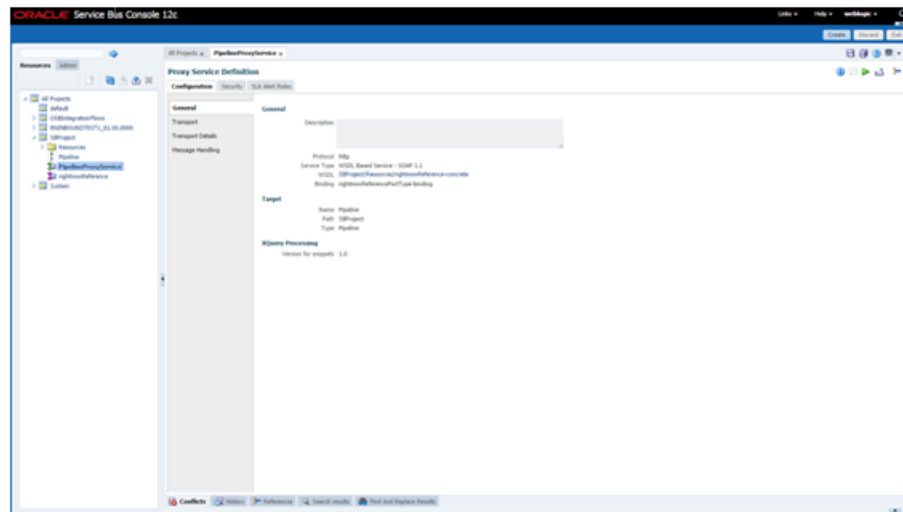
2. All the deployed projects are displayed under **All Projects**.

Figure 6-31 Service Bus Deployed Projects



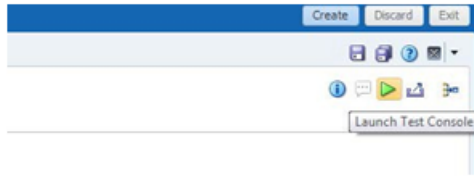
3. Open the project you want to test and click Proxy Service of that project. For example, PipelineProxyService in this case, as shown in the Figure below

Figure 6-32 Proxy Service Definition



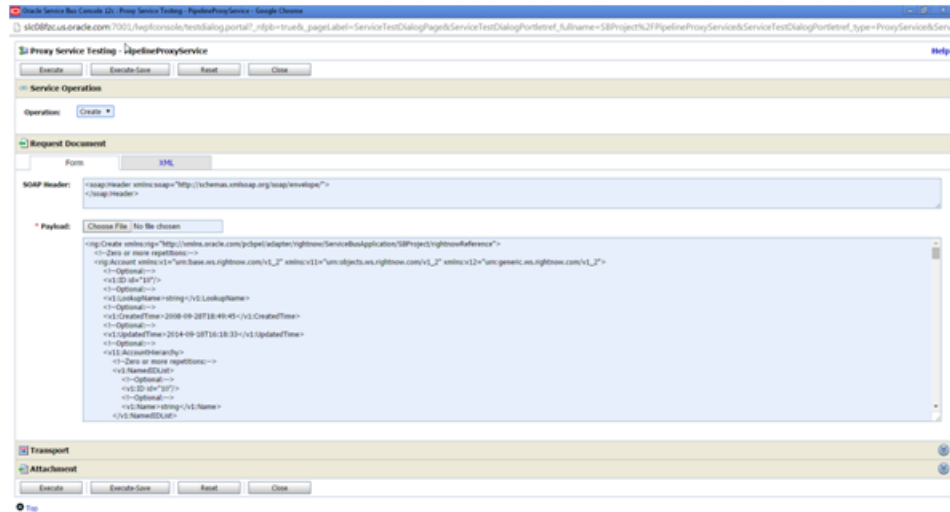
4. The Option for **Launch Test Console** (Green arrow button) is displayed for testing the outbound endpoint.

Figure 6-33 Option for Launching Test Console



5. Launching Test Console opens new window displaying the Proxy Service and the operation to test along with **Execute**, **Execute-Save**, **Reset** and **Close** button.

Figure 6-34 Proxy Service Testing



The **Request Document** section contains the **Request Payload**.

6. Provide the input and click the **Execute** button. This sends the payload to Oracle RightNow Cx and the response is displayed under the **Response Document** section.

