# **Oracle® Cloud Adapter**

User Guide for Oracle Cloud Adapter for Salesforce.com 12c Release (12.1.3.0.0)

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Oracle Fusion Middleware User Guide for Oracle Cloud Adapter for Salesforce.com, 12c (12.1.3.0.0) Release

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- Audience
- Documentation Accessibility
- Related Documents
- Conventions

## Audience

*Oracle Fusion Middleware User Guide for Oracle Cloud Adapter for Salesforce.com* is intended for those who wish to use the Adapter for integrating Applications with Salesforce.com.

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### **Related Documents**

For more information, see the following documents in the Oracle Fusion Middleware 12c Release (12.1.3.0.0) documentation set:

- Oracle Fusion Middleware Programming Resource Adapters for Oracle WebLogic Server
- Oracle Fusion Middleware User's Guide for Technology Adapters
- Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite
- Oracle Fusion Middleware Administrator's Guide for Oracle SOA Suite and Oracle Business Process Management Suite
- Oracle Fusion Middleware Administrator's Guide for Oracle Service Bus

# Conventions

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

The following text conventions are used in this document:

Part I

# Introduction to Oracle Cloud Adapter for Salesforce.com

This chapter provides an introduction to the Oracle Cloud Adapter for Salesforce.com.

With an exponential increase in adoption of Cloud Based Applications across Enterprises, there is also an increased need for simplified, reliable and secure connectivity between these applications with other Cloud and On-Premise Applications. Most Cloud Applications in the market today have their own distinct data model and unique mechanisms for enabling connectivity, authentication, authorization and session management, etc. This disparity adds complexity in the development and maintenance of integrations, and an increased time-to-market as the number of Applications in the Enterprise integration mix grows. Oracle Fusion Middleware has significantly simplified integrations with these Cloud Applications by providing a standard platform for integration that not only enables connectivity, but also lays a strong foundation to address aspects of audits, compliance, security and governance.

The Oracle Cloud Adapters, a key component of the Oracle SOA Suite, builds on the above platform to enable Standards based Connectivity to Cloud based Applications from On-Premise, Legacy and other Cloud Applications, while significantly simplifying the overall life-cycle and user experience. It shields the integration modeler from hand-coding and configuring dedicated logic for handling connectivity, security, and session management etc. individually for each Cloud Application being integrated with. It also safeguards the user from the need for in-depth expertise on the complex functional and technical knowledge of the applications. Thus, with these Adapters addressing all the requisites for managing integration with the applications, the Developers can focus on building the business logic for the integration and business processes.

This chapter contains the following sections:

- Section 1.1, "Architecture"
- Section 1.2, "Lifecycle"

## 1.1 Architecture

Oracle Cloud Adapter framework and SDK are the new offerings provided by Oracle in Oracle SOA Suite. Figure 1-1 depicts the architecture of Oracle Cloud Framework. The Oracle Cloud Framework has two main components:

**Design-time:** Oracle Cloud Adapters are configured at design-time via the Adapter Configuration Wizard in JDeveloper. The Wizard leverages the underlying Cloud SDK to facilitate browsing of cloud application metadata and generation of project artifacts to be used at runtime. **Run-time:** It includes Oracle run-time cloud SDK which helps in creation of cloud application (e.g. Salesforce.com) adapter run-time plug-in. Oracle WebLogic server is having Cloud Framework running, supported by Oracle Cloud Run-time SDK, which is a backbone of all cloud adapters. Cloud Framework uses one common JNDI name which is being referred by all cloud adapters.

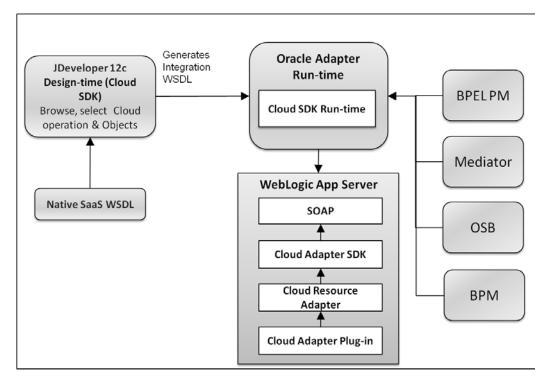


Figure 1-1 Architecture of Oracle Cloud Adapter

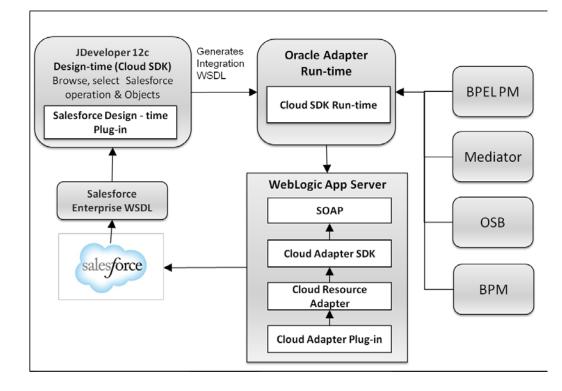
## 1.1.1 Architecture of Oracle Cloud Adapter for Salesforce.com

The Oracle Cloud Adapter for Salesforce.com was built using the Oracle Cloud Adapter Framework.

**Design-time:** The Salesforce.com Adapter is configured using the Adapter Configuration Wizard within JDeveloper. User can drag and drop the adapter from the component palette to the External References swim lane to start configuring the adapter. The Wizard enables the user to graphically browse and select Business Objects and Operations of interest for integration.

**Run-time:** The Runtime component of the Salesforce adapter implements the Cloud Runtime SDK to interact with Salesforce.com Enterprise WSDL SOAP APIs.

Figure 1-2 shows the Architecture of Oracle Cloud Adapter for Salesforce.com.

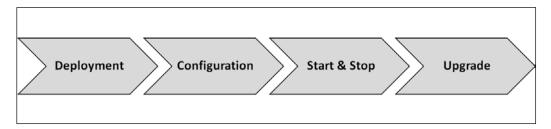




## 1.2 Lifecycle

In general, the lifecycle of an Oracle Cloud Adapter for Salesforce.com instance includes the following four stages, as shown in Figure 1-3.

Figure 1-3 lifecycle of Oracle Cloud Adapter for Salesforce.com



**Deployment**: Oracle Cloud Adapter for Salesforce.com gets installed and deployed as per the instructions provided in the section, "Deploy the Composite".

**Configuration**: Oracle Cloud Adapter for Salesforce.com installation and deployment happens with a default configuration provided by Oracle. If you want to change design-time configuration files, refer to the section, "Deploy the Composite".

**Start and Stop of Adapter**: Since Oracle Cloud Adapters architecture is different from JCA Adapters, the deployment section of WebLogic console does not show cloud adapters. The Cloud Adapter instances are stopped when the WebLogic server is shut down and similarly the instances are started when WebLogic server is booted.

**Upgrade**: Oracle will release the latest version of Oracle Cloud Adapter for Salesforce.com either in the form of OPatch or bundled with new versions of the Oracle SOA Suite. Oracle Cloud Adapter for Salesforce.com can be upgraded without impacting current functionalities. Future upgrades of Oracle Cloud Adapter for Salesforce.com will also have backward compatibility, so that the existing composites do not become obsolete in the upgraded environment.

Part II

# **Oracle Cloud Adapter for Salesforce.com**

This part provides an overview of the Oracle Cloud Adapter for Salesforce.com. It contains the following chapters:

- Oracle Cloud Adapter for Salesforce.com
- Getting Started
- Oracle Cloud Adapter for Salesforce.com Supported Features
- Design-Time: Using Oracle Cloud Adapter for Salesforce.com Configuration Wizard
- Integration with Different Service Components (BPEL/Mediator) in Oracle SOA Suite
- Configuring Outbound Processing Using Oracle Service Bus
- Configuring the Oracle Cloud Adapter for Salesforce.com on Oracle WebLogic Server
- Troubleshooting and Error Messages
- Migration Support
- Oracle Cloud Adapter for Salesforce.com Use Cases

1

# **Oracle Cloud Adapter for Salesforce.com**

The Oracle Cloud Adapter for Salesforce.com enables integration to Salesforce CRM using Oracle SOA Suite and BPM.

This chapter contains the following topics:

- Section 1.1, "Overview"
- Section 1.2, "Supported Versions and Platforms"

## 1.1 Overview

Oracle Cloud Adapter for Salesforce.com is a key component within Oracle Fusion Middleware that enables Integration of On-Premise and SaaS applications with Enterprise, Unlimited or Developer Editions of Salesforce.com

### 1.1.1 Functional Overview

The Oracle Cloud Adapter for Salesforce.com allows seamless connection of different systems to Salesforce.com. It uses the Oracle SOA Suite to communicate with Salesforce.com, leveraging the SOAP API of Salesforce and supports all the major operations of SOAP API for standard as well as custom objects. The Salesforce.com WSDLs are polymorphic, for instance, the element sObject can refer to a plethora of objects, say account, contact, lead, etc. The support for this polymorphic behavior is limited in other options available in the market to integrate with Salesforce.com. The Oracle Cloud Adapter for Salesforce.com WSDLs through a simplified user interface. It enables you to define the operation you wish to perform in your API call and the object you wish to modify with this call. The integration WSDL that is generated is not polymorphic and contains the selected operation and object. The Oracle Cloud Adapter for Salesforce.com also provides a market-leading session management capability.

The adapter is compatible with the last six versions of Salesforce.com as described in section Salesforce.com "Supported Versions".

The Oracle Cloud Adapter for Salesforce.com is based on the Cloud Adapter Framework. The Cloud Framework relies on an underlying JCA framework which uses a common JNDI for all cloud adapters in Oracle SOA Suite 12c. The operations to be performed (CREATE, UPDATE, DELETE, etc.) are modeled using the design-time wizard. (For more information, refer to the section "

Design-Time: Using Oracle Cloud Adapter for Salesforce.com Configuration Wizard"). The inputs and outputs of the Oracle Cloud Adapter for Salesforce.com are XML; this allows the Oracle Cloud Adapter for Salesforce.com to be plugged into Oracle Fusion Middleware and enable the use of other SOA tools for XML transformations and assignments.

To connect to Salesforce.com, there are certain prerequisites:

- Enterprise WSDL. For more information, refer to the section "A.1 Generating the Enterprise WSDL"
- Valid Salesforce.com credentials. For more information, refer to the section "Oracle Cloud Adapter for Salesforce.com Connection Parameters".

 Client certificates. For more information, refer to the section "Importing Salesforce.com Certificate into Client/Server".

The Oracle Cloud Adapter for Salesforce.com can be used at present, in an SOA/OSB/BPM process as described in section "Designing a Composite for Service Integration".

### 1.1.2 Design Overview

This section gives an overview about the design of Oracle Cloud Adapter for Salesforce.com. Figure 1-1 shows how the Oracle Cloud Adapter for Salesforce.com interacts with the various design-time and deployment artifacts.

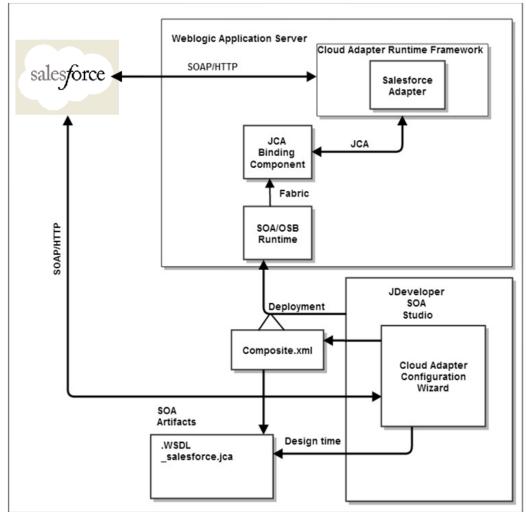


Figure 1-1 How the Oracle Cloud Adapter for Salesforce.com Works

Description of Figure 1-1 How the Oracle Cloud Adapter for Salesforce.com works.

- The Oracle Cloud Adapter for Salesforce.com is an adapter which has been built using the Oracle cloud SDK. For more information on deployment, refer to the section, "Deploy the Composite".
- The Oracle Cloud Adapter for Salesforce.com can have multiple adapter instances; an adapter instance is basically a configured Oracle Cloud Adapter for Salesforce.com, which can connect with Salesforce.com and invoke the Salesforce Cloud operation which has been selected by the user during the configuration. Each adapter instance has its own artifacts i.e. Integration WSDL and JCA file.

- Because each adapter instance points to a single Salesforce operation, there is a one-toone correspondence from adapter instances to Salesforce.com cloud operation. To see the list of supported operation, refer to the section "Supported SOAP API Operations".
- The adapter instances are part of the SOA composites. Each time the adapter wizard is run, it creates one instance of the Cloud Adapter. A Cloud Adapter instance consists of a jca file, a WSDL, and a reference element added to the composite.xml.

For more information, refer to the section "Oracle Cloud Adapter for Salesforce.com Walkthrough".

The artifacts generated in the above steps are used by the Oracle Cloud Adapter for Salesforce.com which is part of the Cloud Adapter Run-time framework for processing the request and response from Salesforce.com.

 Table 1-1 shows the Adapter Configuration Wizard Generated SOA Composite Adapter

 Artifacts.

Table 1-1 Adapter Configuration Wizard Generated SOA Composit	e Adapter Artifacts
---	---------------------

File	Description
<servicename>.wsdl</servicename>	The Oracle Cloud Adapter for Salesforce.com generates this non-
	polymorphic integration WSDL for seamless integration to
	Salesforce.com. An abstract WSDL that defines, the name of
	operations and objects selected along with the request and
	response structures. Unlike the Enterprise WSDL available from
	Salesforce.com, it is not polymorphic and is therefore much more
	integration-friendly.
<servicename>_sale</servicename>	The JCA file contains the internal implementation details used by
sforce.jca	the adapter during run-time. It contains the different interaction
	and connection properties used by the adapter. The operations
	describe the action that needs to 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.

# **1.2 Supported Versions and Platforms**

This section provides an overview of the different versions and platforms of Salesforce.com as well as of different operating systems supported by the Oracle Cloud Adapter for Salesforce.com.

## 1.2.1 Salesforce.com

#### 1.2.1.1 Supported Versions

The Oracle Cloud Adapter for Salesforce.com supports the previous six versions of Salesforce.com starting from the current version. The list of supported Salesforce.com Editions is given below:

- v25
- v26
- v27
- v28
- v29

■ v30

#### 1.2.1.2 Supported WSDLs

A Web Service Description Language (WSDL) file is required to access the Salesforce.com Web Service. It defines the available web service. It is used by the development platform to generate the API required to access Salesforce.com web service. The WSDL can be generated directly from Salesforce.com UI if one has access to the download page, or it can be requested from the organization's Salesforce administrator. Web Service Description Language (WSDL) contains all the relevant information required to invoke a web service. It is extensible and allows the description of endpoints and their messages irrespective of the network protocols and message formats. Oracle Cloud Adapter for Salesforce.com supports integration with Salesforce.com via the Enterprise WSDL.

Generate the most-recent WSDL for the organization by clicking on Setup>Develop>API. For steps on how to generate the Enterprise WSDL for your Salesforce.com organization, see section "A.1 Generating the Enterprise WSDL".

Enterprise WSDL – Most enterprise users use this API to develop client applications for their organization. It is a strongly typed representation of the organization's data. It contains the information about data types, schema, and fields of the development environment. This allows for a tight integration between the Salesforce.com Web service and the WSDL. The Enterprise WSDL is object dependent, i.e. if custom objects or custom fields are created in the organization's Salesforce configuration, it changes. The Enterprise WSDL also contains the versions of the installed packages in the organization. This adds an extra step in WSDL generation where the user has to select the versions of managed packages.

When generating the enterprise WSDL, keep in mind the following scenarios:

- Addition of custom objects.
- Modification of custom objects.
- Addition of custom fields.
- Modification of custom fields.
- Changes/updates to installed packages.

For all the above-mentioned scenarios, the WSDL file needs to be regenerated to permit access to these changes. Also, for any change in the installed packages, the WSDL needs to be regenerated with the specific package version. The new WSDL will have the objects and fields of only the packages selected during generation.

#### 1.2.1.3 Supported API

#### SOAP API

To meet the needs of the complex business processes that an organization may need to orchestrate, Salesforce.com provides a number of ways for advanced administrators and developers to implement different functionalities. SOAP API is one such way.

SOAP API can be used to fetch and manipulate different records of standard as well as custom objects in Salesforce.com through operations like create, update, delete, query, etc. It supports all languages that support Web Services.

The organization must use Enterprise Edition, Unlimited Edition, or Developer Edition to be able to use SOAP API. An existing Salesforce.com customer can upgrade to either Enterprise or Unlimited Edition by contacting their account representative.

#### 1.2.1.4 Support for Outbound

The Oracle SOA Suite Oracle Cloud Adapter for Salesforce.com does not support Salesforce making outbound synchronous calls to SOA Suite, that scenario must be implemented using the standard Web Service Binding in SOA Suite. It will be supported in the adapter in a future release. Automatic triggering of SOA Composite based services upon occurrence of SFDC events can be done by registering SOA Composite services end points manually within SFDC.

## 1.2.2 Oracle SOA Versions

Oracle Cloud Adapter for Salesforce.com is available in the following Oracle SOA Suite versions:

- 11g (11.1.1.7.0), alternatively referred as Oracle SOA Suite 11g PS6. Kindly refer the document <u>User Guide for Oracle Cloud Adapter for Salesforce.com</u> for more details.
- 12c (12.1.3.0.0): This document is intended for 12c version of SOA Suite.

This section provides a quick-start guide to enable the use of Oracle Cloud Adapter for Salesforce.com. This chapter explains the basic steps the user must follow to ensure that the Oracle SOA Suite 12c is properly configured for the Oracle Cloud Adapter for Salesforce.com. You must follow these steps to successfully connect with Salesforce.com and then proceed with implementing your integration. This chapter contains the following topics:

- Section 2.1, "Oracle Cloud Adapter for Salesforce.com Connection Parameters"
- Section 2.2, "IP Address Registration and Restrictions"
- Section 2.3, "Salesforce.com Permissions"
- Section 2.4, "Importing Salesforce.com Certificate into Client/Server"
- Section 2.5, "Enabling Oracle Cloud Adapter for Salesforce.com in Design-Time and Run-Time"
- Section 2.6, "Import the WSDL File into Your Development Platform"

# 1.1 Oracle Cloud Adapter for Salesforce.com Connection Parameters

The Oracle Cloud Adapter for Salesforce.com requires the user's Salesforce.com login credentials to successfully integrate with Salesforce.com.

The required connection parameters are:

- Username (in the form of an e-mail address).
- Password + Security token.
- CSF (Credential Store Framework) key.

Let us first begin with the description of connection parameter for Salesforce.com.

### 1.1.1 User Name

Salesforce.com provides every user in an organization a unique username. This username is in the form of an e-mail address. It could either be the same as the registered e-mail address of the user or some other username but always in an e-mail format.

For Example, if you have the registered e-mail id as *john.doe@oracle.com*, your username for Salesforce.com can be *john.doe@oracle.com* or you can choose another username in the form of an e-mail address like *john.doe@salesforce.com* 

### 1.1.2 Password

The design of Salesforce.com APIs is such that the security token generated at the time of password reset is required to be appended at the end of the password. For example, if the

security token automatically generated by Salesforce.com is SSSSSSSSSSS and the password is "password", then the user is required to enter "passwordSSSSSSSSSSS" to log in.

The security token can be obtained by changing the password or resetting the security token through the Salesforce.com UI. The security token is sent by mail to the e-mail address of the user registered with Salesforce.com for that particular organization. This token is valid until the user resets the security token for his/her account or changes the password.

**Note:** In case the user generates a new security token, then all the existing composites using the old security token in their passwords will need to be updated.

## 1.1.3 CSF Key

The Adapter uses the Credential Store Framework to retrieve the username and password required for Salesforce.com authentication. This key identifies a user's Salesforce.com login credentials during design-time and has to be configured as exactly the same in Enterprise Manager on WebLogic Server under the CSF Map name "SOA" (Case sensitive).

For steps on how to configure CSF key in WebLogic Server, refer to the section "A.2 CSF Key in Enterprise Manager"

## 1.1.4 Downloaded Enterprise WSDL

A copy of the Enterprise WSDL of your Salesforce.com organization is needed for successful connection of the Oracle Cloud Adapter for Salesforce.com to Salesforce.com. To view steps on how to generate the enterprise WSDL, refer to the section "A.1 Generating the Enterprise WSDL".

## 1.2 IP Address Registration and Restrictions

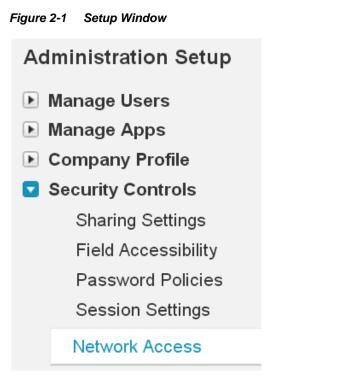
When a user tries to access Salesforce.com via a new IP address or machine, Salesforce.com requires a verification code to be entered for the user. This code is mailed to the user's registered e-mail address. To circumvent this login challenge, a list of IP address ranges can be set for all users from which they can always log in without facing such issues.

#### **Restricting Login IP Ranges for the Organization**

A list of IP addresses can be specified in Salesforce.com to protect the organization's data and from these addresses, the users can always log in without receiving a login challenge:

To register the list of IP addresses, follow the steps given below:

- 1. Log in to the salesforce.com using a valid user name and password.
- 2. Click on User Menu for user name, and then click on Setup.
- **3.** Under Administration Setup, Expend Security Controls and click on Network Access, as shown in Figure 2-1.



4. Network Access page is displayed, as shown in Figure 2-2.

Figure 2-2	Network Access Page
i iguio z z	Methon Addedd I uge

Network Access			
The list below contains IP address ranges from sources that your organ Users logging in to salesforce.com with a browser from trusted networks to access salesforce.com without having to activate their computers.			
Trusted IP Ranges	New		
	New End IP Address		

5. Click New, the Trusted IP Range Edit page is displayed, as shown in Figure 2-3.

Network Access Trusted IP Range Edit	Help for this Page 🕜		
Enter the range of valid IP addresses from which user logins are trusted. Users logging in from trusted IP addresses are not asked to activate their computers and may use their user password instead of a security token to log in to the API or a desktop client such as Connect for Outlook, Connect Offline, Connect for Office, Connect for Lotus Notes, or the Data Loader.			
Please specify IP range	= Required Information		
Start IP Address End IP Address			
Save			

6. Enter a valid IP address in the **Start IP Address** field and a higher IP address in the **End IP Address** field.

The range of allowed IP addresses from which users can log in is defined by the start and end addresses. To allow logins from only one address, the administrator can enter that particular address. For example, to allow logins from only 125.12.3.0, enter 125.12.3.0 as both the start and end addresses. The start and end IP addresses in an IPv4 range must include no more than 33,554,432 addresses ( $2^{25}$ , a /7 CIDR block). Here are some examples of valid ranges:

- 0.0.0.0 to 1.255.255.255
- 132.0.0.0 to 132.255.255.255
- 132.0.0.0 to 133.255.255.255

#### 7. Click Save.

When users log in to Salesforce.com via the API, Salesforce.com confirms that the login is authorized as follows:

- 1. Salesforce.com checks whether the user's profile has login hour restrictions. If login hour restrictions are specified for the user's profile, any login outside the specified hours is denied.
- 2. Salesforce.com then checks whether the user's profile has IP address restrictions. If IP address restrictions are defined for the user's profile, any login from an undesignated IP address is denied, and any login from a specified IP address is allowed.
- **3.** If profile-based IP address restrictions are not set, Salesforce.com checks whether the user is logging in from an IP address they have not used to access Salesforce.com before:

- If the user's login is from an IP address in your organization's trusted IP address list, the login is allowed.
- If the user's login is not from a trusted IP address the login is blocked.

Whenever a login is blocked or returns an API login fault, Salesforce.com must verify the user's identity.

For access via the API or a client, the user must add their security token to the end of their password in order to log in.

# 1.3 Salesforce.com Permissions

The Cloud Adapter for Salesforce.com is based on the SOAP API of Salesforce.com. For the users to successfully make calls for different operations (create, update, deleted, query, etc.) they must have the requisite permissions for performing these operations on specific objects. This section provides an overview of the permissions the user must have to make the following calls:

- Create: You must have permission to create the particular object that is selected during design time. For example, if you are trying to create an account, you must have the permission to create new accounts.
- Retrieve: If you are trying to fetch the records of a certain object, you must have at least the read permission for that object. If you are trying to fetch a record of the Campaign object, you must have the permission to access Campaign object in Salesforce.com.
- Update: You must have permission to update the particular object that is selected during the design-time. For example, if you are trying to update an account, you must have the permission to change the account records.
- Delete: You must have the permission to delete the records of the object selected during the run-time. For example, if you have selected Lead object during design time, you must have the permission to delete Leads.
- **Upsert:** A user trying to use the upsert operation must have both create and update privileges for the said object to successfully make the upsert call.
- **ConvertLead:** A user trying to convert a lead to account and/or opportunity must have read and write permissions for the aforementioned objects.
- Merge: The merge operation works only on Account, Lead, and Contact objects.
   You must have full access to these objects.
- Query: This operation can be used to fetch records for several objects. To be able to successfully fetch these records you must have the permission to access these objects and their fields.
- Search: This operation is used to search records in the Salesforce.com organization and only the objects to which the user performing the operation has access to can be fetched. For instance, if you do not have access to Pricebooks, the records from Pricebook that match the search string will not be fetched.

# 1.4 Importing Salesforce.com Certificate into Client/Server

This section provides an overview of how to generate and import the Salesforce.com certificate for your organization into your client/server. The Oracle Cloud Adapter for Salesforce.com uses the certificate generated by Salesforce.com to establish a two-way SSL authentication. This enhances the security as the target of SOAP calls made by the Oracle Cloud Adapter for Salesforce.com receives the certificate and can use it to authenticate the request against its keystore.

## 1.4.1 Generating Salesforce.com Certificate

The Salesforce.com Client certificate has to be downloaded from the Salesforce.com application user interface. This certificate has to be imported into the server for successful handshaking with Salesforce.com. The Oracle Cloud Adapter for Salesforce.com uses two-way SSL when interacting with Salesforce.com and hence requires this certificate. On the WebLogic server, these certificates are required to be imported.

To download the certificate, use the following procedure:

- 1. Log in to the salesforce.com using a valid user name and password.
- 2. Click on User menu for user name, and select Setup.
- **3.** Under **App Setup**, Expand **Develop** and click on **API** to display the **WSDL download** page, as shown in Figure 2-4.

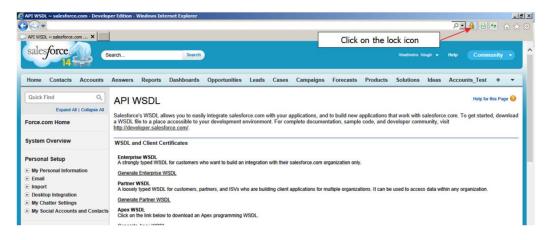


Figure 2-4 API WSDL Download Page

**4.** Click on the **lock** icon as indicated in the above Figure 2-4. A small window will pop up. Click on the **view certificates**, as shown in Figure 2-5.

**Note:** Here, internet explorer (version 10) is used for demonstration. Experience may differ if you will be using other browser or other version of internet explorer. But idea here is to click on security lock to fetch the certificate information.

Figure 2-5 View Certificates



**5.** After clicking on the view certificates another window pops up providing the details of the certificate. Open the **Certification Path** tab and select VeriSign as shown in the screenshot below. The **View Certificate** button would be enabled, click the same to view certificate details.



Certificate	J
General Details Certification Path	
VeriSign VeriSign VeriSign Class 3 Secure Server CA - G3	
	i
<u>V</u> iew Certificate	,
Certificate <u>s</u> tatus:	
This certificate is OK.	,
Learn more about <u>certification paths</u>	
ОК	

6. A new page opens above the existing page, open the **Details** tab and click on **Copy to File** button, as shown in Figure 2-7.