7

Troubleshooting and Error Handling with the Oracle RightNow Adapter

This chapter explains the troubleshooting information and error messages that you can come across while configuring the Oracle RightNow adapter.

The chapter contains the following topics:

- [Understanding Oracle RightNow Adapter Design-Time JDeveloper Errors](#)
- [Understanding API Faults and Error Handling](#)
- [Understanding RightNow Exception Codes](#)
- [Understanding Adapter Fault Handling](#)

Understanding Oracle RightNow Adapter Design-Time JDeveloper Errors

The following table shows the common design-time errors faced while using Oracle RightNow Cx Server in JDeveloper and their possible solutions.

Table 7-1 Oracle Cloud Adapter for RightNow Server CX in JDeveloper

Error	Solution
The login credentials are not valid, or the maximum number of logins has been exceeded. Contact your administrator for more information.	Provide the valid Oracle Cx credentials. Delete the CSF key and add it again providing the correct credentials. Connect to the internet and click the offline configuration check box. This will download the metadata for offline usage.
Metadata for the enterprise WSDL is not available in the cache.	
Unable to connect to RightNow Cx server.	Ensure that you are connected to the internet and not blocked by or behind the fire wall of your organization.
Error deploying the composite on soa_server: Composite with same revision ID already exists.	Check if the project is already deployed on the server. Check the overwrite composites with the same revision box or change the revision number.
java.net.ConnectException: Connection refused: connect; No available router to destination.	Ensure the SOA server is up and running.

Understanding API Faults and Error Handling

In general, error handling in the Oracle RightNow Connect Web Services for SOAP API is done through the standard WSDL fault mechanism. The WSDL defines three different types of WSDL faults: `RequestErrorFault`, `ServerErrorFault` and `UnexpectedErrorFault`.

The base fault type as defined by the WSDL is `RNFault`; an instance of `RNFault` contains an exception code and message.

About Request Errors

Request errors are generated when there is a validation failure or a data related error of the inbound request

About Server Errors

Server errors are generated when there is a known or expected error that may occur on the server during processing of the request.

About Unexpected Errors

Unexpected errors are rare exceptions that occur unexpectedly on Oracle RightNow Cx Server while processing a request. These unexpected errors cannot necessarily be mapped to a specific error code or status.

Understanding RightNow Exception Codes

All three fault types, `RequestErrorFault`, `ServerErrorFault` and `UnexpectedErrorFault` extend a basic `RNFault`, which consists of an `ExceptionCode` field, which is an enumeration, and an `ExceptionMessage`, which is a string.

The following RightNow exception codes are defined:

- `ACCESS_DENIED`. Returned when a request is made to the service, but the bit to enable Connect is not enabled on the site interface or the account profile for the supplied credentials does not have the public SOAP bit enabled.
- `INVALID_FIELD`. Returned when a request is made and a field on an object in the request does not exist or is not accessible for the given request (that is, Setting ID on create).
- `INVALID_LOGIN`. Returned when a request is made but the user credentials are invalid; this can be either username or password
- `BAD_ID`. Returned when an ID provided in a request is not valid.
- `MISSING_ARGUMENT`. Returned when a request is missing a required argument.
- `BAD_ID`. Returned when an ID provided in a request is not valid.
- `QUERY_TIMEOUT`. Returned on a query request when the specified query times out on the server.

- UNKNOWN_EXCEPTION. Returned when an unknown and unexpected exception occurs

Understanding Adapter Fault Handling

The Oracle RightNow adapter is a JCA adapter. As such, fault handling is similar to that in other JCA Adapters.

8

Oracle RightNow Adapter Use Cases

This chapter provides a walkthrough of the Oracle RightNow adapter use cases. Each of the following use cases describes how you can use the Oracle RightNow adapter to perform activities that integrate from SOA Suite with the Oracle RightNow Cx.

For information on the common operations that you perform before following the steps in each of these use cases, see [Performing Common JDeveloper Configuration Steps](#).

The Oracle RightNow adapter enables you to perform the following:

- [Performing a Create, Read, Update, Destroy \(CRUD\) Operation on a Single Business Object](#)
- [Performing a CRUD Operation on Multiple Business Objects](#)
- [Performing a Batch Operation with Multiple Business Objects and Multiple Operations](#)
- [Querying Arbitrary Objects using ROQL](#)
- [Performing CRUD Operations on Custom Objects](#)
- [Chaining Multiple Operations Together in One Batch Request](#)

Performing a Create, Read, Update, Destroy (CRUD) Operation on a Single Business Object

As part of synchronous outbound communication, the Oracle RightNow adapter connects to the RightNow Cx instance with the help of the Connect Web Services for SOAP API to perform a CRUD operation with a *single* object on the RightNow Cx instance.