Figure2-7 Details Tab

Certifica	ate	x i
Gene	ral Details Certification Path	
	Certificate	
	General Details Certification Path	
	Show: <all></all>	
	Field	Value
	Version Serial number Signature algorithm	V3 18 da d1 9e 26 7d e8 bb 4a 21 sha1RSA
	Signature hash algorithm Signature Issuer Valid from	sha1 VeriSign Class 3 Public Primary 08 November 2006 05:30:00
	Valid to	17 July 2036 05:29:59 VeriSion Class 3 Public Primary
c F		
		3
Le		
		dit Properties Copy to File
• •	Learn more about <u>certificate details</u>	е
▶ C		ОК
~		Circle on the link pelow to download a r01

7. Now, Certificate Export wizard opens. Click on next button and select **Base-64** encoded X.509 (.CER) option, as shown Figure 2-8.

#### Figure2-8 Certificate Export Wizard

Certificate Export Wizard	×
Export File Format Certificates can be exported in a variety of file formats.	
Select the format you want to use:	
O DER encoded binary X.509 (.CER)	
Base-64 encoded X.509 (.CER)	
Cryptographic Message Syntax Standard - PKCS #7 Certificates (.P7B)	
$\square$ Include all certificates in the certification path if possible	
C Personal Information Exchange - PKC5 #12 (,PFX)	
$\square$ Include all certificates in the certification path if possible	
Delete the private key if the export is successful	
Export all extended properties	
C Microsoft Serialized Certificate Store (,SST)	
Learn more about <u>certificate file formats</u>	
< <u>B</u> ack <u>N</u> ext > Cancel	

- 8. 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.
- **9.** Double-click and open the Saved certificate, it should be similar to the screenshot provided below.

Figure 2-9 Certificate Information

Certificate	x
General Details Certification Path	
Certificate Information	
This certificate is intended for the following purpose(s) • Ensures the identity of a remote computer • Proves your identity to a remote computer • Protects e-mail messages • Ensures software came from software publisher • Protects software from alteration after publication • All issuance policies	):
Issued to: VeriSign Class 3 Public Primary Certification Authority - G5	
Issued by: VeriSign Class 3 Public Primary Certification Authority - G5	
Valid from 08- 11- 2006 to 17- 07- 2036	
Install Certificate Issuer Stat	ement
	ОК

**10.** Import the downloaded certificate into your application server, and configure your application server to request the client certificate. The application server then checks that the certificate used in the SSL/TLS handshake matches the one you downloaded.

# 1.4.2 Importing Salesforce.com Certificate using Keytool

- 1. Provide a suitable location on your system to save the certificate authority. You would now add this certificate to Keystore.
- 2. Make sure that KSS for demo is disabled.
- 3. To disable KSS, go to the WebLogic console (http://url:port/console/).
- 4. Click on Domain  $\rightarrow$  Security  $\rightarrow$  Advanced page and unselect "Use KSS for Demo".
- 5. Click Save.
- 6. To know the WebLogic server's trust Keystore location: On the home page, proceed to **Servers** under **Environment** subsection.
- 7. Select the Admin server out of the list of servers displayed.
- 8. Proceed to the **Keystores** tab, as shown in Figure 2-10.

#### Figure 2-10 Configuration Keystores Tab

Settings for Adm	inServer					
Configuration	Protocols	Logging	Debug	Monitoring	Control	Deployment
General Cluste	er Service	s Keyst	ores S	5L Federati	on Services	Deployme
Click the <i>Lock &amp;</i>	Edit button	in the Char	nge Center	to modify the	settings or	this page.
Save						

- **9.** Under **Keystores** tab, select the **Demo Trust Keystore** path. This is the path where our keystore resides.
- **10.** It would be of the form {Middleware\_Home}/wlserver/server/lib. Next, you need to import this certificate from the authority into WebLogic server's trust store.
- **11.** If you are using a window based system, use a command prompt to navigate to the path mentioned in the above step.
- **12.** At this path, run the following keytool command:

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

For e.g., assuming downloaded certificate is kept at the location as mentioned in the step 8 and name of the certificate is *Salesforce.cer* then keytool command would look like:

keytool -import -trustcacerts -alias SalesForceCA -file **Salesforce.cer** -keystore DemoTrust.jks -storepass DemoTrustKeyStorePassPhrase

- **13.** A message **Certificate was added to keystore** is displayed, which confirms the successful import of the certificate. If you get a 'Certificate already exists in the Keystore message', enter 'Y'(yes) and proceed to import the certificate.
- **14.** You can verify the same by enlisting all the certificates using the following command:

keytool -list -keystore DemoTrust.jks -storepass DemoTrustKeyStorePassPhrase

**15.** The newly imported certificate appears as part of existing certificates in the keystore, as shown Figure 2-11.

Figure2-11 Run Command Screen

[oracle@JCADEV2 lib]\$ keytool -list -keystore DemoTrust.jks Enter keystore password:
Keystore type: JKS Keystore provider: SUN
Your keystore contains 7 entries
salesforceca, Mar 13, 2014, trustedCertEntry,
Certificate fingerprint (SHA1): B1:8D:9D:19:56:69:BA:0F:78:29:51:75:66:C2:5F:42:2A:27:71:04
salesforceca1, Mar 13, 2014, trustedCertEntry,
Certificate fingerprint (SHA1): 5D:EB:8F:33:9E:26:4C:19:F6:68:6F:5F:8F:32:B5:4A:4C:46:B4:76
certgenca, Mar 23, 2002, trustedCertEntry,
Certificate fingerprint (SHA1): E2:CB:88:9D:C5:09:F9:0A:AA:0D:3C:F6:75:7B:5F:1D:2B:A1:F7:F0
wlsdemocanew2, Jan 25, 2003, trustedCertEntry,
Certificate fingerprint (SHA1): 4E:FB:1D:2F:58:EA:D4:0C:FC:2A:86:91:2D:43:4F:C1:79:D0:A6:4E
wlsdemocanew1, Jan 25, 2003, trustedCertEntry,
Certificate fingerprint (SHA1): 84:13:A2:63:D6:74:75:3B:25:15:6F:62:8C:18:79:87:62:5B:9A:0C
wlscertgencab, Jan 25, 2003, trustedCertEntry,
Certificate fingerprint (SHA1): F8:5D:49:A4:12:54:78:C7:BA:42:A7:14:3E:06:F5:1E:A0:D4:C6:59
wlscertgenca, Dec 2, 2012, trustedCertEntry,
Certificate fingerprint (SHA1): CA:61:71:5B:64:6B:02:63:C6:FB:83:B1:71:F0:99:D3:54:6A:F7:C8

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

## 16.1 Enabling Oracle Cloud Adapter for Salesforce.com in Design-Time and Run-Time

This section provides an overview that enables you to access the Oracle Cloud Adapter for Salesforce.com in both Design-Time and Run-Time.

The Oracle Cloud Adapter for Salesforce.com comes pre-installed with Oracle SOA Suite 12c unlike 11g PS6 where it has to be enabled using an OPatch for JDeveloper and WebLogic Server.

#### 16.1.1 What are Design-Time and Run-Time?

The Cloud Adapter for Salesforce.com has two components:

 Design-Time – This is the Adapter Configuration Wizard that allows an easy generation of artifacts that are needed to invoke and consume Web services. It consists of six simple configuration windows that create the artifacts needed to communicate with Salesforce.com.

Below flowchart diagram (Figure 2-12) explains the complete design-time lifecycle.

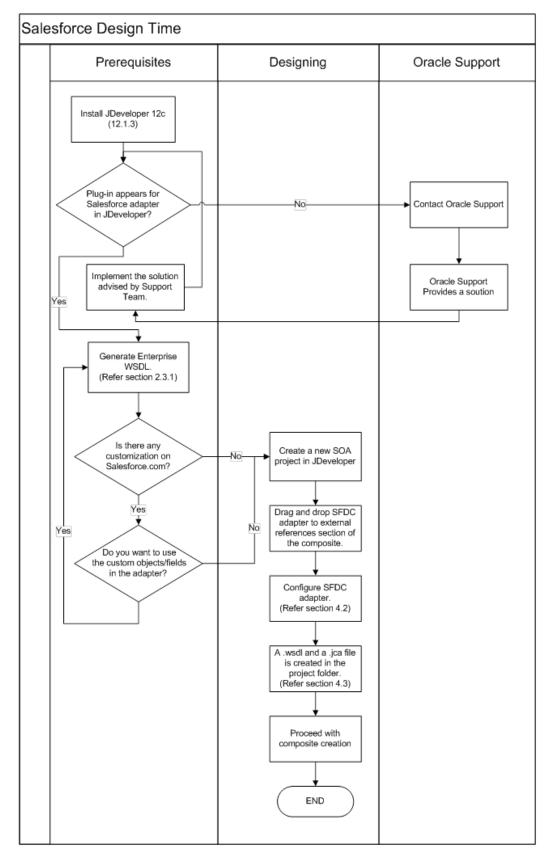


Figure2-12 Design-Time Lifecycle

2. **Run-Time** – The run-time part of the adapter is utilized for delivering the information generated during the design-time to the service end point. This is where the actual invocation of Salesforce.com Web Service happens.

Below flowchart diagram (Figure 2-13) explains the complete run-time lifecycle.

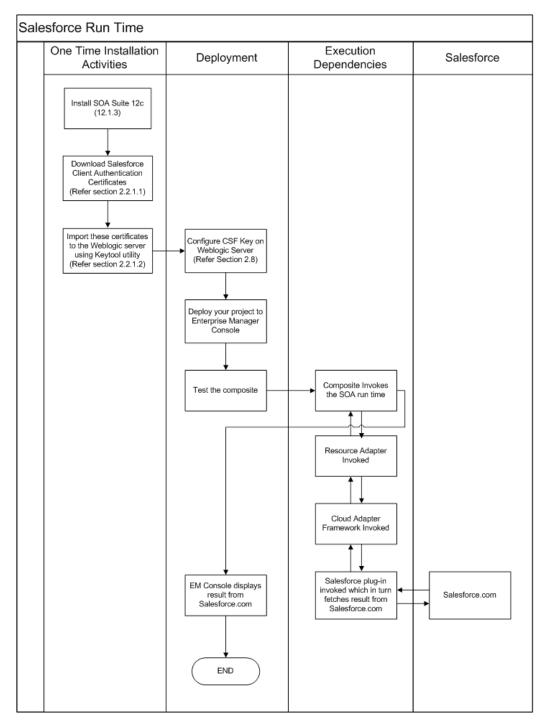


Figure2-13 Run-Time Lifecycle

# 16.2 Import the WSDL File into Your Development Platform

Once you have the WSDL file, it has to be imported into the development platform so that the development environment can generate the necessary objects for use in building client Web service applications in that environment. This section provides instructions for importing the WSDL into Oracle SOA Suite JDeveloper:

- 1. Open JDeveloper.
- **2.** Drag and drop the **Salesforce Adapter** component from the Service Adapters pane to the **External References** pane, as shown in Figure 2–14.

OR

Right-click on the **External References** pane in JDeveloper and click on the **Salesforce Adapter**.

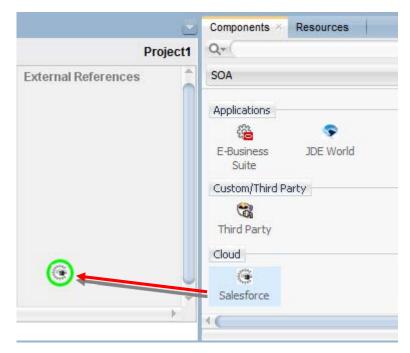


Figure 2-14 Salesforce Adapter Component

**3.** The **Salesforce Cloud Adapter Configuration Wizard- Welcome** page dialog is displayed, as shown in Figure 2-15.

Salesforce Cloud Adapter Configuration Wizard -	Step 1 of 5
Salesforce Cloud Adapter Reference	0101010101010104040404055
Welcome to the Adapter Configuration This wizard helps you create a service using a Salesforce parameters and define an operation for the service.	
Enter a Reference Name.	
Name: salesforceReference	
Help < Back	Next > Einish Cancel

Figure 2-15 Salesforce Cloud Adapter Configuration Wizard

- **4.** The **Name** box is already populated. It picks up these values from the cache. You can re-enter **Reference Name** if you want to use a different Reference Name.
- 5. Click Next to continue.
- **6.** The **Salesforce Cloud Server Connection** page is displayed, as shown in Figure 2-16.

Salesforce Cloud Adapter Configuration Wizard	- Step 2 of 5
Salesforce Cloud Server Connection	01010101010101010101010101010
A Salesforce Cloud Server connection is required to acco	ess the operations and business objects available.
WSDL Location:	<u></u>
Authentication Key:	- + / ×
🗌 🖸 ear Cache	
Test Connection	
<u>H</u> elp < <u>B</u> ack	Next > Einish Cancel

Figure 2-16 Salesforce Cloud Server Connection Page

**7.** On the **Salesforce Cloud Server Connection** page, click the **Find existing WSDLs** icon, which is located to the right of the **WSDL Location** field, as shown in Figure 2–17.

Salesforce Cloud Adapter Configuration Wizard - Step	2 of 5	x
Salesforce Cloud Server Connection		*
A Salesforce Cloud Server connection is required to access the	e operations and business objects av	ailable.
WSDL Location:		1
Authentication Key:	- 🕂 🥒 🗙	
<u>C</u> lear Cache		
Test Connection		
Help < Back	Next > Einish	Cancel

Figure 2-17 Salesforce Cloud Server Connection Page

 The WSDL Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL either from the file system or resource palette (MDS) and click OK. Figure 2–18 shows the file system option.

For a walk-through of MDS, refer to the section "How to use MDS for importing WSDL into JDeveloper".

👌 WSDL Chooser	of the state (repairs from the 1 of			X
Application Server	File System			
Location:	C:\JDeveloper\mywork\Application12c\Project12c\SOA\WSDLs	<ul> <li>C) [</li> </ul>	à 🗳	<u>ات</u>
	BPELProcess1.wsdl dbReference.wsdl			
Work	SalesForceEnterprise.wsd         salesforceReference.wsdl         salesforceReference_2.wsdl			
Project				
Application				
Home	File Name: SalesForceEnterprise.wsdl File Type: Web Service Definition Files (*.wsdl)			
	JDeveloper/mywork/Application12c/Project12c/SOA/WSDLs/SalesForceEnterprise.wsdl			
Help		OK		Cancel

## Figure 2-18 WSDL Chooser

# Oracle Cloud Adapter for Salesforce.com -Supported Features

The chapter offers a comprehensive guide to various Salesforce.com features supported by Oracle Cloud Adapter for Salesforce.com.

It contains the following topics:

- Section 3.1, "SOAP API"
- Section 3.2, "Supported SOAP API Operations"
- Section 3.3, "Salesforce.com SOAP Headers"
- Section 3.4, "Session Management"
- Section 3.5, "Handling Polymorphic Behavior of Salesforce.com Schema"
- Section 3.6, "Clear Cache"
- Section 3.7, "Offline Mode"
- Section 3.8, "Behaviors Expected When Using Offline Mode"
- Section 3.9, "Test Functionality"
- Section 3.10, "Suppress Response"
- Section 3.11, "Fault Handling"
- Section 3.12, "Salesforce.com Limit and Restriction Handling"

## 3.1 SOAP API

Nature of SOAP API calls are mentioned below:

- Request and Response: The adapter submits a request to Salesforce.com, and Salesforce.com processes the request and returns a response which the adapter handles.
- Synchronous: Every call to Salesforce.com SOAP API is synchronous, i.e. after invoking the adapter, calling process waits until it receives a response from the service. It does not support asynchronous calls.
- Automatic Commit v/s Rollback: Every operation that writes to a Salesforce.com object like create, upsert etc. is by default committed. Moreover, operations that write multiple objects in a single operation call treat every record as a separate transaction.

## 3.2 Supported SOAP API Operations

Following category of operations are supported by the Oracle Cloud Adapter for Salesforce.com, as shown in Table 3-1.

Supported Category	Supported Operations
CORE	convertLead, getDeleted, getUpdated,
	merge, undelete, upsert
CRUD	create, retrieve, update, delete
MISC	getUserInfo, process
SOSL / SOQL	query,queryAll, search, queryMore

## 3.2.1 CORE Operations

This category contains all the core operations that are supported by Salesforce.com. The operation calls, falling under this category are:

- convertLead
- getDeleted
- getUpdated
- merge
- undelete
- upsert

Figure 3-1 shows the list of operation calls, falling under CORE category.

### Figure 3-1 SFDC Operation Calls

Salesforce Cloud Adapter Configuration Wizard - Step 3 of 5			
Cloud Operation Confi	guration		alataka 🌞
Select a Salesforce Cloud Ope	ration and its primary busi	ness objects and specify a un	ique WSDL Operation name.
Operation Category: CORE	<ul> <li>Api Version:</li> </ul>	29.0	
SFDC Operation: conver	Lead 💌 WSDL Operat	ion: convertLead	
Business Objects conver getDele Available: conver	ted		A 92
Available: getUpd merge undelet upsert		Selected:	~ ~ ~

## 3.2.1.1 convertLead

 This operation converts a Salesforce.com Lead into an Account, Contact, and optionally into an Opportunity.

- The permissions required for convertLead operation are 'Convert Leads' and 'Edit' on Lead, in addition to 'Create' and 'Edit' on Account, Contact and Opportunity objects.
- In a simple and straightforward manner, a qualified lead on Salesforce.com is converted into a new or updated account, contact, and opportunity.
- An organization can have its own set of guidelines for determining when a lead is qualified, or it can follow the Salesforce.com default.

## **Supported Headers**

- AllowFieldTruncationHeader
- DebuggingHeader
- EmailHeader
- LimitInfoHeader
- PackageVersionHeader

Figure 3-2 shows a sample request and response message for convertLead operation on Salesforce.com.

### Figure 3-2 Request and Response Message for convertLead Operation



## 3.2.1.2 getDeleted

- This call fetches the list of individual records that have been deleted in a particular time span.
- The specified endDate must sequentially follow the specified startDate.
- Only those records are returned on which user has access permissions.
- Only data modified in the last 30 days can be fetched, this is a Salesforce.com limitation.

## **Supported Headers**

LimitInfoHeader

Figure 3-3 shows a sample request and response message for getDeleted operation on Salesforce.com.

Figure 3-3 Request and Response Message for getDeleted Operation

xml version="1.0" encoding="UTF-8"? <	messages>
<invoke1_getdeleted_inputvariable></invoke1_getdeleted_inputvariable>	
	g/2001/XMLSchema-instance" name="parameters">
	<pre>s.oracle.com/pcbpel/adapter/salesforce/Automation12c/getDeleted/getDeletedAc 8:04:16+05:30</pre>
	04:16.184+05:30
	04.10.104+03.30(/ thatenubate/
<invoke1 getdeleted="" outputvariable=""></invoke1>	
	g/2001/XMLSchema-instance" name="parameters">
	tns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getDele
<tns:getdeletedresult></tns:getdeletedresult>	
	rn:enterprise.soap.sforce.com">
	08T10:00:45.000Z
<id>001900000shNkAAA</id>	U
	rn:enterprise.soap.sforce.com">
	08T10:00:45.000Z
<id>001900000shXjhAA</id>	E 1d
	<pre>rn:enterprise.soap.sforce.com"&gt; 08T10:00:45.000Z</pre>
<id>001900000shXjiAA</id>	
	EC/102
	rn:enterprise.soap.sforce.com">
	08T10:00:45.000Z
<id>001900000shNYiAA</id>	
<deletedrecords xmlns="u&lt;/th&gt;&lt;th&gt;rn:enterprise.soap.sforce.com"></deletedrecords>	
	08T10:00:45.000Z
<id>001900000shNsqAA</id>	E
	rn:enterprise.soap.sforce.com">
	08T10:00:45.000Z
<id>001900000shNxfAA</id>	E 1a
	rn:enterprise.soap.sforce.com">
	rn:enterprise.soap.siorce.com"> 08T10:00:45.000Z
<id>&lt;10000000t77xNAP</id>	
	801 TU2
	rn:enterprise.soap.sforce.com">

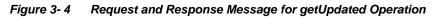
## 3.2.1.3 getUpdated

- This call fetches the list of individual records that have been updated (added or modified) in a particular time span.
- The specified endDate must sequentially follow the specified startDate.
- Only data modified in the last 30 days can be fetched, this is a Salesforce.com limitation.

## **Supported Headers**

LimitInfoHeader

Figure 3-4 shows a sample request and response message for getUpdated operation on Salesforce.com.



Invoke1_getUpdated <part xmlns:x<br=""><getupdate <tns:st <tns:en< th=""><th><pre>si="http://www.w3.org/2001/XMLSchema-instance" name="parameters"&gt; d xmlns="http://www.w3.org/2001/XMLSchema-instance" name="parameters"&gt; d xmlns="http://wmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getUpdated/getUpdatedDemo" xml artDate&gt;2014-03-08117:57:14.104+05:30 Date&gt;2014-04-08T17:57:14.104+05:30</pre></th></tns:en<></tns:st </getupdate </part>	<pre>si="http://www.w3.org/2001/XMLSchema-instance" name="parameters"&gt; d xmlns="http://www.w3.org/2001/XMLSchema-instance" name="parameters"&gt; d xmlns="http://wmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getUpdated/getUpdatedDemo" xml artDate&gt;2014-03-08117:57:14.104+05:30 Date&gt;2014-04-08T17:57:14.104+05:30</pre>
<td>ed&gt;</td>	ed>
	ated InputVariable>
Invoke1_getUpdated	_uutputvariable> gi="http://www.w3.org/2001/XMLSchema-instance" name="parameters">
	atedResponse xmlnsitns="http://xmlns.orale.com/pcbpel/adapter/salesforce/Automation12c/getUpdated/get
	tDodatedResult>
	xmln="urn:enterprise.soab.sforce.com">0019000000s2Xs1AAE
	<pre>xmlns="urn:enterprise.soap.sforce.com"&gt;00190000002XsnAAE</pre>
	xmlns="urn:enterprise.soap.sforce.com">001900000shK4nAAE
	xmlns="urn:enterprise.soap.sforce.com">0019000000sh8jyAAA /ids
<ids< td=""><td>xmlns="urn:enterprise.soap.sforce.com"&gt;001900000shK52AAE</td></ids<>	xmlns="urn:enterprise.soap.sforce.com">001900000shK52AAE
	xmlns="urn:enterprise.soap.sforce.com">001900000tBdH0AAK
	xmlns="urn:enterprise.soap.sforce.com">001900000tBdJQAA0
	xmlns="urn:enterprise.soap.sforce.com">001900000tBdJzAAK
	estDateCovered xmlns="urn:enterprise.soap.sforce.com">2014-04-08T11:14:00.000Z
	etUpdatedResult>
	pdatedResponse>
<pre>/messages&gt;</pre>	ated_OutputVariable>
/messages>	

## 3.2.1.4 merge

- Merge operation is used to merge child record of an object into the master record.
- A maximum of three records can be merged into one call.
- A single merge call consists only of one business object. Merge doesn't work for multiple business objects in one call.
- Lead, Contact and Account are the only supported object types.
- The masterRecord field specifies the master record into which the child records are merged.

## **Supported Headers**

- AllowFieldTruncationHeader
- AssignmentRuleHeader
- DebuggingHeader
- EmailHeader
- LimitInfoHeader
- MruHeader
- PackageVersionHeader

Figure 3-5 shows a sample request and response message for merge operation on Salesforce.com.





#### 3.2.1.5 undelete

- Undelete is used to recover already deleted records from Recycle Bin.
- Objects with undeletable property set as true, will be available for undelete.
- In an attempt to undelete an entity which is removed from the recycle bin as well, you will encounter the 'UNDELETE\_FAILED' error, stating that 'An object could not be undeleted because it does not exist or has not been deleted.'

### **Supported Headers**

- AllOrNoneHeader
- AllowFieldTruncationHeader
- DebuggingHeader

- LimitInfoHeader
- PackageVersionHeader

Figure 3-6 shows a sample request and response message for undelete operation on Salesforce.com.



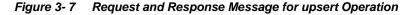
## 3.2.1.6 upsert

- Upsert is a combination of create and update operations.
- If a record already exists, this operation updates it, otherwise it creates a new record with the corresponding details.
- To avoid redundant records, it is better to use upsert operation instead of create operation.
- Contrary to insert and update operation, where you can process multiple objects in a single call, upsert operation lets you process only a single business object per call.

## **Supported Headers**

- AllOrNoneHeader
- AllowFieldTruncationHeader
- AssignmentRuleHeader
- DebuggingHeader
- EmailHeader
- LimitInfoHeader
- MruHeader
- PackageVersionHeader

Figure 3-7 shows a sample request and response message for upsert operation on Salesforce.com.





## 3.2.2 CRUD Operations

CRUD is an acronym for Create Retrieve Update and Delete. This category contains operations associated with manipulating the objects on Salesforce.com. The following operations fall under this category:

- create
- retrieve
- update
- delete

Figure 3-8 shows the operations falling under CRUD category.

Figure 3-8 List of Operation under CRUD Category

Salesforce Cloud A	dapter Configu	ration Wizard - Ste	ep 3 of 5	
Cloud Operation	Configurati	on	01	
Select a Salesforce Cl	oud Operation ar	nd its primary busine	ss objects and specify a uniqu	e WSDL Operation na
Operation Category:		Api <u>V</u> ersion:	29.0	
SFDC Operation:	create 💌	WSDL Operation	create	
Business Objects	create retrieve			
<u>A</u> vailable:	update <sup>ilter</sup>		Selected:	$\sim$
Account	delete			
Account_Test_	<u>c</u>			
AccountContact	Role	8		
AdditionalNumbe	er		×	

3.2.2.1 create

- Create operation is used to add individual records to the organization's data.
- It can process records belonging to multiple business objects in a single call to Salesforce.com.

• It is similar to the Insert operation in SQL.

## **Supported Headers**

- AllOrNoneHeader
- AllowFieldTruncationHeader
- AssignmentRuleHeader
- DebuggingHeader
- EmailHeader
- LimitInfoHeader
- MruHeader
- PackageVersionHeader

Figure 3-9 shows a sample request and response for create operation on Salesforce.com.

### Figure 3-9 Request and Response for CreateOperation



## 3.2.2.2 retrieve

- Fetches specific information for a sObject based on the ID of the object.
- The fields of the object, required to be fetched, are the inputs of the element 'fieldList' of the request message. As shown in Figure 3-10, "Origin" and "Status" are sent as fieldList in the request message.
- Retrieve call doesn't fetch deleted records.

## **Supported Headers**

- LimitInfoHeader
- MruHeader
- PackageVersionHeader
- QueryOptionsHeader

Figure 3-10 shows a sample request and response message for retrieve operation on Salesforce.com.

#### Figure 3-10 Request and Response Message for retrieve Operation

xml version="1.0" encoding="UTF-8"? <messages></messages>
<invoke1 inputvariable="" retrieve=""></invoke1>
<part name="parameters" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"></part>
<retrieve 2001="" http:="" name="parameters" www.w3.org="" xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/BPEL Projects/S E B 03 001 01/retrieve" xmlns:wsdl="http://&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;tns:fieldList&gt;Name,Id&lt;/tns:fieldList&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;tns:ids&gt;7019000000YNrM&lt;/tns:ids&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/retrieve&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/part&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/Invoke1 retrieve InputVariable&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;Invoke1 retrieve OutputVariable&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;pre&gt;&lt;pre&gt;&lt;pre&gt;xmlns:xsi=" xmlschema-instance"=""></retrieve>
<tns:retrieveresponse xmlns:tns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/BPEL_Projects/S_E_B_03_001_01/retrieve"></tns:retrieveresponse>
<tns:campaignresult xsi:type="sf:Campaign"></tns:campaignresult>
<sf:id xmlns:sf="urn:sobject.enterprise.soap.sforce.com">70190000000VNrMAAM</sf:id>
<sf:name xmlns:sf="urn:sobject.enterprise.soap.sforce.com">GC Product Webinar - Jan 7, 2002</sf:name>

#### 3.2.2.3 update

- Update operation is used to update existing objects on Salesforce.com.
- This option can update multiple sObjects in one call.
- Only those objects are available under this operation whose updatable property is set to true.