This is a synchronous request response scenario, where a client requests the Oracle RightNow adapter service to create an object in the RightNow Cx instance.

Use the Oracle RightNow adapter in the Adapter Configuration Wizard to design the outbound service as shown in [Performing Common JDeveloper Configuration Steps](#). These steps begin with the Operations screen.

1. The RightNow adapter supports CRUD and ROQL operations. Choose **CRUD** on the Operations screen to perform the first use case.
2. Select the **Create** operation on the screen. (Other CRUD options available are **Read**, **Update** and **Delete**.) Click **Next**,
3. The Oracle RightNow adapter displays the available RightNow Cx business objects.
You can select the objects by moving an object from the **Available** list to the **Selected** list. Use the filter option to display objects based on your criteria for better usability. The Oracle RightNow adapter configuration wizard shows *both* standard and custom objects.
4. You can select processing options to perform. You can use these to enable and disable aspects of server side processing when performing an operation. They include:
 - **Suppress External Events**. Select this option to indicate that external events should not run after the completion of a **Create**, **Update** or **Delete** operation.

- **Suppress Rules.** Select this option to indicate that business rules should not run after the completion of a `Create`, `Update` or `Delete` operation.

For this use case, select **Suppress External Events** and **Suppress Rules** options.

Select the **Finish** option, which completes the configuration of invoking Service Cloud Service.

Upon selecting the **Finish** option, the wizard:

- Generates an integration-centric WSDL.
- Generates strongly typed schema definitions.
- Generates a JCA configuration file, which will have connectivity information.
- Generates reference endpoint in the SCA composite.

Performing a CRUD Operation on Multiple Business Objects

In this scenario, as part of the outbound communication, Oracle RightNow adapter connects to the Oracle RightNow Cx instance with the help of Connect Web Services for SOAP API to perform a create operation with *multiple business objects* on the RightNow Cx instance.

This use case is a synchronous request response scenario, in which a client requests the adapter service to create a set of objects in RightNow Cx instance.

Use the Oracle RightNow adapter to design the outbound service to work with multiple objects.

To design an outbound service to perform CRUD operations on multiple business objects:

1. On the Operations screen, you can select multiple business objects. To choose multiple objects, select them under **Available** and move them, using the arrow to **Selected**.
2. Click **Next** on this screen when you have completed selecting multiple objects.

The configuration wizard displays the Summary screen. The adapter also creates a reference endpoint that enables you to wire it from other components such as BPEL. The adapter generates the integration-centric WSDL with all batch operations configured. The adapter also creates a reference endpoint that enables you to wire it from other components such as BPEL.

Performing a Batch Operation with Multiple Business Objects and Multiple Operations

In this scenario, as part of the outbound communication, the Oracle RightNow adapter connects to the RightNow Cx instance with the help of the Connect Web Services for SOAP API to perform a *batch operation with a multiple business objects* on the RightNow Cx instance. This is a synchronous request. Follow this procedure to perform a batch operation with multiple business objects and multiple operations:

1. Configure operation-specific details. Select the **Batch Operation** option on the Operations screen.

2. Click **Add an Operation to the List** to add multiple operations.
3. Select the operation type and business objects.

The configuration of a batch operation is similar to configuring a single operation (as explained in the first use case).

The operation configuration for a batch operation also enables you to specify the batch-only option of **commit after** for a given operation. This commits the entire transaction *only after* the operation for which **commit after** is specified.

4. Click the **Ok** button to complete configuring operations

Querying Arbitrary Objects using ROQL

Use the Oracle RightNow adapter to design the outbound service to query Standard and Custom objects from the RightNow Cx instance with the help of ROQL, the RightNow Query Language.

For complete information on using the Oracle RightNow adapter to perform ROQL queries, see [Working with ROQL](#). After completing the common operation steps specified in [Performing Common JDeveloper Configuration Steps](#), follow this procedure.

1. On the Operations screen, select **ROQL** from the **Select an Operation Type** list.
2. In the Query statement text box, input the ROQL query.
3. Test the query syntax before completing the wizard steps. Click **Test My Query**.
4. Once you have completed the configuration of the query operation, click **Next Step**. The adapter generates the integration centric WSDL with the query operation, input and output messages. The adapter also creates a reference endpoint which enables you to wire it from other components such as BPEL and Mediator.