### **Supported Headers**

- AllOrNoneHeader
- AssignmentRuleHeader
- EmailHeader
- LimitInfoHeader
- MruHeader
- PackageVersionHeader

Figure 3-11 shows a sample request and response message for update operation on Salesforce.com.

Figure 3-11 Request and Response Message for update Operation



#### 3.2.2.4 delete

Delete operation is used to delete one or more records on Salesforce.com.

- Operates on more than one sObject at one time.
- Similar to DELETE statement in SQL.
- Only those objects are available under this operation whose deletable property is set to true.

## **Supported Headers**

- AllOrNoneHeader
- EmailHeader
- LimitInfoHeader
- PackageVersionHeader

Figure 3-12 shows a sample request and response message for delete operation on Salesforce.com.

Figure 3-12 Request and Response Message for delete Operation



## 3.2.3 MISC Operations

This category contains all the miscellaneous operations supported by Salesforce.com. Following are the operations falling under this category:

- getUserInfo
- process

Figure 3-13 shows all the operations falling under this category.

#### Figure 3-13 **Options Available for MISC Category**

Salesforce Cloud Adapter Configuration Wizard - Step 3 of 5				
Cloud Operation	Configuratio	n		
Select a Salesforce C	oud Operation and	its primary business	s objects and specify a unique	WSDL Operation n
Operation Category:	MISC -	Api Version:	29.0	
SFDC Operation:	getUserInfo ▼ getUserInfo	WSDL Operation:	getUserInfo	]
	process So objecto necued	for the selected ope	eration	

#### 3.2.3.1 getUserInfo

- The call fetches information of the user associated with the current session.
- Information returned from this call includes currency, profile, email and other user information.
- To obtain additional information about the user, you can also use the retrieve operation on User object providing the required fields in the fieldList element.
- Standard information pertinent to the current user is returned.

### **Supported Headers**

LimitInfoHeader

Figure 3-14 shows a sample request and response message for getUserInfo operation on Salesforce.com.

#### Figure 3-14 Request and Response Message for getUserInfo Operation



## 3.2.3.2 process

- It submits an array of approval process instances for approval, or processes an array of approval process instances to be approved, rejected, or removed.
- Process operation either submits an approval process or processes an already submitted process.

## **Supported Headers**

- LimitInfoHeader
- PackageVersionHeader

Process operation is divided into two parts:

- Process Submit Request
- ProcessWorkItemRequest

Two radio buttons appear once you select **process** as the operation, as shown in Figure 3-15.

Figure 3-15 Radio Button under process Operation

Operation Category: MISC	Api Version: 29.0	
SFDC Operation: process	WSDL Operation: process	
Business Objects Available: Q • filter	Selected:	& ≫
Account Account Account_Test_c AccountContactRole AccountFeed AccountHistory AccountPartner AccountPhartner AccountShare ActivityHistory Additional Number		
Suppress Response ProcessSubm	itRequest O ProcessWorkitemRequest	
Help	< Back Next > Einish	Cancel

**ProcessSubmitRequest:** This option is used to submit an object for approval. The response of this operation generates a **WorkItemId** and the actor (user) to whom this object is submitted for approval. The WorkItemId is a unique identifier of the object submitted for approval.

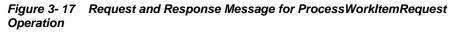
Figure 3-16 shows a sample request and response message for ProcessSubmitRequest operation on Salesforce.com.



#### Figure 3-16 Request and Response Message for ProcessSubmitRequest Operation

**ProcessWorkItemRequest:** This option is used to process an object already submitted for approval. The actor can approve or reject a process. To perform the approval actions on the object already submitted for approval, the WorkItemId generated in ProcessSubmitRequest response is needed.

Figure 3-17 shows a sample request and response message for ProcessWorkItemRequest operation on Salesforce.com.





## 3.2.4 SOSL and SOQL Operations

SOSL and SOQL allow you to search your organization's Salesforce.com data for specific information. Following are the operations falling under this category:

- query
- queryAll
- search
- queryMore(supported internally)

Figure 3-18 shows the list of operations falling under SOSL/SOQL category.

Cloud O	peration	Configuratio	n	
Select a S	alesforce C	loud Operation and	l its primary busines	s objects and specify a unique \
Operation	Category:	SOSL/SOQL 👻	Api Version:	29.0
SFDC Ope	ration:	query 🔻	WSDL Operation:	query
- Ouery St	atement —			

Figure 3-18 Option Available under SOSL/SOQL Category

## 3.2.5 query

- The query operation executes a query against a particular criteria and returns data that matches that particular criteria.
- Uses the SOQL (Structured Object Query Language).
- The query returns only those records that have not been deleted from your Salesforce.com account.
- Oracle Cloud Adapter for Salesforce.com provides functionality for using bind parameters in query operation. Using this functionality, you can dynamically provide an input to your query. For more information, refer to the section "Support for Bind Parameters"

## **Supported Headers**

- LimitInfoHeader
- MruHeader
- PackageVersionHeader
- QueryOptionsHeader

Figure 3-19 shows a sample request and response message for query operation on Salesforce.com.

#### Figure 3-19 Request and Response Message for query Operation

## 3.2.6 queryAll

- queryAll has a wider scope than query operation, in another word the syntax is same as query (SOQL) but it also fetches the deleted records present in the recycle bin.
- Oracle Cloud Adapter for Salesforce.com provides functionality for using bind parameters in queryAll operation. Using this functionality, you can dynamically provide an input to your queryAll. For more information, refer to the section "Support for Bind Parameters"
- The main difference between query and queryAll is that queryAll returns the records, even if they have been deleted and are present in the recycle bin, while query only returns the records that are currently a part of Salesforce.com organization's active data.

## **Supported Headers**

- LimitInfoHeader
- QueryOptionsHeader

Figure 3-20 shows a sample request and response message for queryAll operation on Salesforce.com.



#### Figure 3-20 Request and Response Message for queryAll Operation

## 3.2.7 search

- Based on a search string, the search operation fetches records from Salesforce.com.
- Uses the SOSL (Structured Object Search Language) to fetch records from Salesforce.com.
- Oracle Cloud Adapter for Salesforce.com provides a provision for using bind parameters in search. Using this functionality, you can dynamically provide a search string as an input to your search operation.

## Supported Headers

- LimitInfoHeader
- PackageVersionHeader

Figure 3-21 shows a sample request and response message for search operation on Salesforce.com.

#### Figure 3-21 Request and Response Message for search Operation



## 3.2.8 queryMore

- queryMore operation retrieves a next set of records against a specified query string.
- To use queryMore operation, you are required to provide queryLocator value that has been returned as a result of query or queryAll operation, and you can use that queryLocator value to use queryMore call.
- queryMore operation is supported internally so it is not visible in the operations page in Oracle Cloud Adapter for Salesforce.com configuration wizard.
- Since it internally uses the query and queryAll, the request and response structure for queryMore could be of either of them, depending upon which operation's queryLocator is called.

#### **Supported Headers**

The headers supported for query and queryAll operations hold to for queryMore operation.

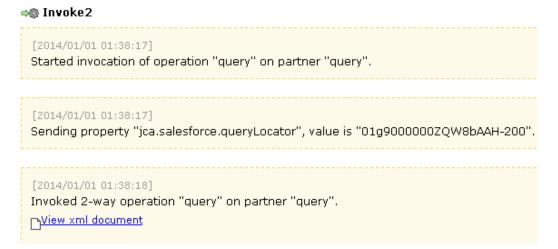
Figure 3-22 shows how you can set the value of 'queryLocator' at the design-time.

ssertions	Skip Conditio	n Heade	rs Source	s Targ	jets
General	General Corre		Propert	ies	Annotation
Properties:					
Name		Value		Туре	
jca.msmq.m	essage.Id				
ca.msmq.m	essage.Ma				
jca.msmq.m	essage.Pri				
jca.msmq.m	essage.Se				
jca.msmq.m	essage.Ti				
jca.salesfor	ce.AllOrNo				
jca.salesfor	ce.HttpTim				
·	ce.LocaleO				
	ce.QueryO				
•	ce.queryLo	varQueryLoo	://	input	
•	ce.respons				
	ce.respons				
jca.salesfor	ce.respons				
jca.socket.ł	nost				

Figure 3-22 Set Value of 'queryLocator' at Design-Time

Figure 3-23 shows how the value of 'queryLocator' is passed at the run-time.

#### Figure 3-23 Set Value of 'queryLocator' at Run-Time



## 3.3 Salesforce.com SOAP Headers

The section (Table 3-2) explains what all headers are maintained by every supported operation of Oracle Cloud Adapter for Salesforce.com. Salesforce.com puts into effect what SOAP headers are available for each operation. Moreover, this functionality is enforced by the adapter UI, that is, the headers available for a particular operation on the Headers and Properties page is in accordance to the recommended headers for that operation. For more

information on Salesforce.com headers, follow the link (http://www.salesforce.com/us/developer/docs/api/Content/soap\_headers.htm).

Operation Type	Operation Name	All or None Header	Allow Field Truncation Header	Assignment Rule Header	Debugging Header	Email Header	Limit Info Header	Mru Header	Package Version Header	Query Options Header
Core	convertLead		Y		Y		Y		Y	
Opera	getDeleted						Y			
tions	getUpdated						Y			
	merge		Y	Y	Y	Y	Y	Y	Y	
	undelete	Y	Y		Y		Y		Y	
	upsert	Y	Y	Y	Y	Y	Y	Y	Y	
CRU	create	Y	Y	Y	Y	Y	Y	Y	Y	
D	retrieve						Y	Y	Y	Y
Opera	update	Y		Y		Y	Y	Y	Y	
tions	delete	Y				Y	Y		Y	
MISC	getUserInfo						Y			
Opera	process						Y		Y	
tions	-									
SOSL	query						Y	Y	Y	Y
and	queryAll						Y			Y
SOQL	queryMore						Y			Y
Opera	search						Y		Y	
tions										

Table 3-2 Salesforce.com SOAP Headers

## 3.3.1 Request Headers

Headers that come under this category are the one that are being sent along with the request call made to Salesforce.com. Following is the explanation of each header that comes under this category:

## 3.3.1.1 AllOrNoneHeader

This header allows transactional behavior for Salesforce.com operations. This means if you set this header to "true" then the call to Salesforce.com will get committed only if it gets completed without any error, otherwise it will rollback. The default behavior is to commit partial records without any error.

This header was added in API version 20.0

### Supported Operations:

Create(), update(), upsert(), delete(), undelete()

### Fields :

Element Name	Туре	Description
allOrNone	Boolean	<b>True</b> : If one record in a payload fails, all records are rolled back, i.e. none of them are committed on

Salesforce.com. A record is committed only when all records in a payload are successfully written.
<b>False</b> : Indicates if any record in a payload fails, only those records are rolled back, all other records are committed to Salesforce.com

## 3.3.1.2 AllowFieldTruncationHeader

This header enables the truncation behavior for the following fields, which are of string data type.

- anyType: anyType can be anyone from rest of the list.
- email
- picklist
- encryptedstring
- textarea
- mulitpicklist
- phone
- string

This header was added in API version 15.0.

## **Supported Operations:**

Create(), update(), upsert(), undelete(), process(), merge(), convertLead()

## Fields:

Element Name	Туре	Description
allowFieldTrunc ation	Boolean	<b>True</b> : If a user attempts to enter a value of 25 characters in a field of 20 characters, first 20 records are inserted into the field and, the transaction is a success.
		<b>False</b> : If a user attempts to enter a value of 25 characters in a field of 20 characters, an error is thrown and the transaction does not commit.

## 3.3.1.3 AssignmentRuleHeader

The AssignmentRuleHeader specifies the assignment rule to use when creating or updating an Account, Case, or Lead. The assignment rule can be active or inactive in your Salesforce.com organization. The ID can be retrieved by querying the AssignmentRule object. If the ID is specified, then you do not need to specify useDefaultRule. The MALFORMED\_ID exception is returned, if the value is not a correct ID and the call fails.

This element is ignored for accounts, because all territory assignment rules are applied.

A MALFORMED\_ID exception is returned, if the value is not a correct ID and the call fails.

## **Supported Operations:**

Create(), update(), merge(), upsert()

#### Fields:

Element Name	Туре	Description
assignmentRuleId	ID	The ID of the assignment rule which you want to
		use. The Id is not validated by Oracle Cloud
		Adapter for Salesforce.com, whether it exists or

		not in Salesforce.com. The validation takes place during the run-time.
useDefaultRule	Boolean	<ul><li>True: The default (active) assignment rule is used.</li><li>False: The default (active) assignment rule is not applied.</li></ul>

## 3.3.1.4 EmailHeader

This header enables you to specify whether a notification email should be sent or not.

## **Supported Operations:**

Create(), update(),delete(), upsert()

### Fields:

Element Name	Туре	Description
triggerAutoResponseEmail	Boolean	<b>True:</b> It triggers auto-response rules for leads and cases.
		<b>False:</b> Auto-response rules for leads and cases are not triggered.
triggerOtherEmail	Boolean	<b>True</b> : The email is triggered outside the organization.
		<b>False</b> : The email is not triggered outside the organization.
triggerUserEmail	boolean	<b>True</b> : The email is triggered and sent to users in the organization. This email is triggered by a number of events like adding comments to a case or updating a task.
		<b>False</b> : The email is not triggered and sent to users in the organization.

## 3.3.1.5 DebuggingHeader

Logging level for debugging purposes, following are different levels that can be mentioned in this header:

## **Supported Operations:**

create(), upsert(), undelete(), merge(), convertLead()

Fields:

Element Name	Туре	Description
debugLevel	Logtype	The following list orders
		the log levels from least
		(NONE) to most verbose
		(DETAIL):
		NONE
		DEBUGONLY
		DB
		PROFILING
		CALLOUT
		DETAIL

## 3.3.1.6 MruHeader

Recent Items section in Salesforce.com shows most recently used items. In API version 7.0 or later, the list would not get updated by itself. The MruHeader must be used in order to update that list. Note that using this header may impact performance negatively.

### **Supported Operations:**

Create(), update(), merge(), upsert(), query(), retrieve()

### Fields:

r icius.		
Element Name	Туре	Description
updateMru	Boolean	<b>True</b> : The list of most recently used item is updated on Salesforce.com.
		False: The list of most recently used item is not updated on Salesforce.com.

## 3.3.1.7 PackageVersionHeader

A Package version is basically the identification of components in a package. Package version has a specific format majorNumber.minorNumber.patchNumber. For example, 3.4.5,( where" 3" refers to majorNumber, "4" refers to minorNumber and "5" refers to patchNumber)

This header is used to specify package version for any installed package.

#### **Supported Operations:**

create(), retrieve(), update(), delete(), undelete(), merge(), upsert(), process(), query(), search(), convertLead()

#### Fields:

Element Name	Туре	Description
majorNumber	Int	Major version number of a package version.
minorNumber	Int	Minor version number of a package version.
Namespace	String	Namespace of the managed package.

## 3.3.1.8 QueryOptions

This header is used to specify batch size for queries. Default value for batch size is 500. Minimum value for this is 200 and maximum value is 2000.

### **Supported Operations:**

retrieve(), queryMore(), query()

Fleids:		
Element Name	Туре	Description
batchSize	Int	The batch size of the number of records returned in a query call. The minimum size is 200. If you enter a value less than 200, for example, 40 and your actual query has a size of 1200, it would not throw any error, but would return 200 records. The maximum size is 2000. The configuration wizard doesn't let
		you enter a value more than 2000.

## Fields:

## 3.3.2 Response Headers

Headers that come under this category are ones that are being received along with the response message that is being sent by Salesforce.com. Following is the explanation of each header that comes under this category:

## 3.3.2.1 DebuggingInfo

This response header will be returned only if debugLevel request header has been sent along request payload to Salesforce.com.

Element Name	Туре	Description
debugLog		The log information returned from the adapter invocation. This header is part of the SOAP response
		once debugLevel is sent as a part of the SOAP request

## 3.3.2.2 LimitInfoHeader

This header provides the information about the limitations of API calls on per-day basis for organization. This response header is introduced in API version 29.0

ricius.		
Element Name	Туре	Description
current	string	The number of calls that have already been used in the organization.
Limit	String	Organization's limit for specified limit type.
Туре	String	Limit information type specified in the header API REQUESTS—contains limit information about API calls for the organization.

Fields:

## 3.4 Session Management

Oracle Cloud Adapter for Salesforce.com provides session management capabilities to maintain transactions related to a particular Salesforce.com user. Attempts have been made to reduce the number of calls to Salesforce.com either for a login call or for any subsequent calls to fetch metadata. With this reduction in the number of calls, the adapter responds faster and the limitations that Salesforce.com imposes on the number of calls are also taken care of.

Configuration for session support is provided in two phases.

- Design Phase
- Execution Phase

## 3.4.1 Design Phase

Login: While creating an adapter service, a single login call is fired to Salesforce.com during the complete Salesforce Cloud Adapter Configuration Wizard cycle. Once the user provides an Enterprise WSDL and the CSF key in the connection page, only one login call is made to Salesforce.com till the completion of adapter configuration. The next login does not happen unless a CSF key for another user is selected or a different Enterprise WSDL is selected. Even the 'Run Query Test Tool' follows the same session that was initialized during the connection configuration page.

- Fetch Metadata: Post the first fetch metadata call, subsequent metadata calls have been reduced considerably. For instance, based on the current user and version of the Enterprise WSDL, metadata is cached. Now, if you are configuring a new instance of Oracle Cloud Adapter for Salesforce.com for the same combination of user and version of Enterprise WSDL, instead of making a call to Salesforce.com for fetching metadata details, the Oracle Cloud Adapter for Salesforce.com will get the metadata from the cache. In case you want to bypass fetching data from cache and make a direct call to Salesforce.com, use the Clear Cache option on the connection page. Besides serving an immediate need, the metadata cached in the above step is also used when a user opts for Offline Mode.
- Offline Mode: This is a unique functionality offered by the Oracle Cloud Adapter for Salesforce.com in which the metadata information is saved in the cache and the adapter doesn't have to make any further calls, be it a login or fetch metadata call and yet, the user can successfully proceed with adapter and composite creation. Consequently, till the checkbox for offline configuration is checked, the complete adapter creation is handled by cache without a single login or metadata fetch call. For more details on how the Offline Mode works, refer to the section "Offline Mode".

**Note:** In case any changes (modified/created) have been made to your organization's business objects on Salesforce.com, use the latest Enterprise WSDL and uncheck and check **Offline Configuration** checkbox to ensure you have the updated metadata in cache.

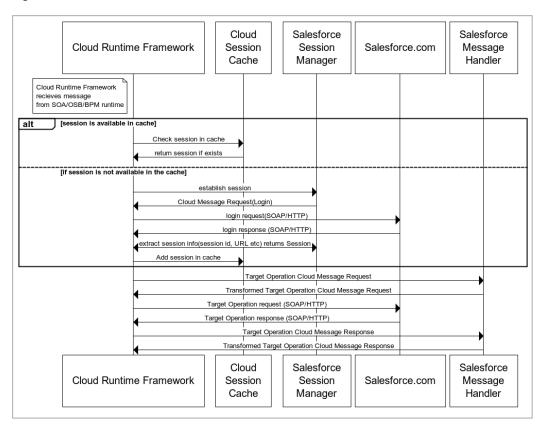
## 3.4.2 Execution Phase

During the execution phase, Cloud Runtime frame work receives the request message from SOA/OSB/BPM runtime.

Oracle Cloud Runtime framework takes care of the session management as it internally maintains a Session Cache (in the form of Map) which stores the session details. A session is uniquely defined for the user and version of the enterprise WSDL.

If a session is not found in Session Cache then framework establishes the session with Salesforce.com and then adds the session information in Session Cache. If we have different composites which are using the same credentials and the version of the enterprise WSDL then all threads would be provided the same session details. This helps in avoiding the additional login call to Salesforce as we already have the session details available in the cache. Figure 3-24 shows Execution Phase.

#### Figure 3-24 Execution Phase



- A single login call made by the Oracle Cloud Adapter for Salesforce.com maintains the session across composites deployed in the server for a particular user and for a fixed version of Enterprise WSDL.
- During run-time as well, the fetch metadata calls are minimal.

You are no longer required to create a complex process, where you first need to invoke a login operation on Salesforce.com whose output payload provides two important details which must be supplied during each subsequent operation. These are:

- ServerURL: This is the URL that needs to be called for all subsequent operations (query, update etc.) for this user using the dynamic partner link concept.
- Session ID: This ID needs to be sent as part of header information for all operations post login.

Session management is now completely handled by the Oracle Cloud Adapter for Salesforce.com making the task of Salesforce.com operation invocation flawless and effortless.

## 3.5 Handling Polymorphic Behavior of Salesforce.com Schema

Due to the polymorphic nature of the Salesforce.com XML schema, it was cumbersome to write multiple objects in a single operation call to Salesforce.com using a Web service adapter. For instance, creation of a lead, account and a contact consisted of four steps, as mentioned below:

- You had to create an invoke activity for login operation.
- You had to create account.
- You had to create contact.
- You had to create lead.

All of this is done separately, however; with the introduction of Oracle Cloud Adapter for Salesforce.com to Oracle SOA Suite, integration to Salesforce.com has become a lot easier. Now the above mentioned four-step process has been reduced to a single step.

Figure 3-25 shows how only a single sObject was manipulated during the design-time.

Figure 3-25 Transformation Create Account



On the other hand, the polymorphic behavior of Salesforce.com schema is handled by Oracle Cloud Adapter for Salesforce.com and multiple sObjects can be written with a lot more ease, as shown in Figure 3-26.

Note that this behavior is possible only for operations where multiple insertion/writes are allowed by the Salesforce.com Enterprise API.

Transformation\_Create.xsl × Source: S E B MST 03Process.wsdl XSLT File: createComplex.wsdl sources <target> 🚼 🚍 😑 🚸 ns1:input ns2:create 🔇 🗄 🛞 ns1:UpdateTask ns2:Account 🚷 🕀 Is1:updateAsset ns2:Account\_Test\_c 🚸 🕀 🗄 🛞 ns1:updateCase ns2:Opportunity 🚷 🕀 🕀 🎇 ns1:UpdateCampaign ns2:Lead Ѡ 🕀 Is1:UpdateContract ns2:Contact 🚷 🕀 B 1:createAccount Is1:createContact Image: Second State S Ising the second sec 🕀 🛞 ns1:createLead Is1:createAccountTestCust

Figure 3-26 Transformation Create Account

## 3.6 Clear Cache

To save the number of calls to Salesforce.com for fetching metadata, the adapter maintains a cache wherein all the metadata information is stored for future reference. However, in case any modification is done to objects on Salesforce.com and the same needs to be reflected in the adapter, the clear cache functionality does the task of deleting the old cache and fetching the latest metadata from Salesforce.com. For instance, for an already existing object on Salesforce.com, whose creatable property is by default "false", if you update this property to true and clear the cache, the object should now appear in the list of **Available objects** under create operation.

## 3.7 Offline Mode

As the name suggests, Offline Mode enables you to continue your adapter development even when the network connection is not available. It is a unique characteristic of the Oracle Cloud Adapter for Salesforce.com, and is a step forward in enabling seamless integration to Salesforce.com using the Oracle SOA Suite.

The metadata of your enterprise is downloaded and saved in the cache while you are online. For this, you need to go to the **Connection** page of your Oracle Cloud Adapter Configuration Wizard and select the checkbox for **Offline Configuration**, as shown in Figure 3-27.

The moment you click the **Offline Configuration** checkbox, a 'Metadata Download Required' message is displayed as "To run offline requires downloading all Cloud server metadata that may be needed. This may take a few minutes. Continue?" To confirm, click **Yes** else click **No**.

O Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5	23
Salesforce Cloud Server Connection	5
A Salesforce Cloud Server connection is required to access the operations and business objects available.	
WSDL Location: eveloper\mywork\Application7\QueryProject1\SOA\WSDLs\SalesForceEnterpriseAPI.ws	sdl 🔞
Authentication Key: SFDC	
Help     < Back	ncel

Figure 3-27 Offline Configuration

On clicking 'Yes', it starts downloading the metadata as shown in the Figure 3-28.

Figure 3-28 Downloading Required Metadata

Salesforce (	Cloud Adapter Configur	ation Wizard - S	Step 2 of 5		×
Salesforce	Cloud Server Conr	nection	01010101010	10101039494949494	1
A Salesforce Cl	oud Server connection is r	equired to access	s the operations and b	usiness objects available.	
WSDL Location	file:/C:/JDeveloper/	mywork/Applicati	ion7/QueryProject1/S	OA/WSDLs/SalesForceEnte	rpris 🔞
<u>Authentication</u>	Please Wait Keys SFDC_USER Downloading required me	etadata			
✓ Offline Con					
Clear Cach				Cancel	
Test Conne	ction				
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	ancel

Now you will be able to proceed with the configuration wizard just like the normal configuration. Next time you create a new adapter, the checkbox would already be selected and you need to uncheck it ONLY if something has changed. This feature is very useful in case your organization's data changes rarely.

Selecting Offline Mode would make no difference to the execution of your composite on the Enterprise Manager Console, that is, the execution behavior of the composite remains same whether it is created with Offline Configuration checked or unchecked in the adapter configuration wizard.

## 3.8 Behaviors Expected When Using Offline Mode

Although the Offline Mode comes with numerous advantages, following are the limitations associated with it:

- 1. You will not be able to run the **Query Test** tool if the **Offline Configuration** checkbox is checked. In this case, if you click the **Query Test** tool button, a warning message is displayed that 'Query Test is not available in Offline mode'.
- 2. You will also not be aware to any new custom objects / custom attributes added by the organization while in offline mode. In this case, you need to uncheck the **Offline Configuration** checkbox and either check the 'clear cache' or 'offline configuration' checkbox to fetch the latest metadata.

## 3.9 Security Management

If the Salesforce.com API is invoked without using the Oracle Cloud Adapter for Salesforce.com, the credentials for login to Salesforce.com are sent with payload during login operation invocation. Instead, SFDC adapter uses CSF key to externalize the credentials from the SOA composites. Moreover, existing OWSM policies cannot be used to pass user credentials with the payload. Oracle Cloud Adapter for Salesforce.com provides security in the following ways:

- The Credential Store Framework translates the key into credentials and sends it over the network. We are relying upon SSL to have this encrypted to eliminate any possibility of eavesdropping.
- While creating the CSF key either in the configuration wizard or in the Enterprise Manager Console, the password characters are not exposed, thereby enforcing additional security.

For information on how to configure CSF key, refer to the section "A.2 CSF Key in Enterprise Manager".

## 3.10 Test Functionality

The test functionality is a distinctive feature of the Oracle Cloud adapter for Salesforce.com that is available in two forms – one in the form of testing the connection parameters, while the other is to validate and execute the SOQL/SOSL query. The section below talks more about these two features.

## 3.10.1 Design-Time Test Functionality

Design-time test functionalities include the following test functionalities:

 Test Salesforce.com Cloud Connection: There is a Test Connection button on Connection Configuration page of Salesforce Cloud Adapter Configuration Wizard.

By clicking on Test Connection button you will see below message:

- Success! For successful connection
- Error! For any exception during login
- 2. Query Test Tool: This tool helps to run and test query. By clicking on Test icon on Operation Configuration page of Salesforce Cloud Adapter Configuration Wizard, a test dialogue box appears with a Query Statement text box and Results box showing result of query executed. A provision is provided to add bind parameters to the query. A box corresponding to each bind parameter appears, wherein you can provide a value to the parameter and then test the query.

For more information, refer to the section " Design-Time: Using Oracle Cloud Adapter for Salesforce.com Configuration Wizard". Note that these capabilities are not available in offline mode.