Performing CRUD Operations on Custom Objects

Oracle RightNow Cx has two different types of objects associated with it: standard business objects and custom objects upon which you can perform CRUD operations. In this use case, you perform a `Get` operation on a custom object and generate the appropriate WSDL and JCA file.

To perform the `Get` operation on a custom object:

1. At the Operation screen, look under **Available** for the custom object you want to select for a CRUD operation. The convention is the standard object name, for example, `Contact`, followed by `CustomObj` (for example, `Contact_CustomObj`).
2. Using `Contact_CustomObj` as an example under **Available**, and using the arrow, move the selected object to **Selected**.
3. Change the CRUD operation to `Get` to perform a `Get` operation on the selected object.
4. Click **Next Step**. The wizard displays the Summary screen.
5. Click **Finish** to generate the WSDL and JCA file.

Chaining Multiple Operations Together in One Batch Request

Chaining is an Oracle RightNow adapter feature that you can use to correlate multiple operations within a single batch request.

Underlying concepts and resulting code for Chaining is discussed at length in [Chaining](#).

The example use case for chaining discusses performing the following steps.

1. Create a `Contact`.
2. Create `Incident` (the primary `Contact` for this `Incident` is the one you created in the first step.)
3. Get the `Incident` (you must return the `Incident` just created.)

[Using Chaining](#) shows you how to use chaining with the Oracle RightNow adapter user interface and provides a use case for doing so. The use case shows you how you can achieve Chaining during transformation and uses the XSLT Mapper.



Note:

Chaining is always used together with batching and does not require any extra step in the Oracle RightNow adapter batch configuration wizard.

9

Configuring Oracle RightNow Cloud Properties

The Oracle RightNow Cloud Adapter enables you to create integrations with an Oracle RightNow Cloud application.

The following sections describe the wizard pages that guide you through configuration of the Oracle RightNow Cloud Adapter as a trigger and invoke in an integration.

Topics

- [Configuring Basic Information Properties](#)
- [Configuring Oracle RightNow Cloud Source Request Properties](#)
- [Configuring Oracle RightNow Cloud Source Response Properties](#)
- [Configuring Oracle RightNow Cloud Target Operation Properties](#)
- [Reviewing Configuration Values on the Summary Page](#)

Configuring Basic Information Properties

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

Topics

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

What You Can Do from the Basic Info Page

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

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

What You See on the Basic Info Page

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

Element	Description
What do you want to call your endpoint?	<p>Provide a meaningful name so that others can understand the responsibilities of this connection. You can include English alphabetic characters, numbers, underscores, and dashes in the name. You cannot include the following:</p> <ul style="list-style-type: none"> • Blank spaces (for example, My Inbound Connection) • Special characters (for example, #;83& or righ(t)now4) • Multibyte characters
What does this endpoint do?	<p>Enter an optional description of the connection's responsibilities. For example: This connection receives an inbound request to synchronize account information with the cloud application.</p>

Configuring Oracle Cloud Adapter Connection and CSF Key Properties

Enter the Oracle Cloud adapter configuration connectivity and Credential Store Framework (CSF) key values for your integration.

Topics

- [What You Can Do from the Oracle Cloud Adapter Connection Page](#)
- [What You See on the Oracle Cloud Adapter Connection Page](#)
- [What You Can Do from the Oracle Cloud Adapter CSF Key Page](#)
- [What You See on the Oracle Cloud Adapter CSF Key Page](#)

What You Can Do from the Oracle Cloud Adapter Connection Page

You can specify the following connection values for the Oracle Cloud adapter.

- Specify the WSDL URL for some adapters. If you are configuring the Oracle Eloqua Cloud adapter, no WSDL is required.
- Specify the security policy.
- Create the authentication key. A key created for one direction (for example, outbound) is also available for selection in the other direction (for example, inbound).

What You See on the Oracle Cloud Adapter Connection Page

The following table describes the key information on the Oracle Cloud adapter Connection page.