## 3.11 Suppress Response

Figure 3-29 shows the **Suppress Response** feature of Oracle Cloud Adapter for Salesforce.com. It simulates a one-way / fire and forgets behavior in a synchronous call to Salesforce.com. The advantage of this functionality is that the calls are stateless and in case there is no business requirement to save the response returned from Salesforce.com, it saves the server from unwanted load. Also, the response is suppressed (is empty) either when a valid response is returned or when an exception is returned by Salesforce.com. However, if a fault is thrown by the adapter, it would be thrown to the client even if 'Suppress Response' is selected. The client can accordingly handle the fault thrown by the adapter. For more information on faults returned by the Oracle Cloud Adapter for Salesforce.com, refer to the section "Fault Handling".

**Note:** Suppress Response feature only simulates the one way behavior. The adapter run-time is still making a synchronous call and receiving the response. The client is going to be in suspended mode until then.

Figure 3-29 Suppress Response

<u>A</u> vailable:	Q- (filter	<u>S</u> elected	:	4
Account	4			
📑 Account_Testc				
AccountContactRole				
📃 AdditionalNumber				
ApexClass				
ApexComponent				
📃 ApexPage				
📃 ApexTestQueueItem	1			
📃 ApexTrigger				
Anne and a second	Y			
Suppress Response				
Duppress Response				
	force response for the s			

## 3.12 Fault Handling

Errors from Salesforce.com are returned in the following ways:

- Salesforce Faults: Error scenarios where the composite execution cannot proceed further and a binding exception is raised in the BPEL process.
- Salesforce Exceptions: Error scenarios where composite execution proceeds even if there are issues with committing some records. The records for which the transaction does not succeed returns a success status as 'false', while the records for which transaction commits to return a success status as 'true'.
- Salesforce Host Unreachable: Error scenarios in which the Salesforce.com host is not reachable, a remote exception is raised in business process.

The remote and binding faults are handled at the BPEL level using either fault policies or placing fault handlers in the process, i.e. using catch and catchAll blocks.

For exceptions returned from Salesforce.com, the error message is returned as part of the payload. Figure 3-30 shows the payload structure containing exception details.

Figure 3- 30 Payload Structure Containing Exception Details

For Salesforce.com standard faults and exception details, refer to the section "Troubleshooting and Error Messages".

## 3.13 Salesforce.com Limit and Restriction Handling

**Operation specific Object Selection:** The list of objects available for a particular operation is dynamic and is updated separately for every operation. For instance, if you select **merge** operation under "Operation Category" **CORE**, only Account, Contact, and Lead objects are available in the list of "Available" under Business objects, as shown in Figure 3-31.

Figure 3- 31 Available Business Options in CORE Operation Category

1	🕐 Salesforce Cloud Adapter Configuration Wizard - Step 3 of 5					
Clo	oud Operation Co	nfiguratior	1			
s	elect a Salesforce Cloud	Operation and	its primary business	objects and specify a unique		
o	peration Category: CO	RE 🔻	Api <u>V</u> ersion:	29.0		
s	FDC Operation: me	rge 🔻	WSDL Operation:	merge		
Ē	Business Objects		l			
	Available: Q-	filte		<u>S</u> elected:		
	Account					
	Contact		<b>S</b>			
	📃 Lead					
			00.			
L						
L						

This section is further divided into the following subsections:

- Multiple Object Selection
- Single Object Selection
- Header Restrictions

#### **Multiple Object Selection**

For certain operations, there is a provision to manipulate more than one business object in a single call to Salesforce.com. An important example of this feature is the "**create**" operation, where you can select more than one object in one configuration wizard cycle, as shown in Figure 3-32.

Salesforce Cloud Adapter Configura	tion Wizard - Step 3 of 5	×
Cloud Operation Configuratio	n 01010101	010101010101010101
Select a Salesforce Cloud Operation and	its primary business objects and sp	pecify a unique WSDL Operation name.
Operation Category: CRUD	Api <u>V</u> ersion: 29.0	
SFDC Operation: create  Business Objects	WSDL Operation: create	
Available: AccountContactRole AdditionalNumber ApexClass ApexComponent ApexPage ApexTestQueueItem ApexTrigger Approval Asset	Selected:	nt_Testc
Suppress Response	< <u>B</u> ack <u>N</u> ext >	Einish Cancel

Figure 3-32 Create Operation in Cloud Operation Configuration Wizard

#### **Single Object Selection**

Operations that can operate only a single object in one call to Salesforce.com have a restriction in design-time that only a single object can be selected in the configuration wizard cycle. For example, in "retrieve" operation only a single object can be selected. As shown in Figure 3-33, the "Move Selected Values in Available List to Selected List" button (>) is disabled when you select more than one object.

Salesforce Cloud Adapter Configura	tion Wizard - Ste	ep 3 of 5		×
Cloud Operation Configuration	n	01010101010	10101919191919191	*
Select a Salesforce Cloud Operation and	its primary busine	ss objects and spec	ify a unique WSDL	Operation name.
Operation Category: CRUD	Api <u>V</u> ersion:	29.0		
SFDC Operation: retrieve	WSDL Operation			~ v
Available:		Selected:	Valuer in Availab	le List to Selected Lis
AccountFeed     AccountHistory     AccountPartner     AccountShare     AdditionalNumber			varues in Availab	
Suppress Response				
<u>H</u> elp	< <u>B</u> ack	Next >	<u>F</u> inish	Cancel

Figure 3-33 Retrieve Operation in Cloud Operation Configuration Wizard

Table 3-33 shows an insight into the maximum number of objects you can select for a specific operation.

#	<b>Operation Name</b>	Max Objects
1	create	10
2	retrieve	1
3	update	10
4	delete	Unbounded
5	upsert	1
6	undelete	Unbounded
7	convertLead	1
8	process	1
9	merge	1
10	getDeleted	1
11	getUpdated	1
12	getUserInfo	0

Table 3- 33 Maximum Number of Objects

#### **Header Restrictions**

The Oracle Cloud Adapter for Salesforce.com saves the user from making any wrong selections at design-time, which may lead to erroneous conditions at run-time. For example, the maximum value for batch size in "Query" options header is 2000. The configuration wizard does not allow you to enter a value greater than 2000. If you enter a value which is greater than 2000, an error message is displayed, as shown in Figure 3-34.

Figure 3-34	Invalid	header	value	Message
-------------	---------	--------	-------	---------

Salesforce Cloud Adapter Conf	guration Wizard - Step 4 of 5		23
Header and Properties			<b>*</b> =5
Select Header properties for selecte	d Salesforce.com Cloud Operation		
Header Properties			
MruHeader:			
updateM 👔 Invalid heade	r value	22	
PackageVersior majorNu Invalid	value for header : queryOptions. It	should not exceed 2000.	
minorNur	ОК		
QueryOptions:			
DatchSize: 2001			
Help	< <u>B</u> ack <u>N</u> ext >	Einish	Cancel

## 3.14 Support for Bind Parameters

The operations falling under the SOSL/SOQL category gives you the privilege to provide inputs to your query/search statement dynamically. This is made possible using the concept of bind parameters.

Consider the following query:

- 1. Select id, Name from Account where id = '0019000000sgbCW'
- 2. The Oracle Cloud Adapter for Salesforce.com gives you an option to give inputs to your query in the form of bind parameters, as shown in Figure 3-35.

Salesforce Cloud Adapter Configuration	on Wizard - Ste	o 3 of 5		x
Cloud Operation Configuration		01010101010101	010191919191919	<b>*</b> -5
Select a Salesforce Cloud Operation and its	s primary busines	s objects and specify	a unique WSDL Ope	eration name.
Operation Category: SOSL/SOQL	Api <u>V</u> ersion:	29.0		
SFDC Operation: query V	VSDL Operation:	query		
Query Statement				
SELECT id, name FROM Account w	where id = &	vid		
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 3-35 Give Inputs to your Query in the Form of Bind Parameters

- 3. Here, the ampersand '&' symbol prefix to vid indicates that it is a bind parameter.
- 4. Click on the **Run Query Test tool** to see how it works for bind parameters, as shown in Figure 3-36.

Salesforce Cloud Adapter Configura	tion Wizard - Step 3	of 5	×	QueryPi
Cloud Operation Configuration	n	01		
Select a Salesforce Cloud Operation and	its primary business o	bjects and specify a unique	WSDL Operation name.	ferenc
Operation Category: SOSL/SOQL -	Api Version: 29	9.0		
SFDC Operation: query	WSDL Operation: 9	lery		
Query Statement SELECT id, name FROM Account	where id = &vi	d		ference
			Run Que	ry Test tool
Help	< <u>B</u> ack	Next > Einish	Cancel	

5. As shown in Figure 3-37, the **Run Query Test tool** prompts you to provide a value for the bind parameter, '**vid**' in this case.

O Query Test	x
Enter a value for each bind parameter and then execute query. After testing, if you've modified the query Statement, you may hit Save to retain the new statement. Otherwise, hit Done.	
Query <u>S</u> tatement: SELECT id,name FROM Account where id = &vid	
Bind Parameters:	<u>6</u>
vid Value:	
Results from query:	
Help Save Do	one

Figure 3- 37 Provide a Value for the Bind Parameter

On providing an appropriate value to the bind parameter and clicking the 'Execute Query' button, you can view the result set for that particular query, as shown in Figure 3-38.

🕐 Query Test		23
Enter a value for each bind parameter and then execute query. After testing, if you Statement, you may hit Save to retain the new statement. Otherwise, hit Done.	u've modified the q	uery
Query <u>S</u> tatement:		
SELECT id,name from Account where id=&vid		
Bind Parameters:		ලිව
vid Value: ['001900000sgbCW'		
Results from query:		•
Object Count: <pre> </pre> <pre> Object Count: </pre> <pre> <pre> <pre> <pre> <pre> <pre> </pre> </pre> </pre> </pre> </pre> </pre> <pre> &lt;</pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	200 1/XMLSchema-in	istance" xmlns::
Help	<u>S</u> ave	Done

Figure 3- 38 Result of the Query

7. The WSDL generated for this particular adapter contains the bind parameter as part of input schema, as shown in Figure 3-39.

Figure 3- 39 Input Schema

<pre><xs:schema )<="" elementformdefault="qualified" pre="" targetnamespace="http://xml.oracle.com/types/salesforceReference" xmlns="http://xml.oracle.com/types/salesforceReference_2" xmlns:xs="http://www.w3.org/2001/XMLSchema"></xs:schema></pre>	e_2"
<pre>xmlns:ns3="http://xml.oracle.com/types/salesforceReference_2"&gt;</pre>	
<xs:complextype name="QueryParameters"></xs:complextype>	
<xs:all></xs:all>	
<pre><xs:element maxoccurs="1" minoccurs="1" name="vid" type="xs:string"></xs:element></pre>	

4

# Design-Time: Using Oracle Cloud Adapter for Salesforce.com Configuration Wizard

This chapter defines how you can configure Oracle Cloud Adapter for Salesforce.com by walking through a complete Adapter Configuration Wizard scenario. Moreover, you will also get to know what artifacts are being generated after completing the Oracle Cloud Adapter for Salesforce.com Wizard.

It contains the following topics:

- Section 4.1, "Oracle Cloud Adapter for Salesforce.com Plug-in"
- Section 4.2, "Oracle Cloud Adapter for Salesforce.com Walkthrough"
- Section 4.3, "Design-time Artifact Generation"

## 4.1 Oracle Cloud Adapter for Salesforce.com Plug-in

Oracle Cloud Adapter for Salesforce comes preinstalled with Oracle SOA Suite 12c (12.1.3) and is available under the Cloud subsection of Component Palette in JDeveloper.

## 4.2 Oracle Cloud Adapter for Salesforce.com Walkthrough

This section describes the Adapter Configuration Wizard and how you can define an Oracle Cloud Adapter for Salesforce.com by using the Adapter Configuration Wizard. Contrary to 11g wherein all adapters were part of the 'Service Adapters' subsection, 12c distinguishes adapters based on their usage. Salesforce adapter is visible under the 'Cloud' subsection, a section dedicated to cloud based adapters.

- 1. In the Component Palette, select SOA.
- 2. Under the Cloud subsection you should be able to find an icon for Oracle Cloud Adapter for Salesforce.com
- **3.** Drag and drop **Salesforce** Adapter to the **External References** swim-lane in the composite.xml page, as shown in Figure 4-1.

#### Resources Components Q- ( Project1 SOA External References Applications E-Business JDE World Suite Custom/Third Party 3 Third Party Cloud ۲ Salesforce 4.6

Figure 4-1 Salesforce Adapter

The Salesforce Cloud Adapter Configuration Wizard dialog is displayed.

## 4.2.1 Welcome Page

The first page of Salesforce Cloud Adapter Configuration Wizard is – Welcome page, as shown in Figure 4-2.

Service Adapters enable your Oracle BPEL process or Oracle Mediator Component to interact with database tables, database queues, file systems, FTP servers, Java Message Services (JMS), IBM WebSphere MQ, Oracle applications, or Cloud applications.

Click Next to continue or Cancel to exit the wizard.

#### Figure 4-2 Welcome Page

Salesforce Cloud Adapter Configuration Wizard	- Step 1 of 5	23
Salesforce Cloud Adapter Reference	010101010101010101010101010	5
Welcome to the Adapter Configuration	n Wizard	
This wizard helps you create a service using a Salesforce parameters and define an operation for the service.	e Cloud Adapter. You will be asked to specify configu	ration
Enter a Reference Name.		
Name: salesforceReference		
Help < Back	Next > Einish Ca	ancel

## 4.2.2 Salesforce Cloud Server Connection Page

The next page of the adapter configuration wizard is – **Salesforce Cloud Server Connection**, as shown in Figure 4-3.

This page enables you to either select an existing connection or create a new connection definition by providing an Authentication Key.

Salesforce Cloud Adapter Configuration Wizard -	Step 2 of 5
Salesforce Cloud Server Connection	010101010101010101010101010
A Salesforce Cloud Server connection is required to acces	ss the operations and business objects available.
WSDL Location:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Authentication Key:	
Offline Configuration	
<u>C</u> lear Cache	
Test Connection	
Help < Back	Next > Finish Cancel

Figure 4-3 Salesforce Cloud Server Connection Page

The Salesforce Cloud Server Connection page is arranged in the following sections:

- WSDL Location
- Authentication Key
- Offline Configuration
- Clear Cache
- Test Connection

#### 4.2.2.1 WSDL Location

In the text box corresponding to WSDL location, provide the location of your Enterprise WSDL. Using the **Find existing WSDLs** button, browse for the Enterprise WSDL. Make sure you copy the file to your local project folder and use the same while configuring the adapter. Alternatively, you can provide the MDS location of the WSDL in this text box. For more information refer to the section "A.1 Generating the Enterprise WSDL" for WSDL generation. This field is mandatory.