Element	Description
WSDL URL	<p>Note: This field is not displayed for the Oracle Eloqua Cloud adapter.</p> <p>Specify the WSDL. The WSDL is used to build integrations specific to your instance. You can also select the WSDL from a file system or another source by choosing the browser icon next to the WSDL URL field. Click File System at the top of the dialog, then browse for the WSDL.</p>
Security Policy	<p>Select the security policy appropriate to your environment (for example, USERNAME_PASSWORD_TOKEN).</p> <ul style="list-style-type: none">• The wizard shows all policies, including those that may not be applicable. To make a correct selection, you must have a knowledge of policies. For example, you cannot select a SAML-based policy because the identity is not propagated.• The policies you apply to the cloud adapter are unique to the cloud adapter and do not impact other endpoints in the composite.
Authentication Key	<p>Select the CSF authentication key.</p> <ul style="list-style-type: none">• Add: Click to create a new authentication key. You must specify the key name, user name, and password.• Edit: Click to edit an authentication key.• Delete: Click to delete an authentication key.
Test	<p>Click to validate the authentication key.</p>

What You Can Do from the Oracle Cloud Adapter CSF Key Page

You can specify the following CSF key values for the Oracle Cloud adapter.

- CSF key name
- User name and password
- If you are configuring the Oracle Eloqua Cloud adapter only, you must specify a company name.

What You See on the Oracle Cloud Adapter CSF Key Page

The following table describes the key information on the Oracle Cloud adapter CSF Key page.

Element	Description
CSF Key Name	Specify the CSF key to enable runtime injection of credentials. The adapter uses the CSF to retrieve the username and password required for authentication with the application (for example, the Oracle Sales Cloud or Oracle ERP application). This key identifies your login credentials during design-time.
Company Name (Oracle Eloqua Cloud adapter only)	Note: This field is only displayed for the Oracle Eloqua Cloud adapter. Specify the Oracle Eloqua company name.
Email Account and Role	Note: This field is only displayed for the Oracle NetSuite Cloud adapter. Specify the email account and role.
User Name	Enter the user name for connecting to your application (for example, the Oracle Sales Cloud or Oracle ERP application). Your administrator provides you with user credentials.
Password	Enter the password for connecting to your application.
Re-enter Password	Re-enter the same password a second time.
Application ID (NetSuite Adapter only)	Enter the application ID. When creating a SOA composite application, this field is optional if you are using a NetSuite 2015 WSDL and mandatory if using a NetSuite 2016 WSDL.

Configuring Oracle RightNow Cloud Source Request Properties

Enter the Oracle RightNow Cloud source request values for your integration. The values you specify start the integration.

Topics

- [What You Can Do from the Oracle RightNow Cloud Source Request Page](#)
- [What You See on the Oracle RightNow Cloud Source Request Page](#)

What You Can Do from the Oracle RightNow Cloud Source Request Page

You can configure the following request value for Oracle RightNow Cloud.

- Select to receive a business object as a request from the Oracle RightNow application. This selection invokes the integration.
- Select to receive an event subscription as a request from the Oracle RightNow application. This selection invokes the integration. Event subscriptions are supported only if the Oracle RightNow Application version is equal to or greater than release 15.5 (May 2015). Otherwise, only business objects are supported.

 **Note:**

The Oracle RightNow application has a limit of 20 subscriptions for every available event subscription. For example, you can build a maximum of 20 integrations, with all subscribing to the Customer Created Event integration and 20 integrations subscribing to the Contact Destroy Event integration. If you create a 21st integration for the same event subscription, this may lead to errors during integration activation.

What You See on the Oracle RightNow Cloud Source Request Page

The following table describes the key information on the Oracle RightNow Cloud source Request page.

Element	Description
Configure a Request	Select the endpoint configuration option by choosing a business object or event subscription. <ul style="list-style-type: none"> • With Business Objects: Select to display a list of business objects. • Event Subscription: Select to display a list of event subscriptions to which to subscribe.
Select a Business Object (is displayed if With Business Objects is selected)	Select the business object from the Oracle RightNow Cloud application to receive as a request that starts the integration.
Filter by object name (is displayed if With Business Objects is selected)	Enter the initial letters to filter the display of business objects. You can also select a filter type: <ul style="list-style-type: none"> • All: Displays all objects. • Custom: Displays objects you created. These business objects are identified by special icons. The naming convention is a combination of the package name and object name joined by a “.”. For example, if there is a custom object package called CO and an object named PurchaseProduct, the wizard displays the custom object as CO.PurchaseProduct. • Standard: Displays business objects delivered as part of the standard Oracle RightNow Cloud application.
Select Event (is displayed if Event Subscription is selected)	Select the event subscription from the Oracle RightNow Cloud application. This event is received as a request that starts the integration. <p>Note: Only the Organization and Contact business objects are supported for event subscriptions in this release.</p>

Element	Description
Event Name Filter (is displayed if Event Subscription is selected)	Enter the initial letters to filter the display of business events.

Configuring Oracle RightNow Cloud Source Response Properties

Enter the Oracle RightNow Cloud source response values for your integration.

Topics

- [What You Can Do from the Oracle RightNow Cloud Source Response Page](#)
- [What You See on the Oracle RightNow Cloud Source Response Page](#)

What You Can Do from the Oracle RightNow Cloud Source Response Page

You can configure the operation and business object that comprise the response type for Oracle RightNow Cloud.

- Immediate (synchronous) response: A response business object is immediately returned as output. You select **Immediate** as the response type on the Response page and select the business object as part of the response to the client.
- No response is required: You deselect the **Send** checkbox on the Response page because a response is not required.

What You See on the Oracle RightNow Cloud Source Response Page

Select the business object for the integration to send as a response document to the Oracle RightNow Cloud application.

The following types of responses are available.

- Immediate: A synchronous response is required (See [Table 9-1](#) for instructions)
- None: No response is required (See [Table 9-2](#) for instructions)

The following table describes the fields available if an immediate (synchronous) response is required.

Table 9-1 Response Type — Immediate (Synchronous) Response is Required

Element	Description
Immediate Response	Select Immediate for the Oracle RightNow Cloud application to wait until a response is received from the integration. This is also known as the request and response message exchange pattern. This is the default selection.

Table 9-1 (Cont.) Response Type — Immediate (Synchronous) Response is Required

Element	Description
Also Send faults	Select this checkbox if you want to send fault information to the Oracle RightNow Cloud application if any errors are encountered by the integration while processing the request. This is an optional checkbox only available with the Immediate response type.
Object Filter Name	Enter the initial letters to filter the display of business objects. You can also select a filter type: <ul style="list-style-type: none"> • All: Displays all objects. • Custom: Displays objects you created. These business objects are identified by special icons. The naming convention is a combination of the package name and object name joined by a ".". For example, if there is a custom object package called CO and an object named PurchaseProduct, the wizard displays the custom object as CO.PurchaseProduct. • Standard: Displays business objects delivered as part of the standard Oracle RightNow Cloud application.
Select Business Object	Select the business object for the integration to send as a response document to the Oracle RightNow Cloud application.

The following table describes the fields available if no response is required.

Table 9-2 Response Type — No Response is Required

Element	Description
Send	Deselect if a response is not required. This option disables the selection of business objects because none are required.
Response Type	If you deselect the Send checkbox, this section is disabled.
Select Business Object	If you deselect the Send checkbox, this section is disabled.

Configuring Oracle RightNow Cloud Target Operation Properties

Enter the Oracle RightNow Cloud target operation values for your integration.

Topics

- [What You Can Do from the Oracle RightNow Cloud Target Operations Page](#)

- [What You See on the Oracle RightNow Cloud Target Operations Page](#)

What You Can Do from the Oracle RightNow Cloud Target Operations Page

You can configure the following values for Oracle RightNow Cloud:

- Select to configure a single operation or multiple operations in a batch.
- Select the operation (CRUD or RightNow Object Query Language (ROQL)).
- Select the business objects.
- Enable aspects of server-side processing.

What You See on the Oracle RightNow Cloud Target Operations Page

The following table describes the key information on the Oracle RightNow Cloud target Operations page.

Element	Description
Select an Operation Mode	<p>Select the operation mode in which to define business objects:</p> <ul style="list-style-type: none"> • Single Operation: Select to configure a single operation. • Batch Operation: Select to configure multiple operations in a batch. This enables you to run multiple operations in a defined sequence. <p>Selecting this option refreshes the page to display an option for the following:</p> <ul style="list-style-type: none"> – Add an operation to the list link: Click to create a list of batch operations and their business objects. The operations are performed in the order in which they appear in the list (from top to bottom). – Edit icon: Click to edit an operations row in the table or change the order of batch operations. – Delete icon: Click to delete a selected operation row in the table.

Element	Description
Select an Operation Type	<p>Select the type of operation to perform on the business objects in an Oracle RightNow application:</p> <ul style="list-style-type: none"> • CRUD: Represents the create, read, update, delete, or destroy operations to perform on Oracle RightNow business objects. Each letter maps to a standard SQL statement, HTTP method, or DDS operation. Select the CRUD operation to perform on the business object: Create, Destroy, Get, or Update. • MISC: Represents the set of specialized tasks operations (such as sending emails to users) to perform in the Oracle RightNow application. • ROQL: (RightNow Object Query Language) enables you to define an ROQL-based query to send as a request to perform in the Oracle RightNow application. If you select this option, the page is refreshed to display a field for entering a query. <ul style="list-style-type: none"> – Enter an ROQL query statement: Enter a valid ROQL query in the field. For example: <pre data-bbox="878 909 1341 968">SELECT contacts FROM organization WHERE name = 'RightNow'</pre> <p>The query can include custom fields and parameters.</p> – Parameter Bindings: Displays any parameter bindings included in the specified query. For example, <code>orgId</code> is a parameter in the following query: <pre data-bbox="878 1236 1300 1295">SELECT Organization FROM Organization WHERE id = &orgId</pre> <p>Enter a query with a parameter and reselect QueryObjects from the dropdown list. This displays a text box in which to enter a test value for the parameter.</p> – Test My Query: Click to validate the query against the Oracle RightNow application. Query results are displayed. If errors occur, you receive results about how to correct the query.

Element	Description
Filter by object name	<p>Enter the initial letters of an object name to display a range of objects. You can also select a filter type:</p> <ul style="list-style-type: none"> • All: Displays all objects. • Custom: Displays objects you created. These business objects are identified by special icons. The naming convention is a combination of the package name and object name joined by a '.'. For example, if there is a custom object package called <code>CO</code> and an object named <code>PurchaseProduct</code>, the wizard displays the custom object as <code>CO.PurchaseProduct</code>. • Standard: Displays business objects delivered as part of the Oracle RightNow application.
Select Business Objects	<p>Select a single business object or multiple business objects from the Oracle RightNow application. The selected operation acts upon these business objects. The RightNow version 1.2 API is supported.</p> <p>When you complete target operation configuration, the selected operation and business objects are defined in the integration-centric WSDL file.</p>
Processing Options	<p>Select to enable aspects of server-side processing. By default, no options are selected.</p> <ul style="list-style-type: none"> • Suppress External Events: Select to prevent the Oracle RightNow application from processing any external events raised after the completion of create, update, or delete operations. • Suppress Rules: Select to prevent business rules from running after the completion of create, update, or delete operations. Business rules are tools for simplifying and automating common business tasks. See the RightNow documentation for more information. • Suppress Response: Select to prevent the CRUD Create operation from returning a response ID. If this check box is disabled, the Create operation returns an ID of the created object. • Commit After: Select to group multiple operations in a single transaction. At runtime, when a set of operations in a batch is defined as part of a single operation, the Commit After action is sent after the last operation in that transaction boundary. When an operation from the subset of the batch operation fails, it is handled by throwing a fault to the client. This option is only available with batch operations.

Reviewing Configuration Values on the Summary Page

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

Topics

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

What You Can Do from the Summary Page

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

- View the configuration details you defined for the source or target adapter. For example, if you have defined an inbound source adapter with a request business object and immediate response business object, specific details about this configuration are displayed on the Summary page.
- Click **Done** if you want to save your configuration details.
- Click a specific tab in the left panel or click **Back** to access a specific page to update your configuration definitions.
- Click **Cancel** to cancel your configuration details.

What You See on the Summary Page

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

Element	Description
Summary	<p>Displays a summary of the source or target configuration values you defined on previous pages of the wizard.</p> <p>For adapters for which a generated XSD file is provided, click the XSD link to view a read-only version of the file.</p> <p>To return to a previous page to update any values, click the appropriate tab in the left panel or click Back.</p>

A

Credential Store Configuration for Managing RightNow Credentials

Before you can configure integrations against RightNow Cx using the Oracle RightNow adapter, the authentication key that you specify at design-time has to be made available in the credential store of the WebLogic Domain where the SOA or Service Bus Service are deployed.

The authentication key is not automatically created within the Credential Store on deployment of the SOA Composite or Oracle Service Bus Project. For information on how to manually create the authentication key (also known as CSF Key) in the WebLogic Domain using Oracle Enterprise Manager Fusion Middleware Control, see *Oracle Cloud Adapters Postinstallation Configuration Guide*.