**Find existing WSDLs:** Click **Find existing WSDLs** button to find/select the existing WSDLs, as shown in Figure 4-4.

Figure 4-4 WSDL Location Option

WSDL Location:	

#### 4.2.2.2 Authentication Key

Authentication key enables you to specify and store the Authentication credentials in the Credential Store Framework. This field is mandatory. Select the Authentication key, this key is required to retrieve the Salesforce.com login credentials during run-time. It must match the CSF key configured on the WebLogic server. To see the steps to configure the CSF key on WebLogic server, see the section "CSF Key in Enterprise Manager".

Add a new credential: To create a new key, click on plus (+) button, as shown in Figure 4-5.

#### Figure 4-5 Create Authentication Key

Authentication Key:	•	+/×	
---------------------	---	-----	--

Once you click on the + icon, the **Add Credential** pop-up window appears, as shown in Figure 4-6.

#### Add Credential / CSF Key Creation

Add Credential page is used to create a new password credential by supplying user name, password and key alias, as shown in Figure 4-6. The new credential will be added to the *oracle.wsm.security* credential map.

On this page the following information is required:

- User ID: Enter the Salesforce.com user ID (typically an email address).
- **Password:** Enter the Salesforce.com password + security token.
- CSF Key: A user defined (CSF) key which is associated with the specified username and password. Enter the CSF Key of your choice. Credential store framework requires a key which stores the username and password and prevents the user from rewriting the same at run-time. The CSF Key created in configuration wizard should match the CSF key created on Enterprise Manager console. For more information on how to create a CSF Key on Enterprise Manager Console, refer to the section "CSF Key in Enterprise Manager".

Figure 4-6 Add Credential Page

🕜 Add Credential	×
Create a new password credential and the key alias. The new creden oracle.wsm.security credential ma	
User ID:	
Password:	
CSF Key:	
Help	OK Cancel

All these parameters are needed for logging into the Salesforce.com.

**Note:** The CSF key view/edit functionality is currently not supported. It will be provided in a subsequent release.

#### 4.2.2.3 Offline Configuration

This option allows user to configure salesforce adapter in offline mode. As soon as user will select the offline configuration check box, wizard will make a call to Salesforce.com to fetch the metadata information about the salesforce objects. This would be stored in the cache which would be used when subsequent adapter instance would be created.

This feature helps in reducing the salesforce operation calls as adapter would be making use of the cache rather than the live salesforce call. In this mode adapter will not support test functionalities which requires direct call to Salesforce.com. Uncheck the same to resume working online.

When you select the **Offline Configuration** checkbox, below message appears, as shown in Figure 4-7.



Figure 4-7 Metadata Download Required Message

#### 4.2.2.4 Clear Cache

Check/Uncheck the **Clear Cache** checkbox to either refresh or retain the metadata in the cache. If this checkbox is selected, all the metadata in the cache will be refreshed. You should check 'Clear Cache' checkbox in order to get new custom objects (if any) or any other information from the newly generated WSDL. Refer to the section "A.1 Generating the Enterprise WSDL" for generating WSDL from Salesforce.com.

#### 4.2.2.5 Test Connection Functionality

You can use **Test Connection** button to test the connection after creating or selecting the CSF Key. By clicking on **Test Connection** button, you will see the message as shown in Figure 4-8.

- Success! For successful connection.
- Error! For any exception during login.

Figure 4-8 Test Connection Option

Test Connection	]		
Success!			

Click Next to continue or Cancel to exit the wizard.

#### 4.2.3 Salesforce.com Cloud Operation Configuration Page

The next page of Salesforce Cloud Adapter Configuration Wizard is – **Cloud Operation Configuration**, as shown in Figure -9.

👌 Salesforce Cloud Adapter Configura	ation Wizard - Step	o 3 of 5		×
Cloud Operation Configuratio	n	010101010101	0101019191919191	*
Select a Salesforce Cloud Operation and	l its primary business	s objects and speci	fy a unique WSDL (	Operation name.
Operation Category: CRUD 💌	Api Version:	29.0		
SFDC Operation: create	WSDL Operation:	create		
Available:       Q* filter         Account       Account_Test_c         AccountContactRole       AdditionalNumber         ApexClass       ApexClass         ApexComponent       ApexPage         ApexTestQueuEItem       ApexTrigger         ApexTrigger       ApexTrigger         ApexTestResponse       Appress Response		Selected:		
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 4-9 Cloud Operation Configuration page

The Cloud Operation Configuration page enables you to select operation and objects(s).

The operation page enables you to select from the different kinds of operation categories, and operations. Based on the operation selected, the list of objects will be displayed in the available object list text area. You can select one or multiple objects for a specified operation. You need to follow a logical sequence in selecting objects during design-time because the request structure that the adapter creates depends upon the order of selected objects. For example, if you want to create a lead, opportunity and an account in this order, these objects have to be selected accordingly; with lead on top, followed by opportunity and then account.

The Cloud Operation Configuration page is arranged in the following sections:

- Operation Category
- SFDC Operation
- API Version
- WSDL Operation
- Business Objects
- Suppress Response

#### 4.2.3.1 Operation Category

This drop-down list groups a set of related Salesforce.com operations which the user can choose amongst. For more information, refer to the section "Supported SOAP API Operations".

#### 4.2.3.2 SFDC Operation

This includes a number of operations, based on Operation Category selected.

SFDC Operation calls represent specific operations that the Oracle Cloud Adapter for Salesforce.com can invoke at run-time to perform tasks, for example:

- Query data in your organization.
- Add, update, and delete data.

For more information, refer to the section "Supported SOAP API Operations".

#### 4.2.3.3 API Version

The API Version indicates which Salesforce.com WSDL (Web service) version you are using to get all the metadata information for Salesforce.com objects. This API version is read from the endpoint URL in service definition section at the bottom of the Salesforce.com WSDL.

#### 4.2.3.4 WSDL Operation

The WSDL operation is a text field where you can define custom operation name for selected operation. This custom name will then be used in the integrated WSDL, generated after finishing the configuration wizard. If you have not provided any WSDL operation name, the selected operation name, which is the default value of this field, is used.

#### 4.2.3.5 Suppress Response

Check this box if you do not need response during run-time. For example, in "create" operation, the IDs of created records are returned. If you do not need these for further usages then you can use the Suppress Response option.

#### 4.2.3.6 Business Objects:

#### **Available Objects**

This area shows all the available Salesforce.com standard and custom objects that can be selected for the particular operation.

#### **Selected Objects**

This section shows all the Salesforce.com objects selected by you. The selected operation (create, update, delete, etc.) can be performed only on these objects by your adapter instance.

#### **Filter Field**

Filter field is used to search for a Salesforce.com object from the list of available objects.

When you click on the filter drop-down, following options are available.

- **Filter:** Select to filter the available objects.
- Recent: Select this option if you want to see the objects which have been used recently.

#### 4.2.3.7 SOQL and SOSL Page

If you select SOSL/SOQL operation category, a query editor will open. Type the SOQL or SOSL statement depending on the operation selected, as shown in Figure 4-10.

SOSL/SOQL enables you to search your organization's Salesforce.com data for specific information.

#### **Query Statement**

Query statement is used to query data from Salesforce.com. Query statement text box consists of SOQL statements according to Salesforce.com. Refer to the section "SOSL and SOQL Operations" to understand how the operation works. For detailed information on SOQL/SOSL, follow this link

(http://www.salesforce.com/us/developer/docs/soql\_sosl/)

#### Figure 4-10 Query Statement in SOQL and SOSL Option

Salesforce Cloud Adapter Configuration Wizard - S	itep 3 of 5	x
Cloud Operation Configuration	01010101010101010104010101	5
Select a Salesforce Cloud Operation and its primary busin	ness objects and specify a unique WSDL Operation r	ame.
Operation Category: SOSL/SOQL  Api Version:	29.0	
SFDC Operation: query VSDL Operation	n: query	
Query Statement		
SELECT a.name, a.id, a.accountNumber,		
<b>.</b>		
Help < Back	Next > Einish Cano	el

#### **Run Query Test Tool**

This tool helps you to test and verify the query. By clicking on **Test** icon, a test dialogue box appears.

The Query Test dialogue contains the following area:

**Query Statement** text box and **Results** box showing result of query executed. Result box can show results up to a maximum of 200 records. If the query has one or more bind parameters in it, then one or more input boxes will appear to provide values for these, as shown in Figure 4-11.

**Execute Query:** Execute Query button is used to execute the query.

Figure 4- 11 Query Test

🕐 Query Test	×
Query <u>S</u> tatement:	
SELECT a.name, a.id, a.accountNumber, c.name from Contact c, c.Account a WHK	ERE a.name = 'United Oil & Gas, U
	ିକ୍ଷ
Results from query:	
Object Count: 0	
Help	<u>S</u> ave <u>D</u> one

**Refresh Bind Parameters:** Refresh Bind Parameters button is used to refresh Bind Parameters box, if there is any change in the number of bind parameters in the query statement. The screenshot below illustrates the usage of 'Bind Parameters'

🕜 Query Test	
Enter a value for each bind parameter and then execute query. After testing, Statement, you may hit Save to retain the new statement. Otherwise, hit Do	
Query <u>S</u> tatement:	
SELECT a.name, a.id, a.accountNumber, c.name from Contact c, c.Account a	a WHERE a.name = &varName
Bind Parameters:	62
varName Value: United Oil & Gas, UK	
Results from query:	
Object Count: 1	
<result td="" xmlns="urn:enterprise.soap.sforce.com" xmlns:xsi="http://www.w3&lt;br&gt;&lt;done&gt;true&lt;/done&gt;&lt;/td&gt;&lt;td&gt;.org/2001/XMLSchema-instance" xmlr<=""></result>	
<querylocator xsi:nil="true"></querylocator> <records xsi:type="sf:Contact"></records>	
<sf:id xsi:nil="true"></sf:id>	
<sf:account xsi:type="sf:Account"> <sf:id>0019000000DlwNlAAJ</sf:id></sf:account>	
<sf:accountnumber>CD355119-A</sf:accountnumber>	
<sf:name>United Oil &amp; amp; Gas, UK</sf:name>	-
	►
Help	Save Done

#### Figure 4- 12 Query Test

#### **Search Statement**

Salesforce object Search Statement (SOSL) is used to search specific data for your organization from Salesforce.com. It retrieves records for one or more objects. Analogous to the options described in previous section, Search statement also has buttons as provision for - Run Search test Tool, Execute Search and Refresh Bind Parameters.

Salesforce Cloud Adapter Configuration	on Wizard - Ste	ep 3 of 5		×
Cloud Operation Configuration		0101010101	0101010101919191919191	*
Select a Salesforce Cloud Operation and its	s primary busine	ss objects and spe	cify a unique WSDL	Operation name.
Operation Category: SOSL/SOQL	Api <u>V</u> ersion:	29.0		
SFDC Operation: search 🔻	WSDL Operation	search		
Search Statement				
FIND {Oil Gas} IN ALL FIELDS	RETURNING J	Account (Name,	AccountNumber	c), 0 🖉
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 4-13 Cloud Operation Configuration

## 4.2.4 Header and Properties Page

The next page in Salesforce Cloud Adapter Configuration Wizard is – **Header and Properties** page, as shown in Figure 4-14.

The **Header and Properties** page is used to select header properties for the selected Oracle Cloud Adapter for Salesforce.com Cloud Operation. The values defined in this page can be overridden by properties defined at the composite level or in the EM console. For a detailed description of run-time properties, see section "

Oracle Cloud Adapter for Salesforce.com Run-Time Properties".

For more information on Salesforce.com headers, follow the link (http://www.salesforce.com/us/developer/docs/api/Content/soap\_headers.htm).

For operation specific header information, refer to the section "Salesforce.com SOAP Headers".

👌 Salesforce Cloud Adapter Co	nfiguration Wi	zard - Step 4 of 5	5		23
Header and Properties			0101010101	010101010101010101	*
Select Header properties for selec	ted Salesforce.	com Cloud Operatio	n		
Header Properties					
AllOrNoneHeader:					â
✓ allOrNone:					
AllowFieldTruncationHeader:					
allowFieldTruncation:					
AssignmentRuleHeader:					
assignmentRuleId:					
useDefaultRule:					
DebuggingHeader:					
debugLevel:					
EmailHeader:					
triggerAutoResponseEmail					
triggerOtherEmail:					
triggerUserEmail:					
MruHeader:					
updateMru:					
PackageVersionHeader.packageV	ersions:				
majorNumber:	0				
minorNumber:	0				
namespace:					
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 4-14 Header and Properties Page (for create operation)

## 4.2.5 Finish Page

The next page in Salesforce Cloud Adapter Configuration Wizard is – **Finish** page. The **Finish** page summarizes the Oracle Cloud Adapter for Salesforce configuration..

When you complete the adapter configuration, a WSDL file named after the service name, you entered on the **Adapter Configuration Wizard - Service Name** page, appears in the **Application Navigator**, as shown Figure 4-15.

To finish adapter configuration, Click Finish.



👔 Salesforce Cloud Adapter Cor	nfiguration Wizard - Ste	ep 5 of 5		×
Finish		01010101010	0101010393939394939493	*
You have finished defining the Salesforce Cloud Adapter Reference : salesforceReference When you click Finish, the wizard will create the C:\JDeveloper\mywork\12cAutomationBPEL\A_U_M_T_01_018_01\SOA\WSDLs\salesforceReference.wsdl file in your project WSDLs directory.				
Selected Operation Name: create Selected Object(s) Name: [Account Selected SOAP Header: {AllOrNone				
Help	< <u>B</u> ack	Next >	<u>F</u> inish	Cancel

## 4.3 Design-time Artifact Generation

After clicking on Finish button on the last screen of Salesforce Cloud Adapter Configuration Wizard, composite.xml gets updated by adding a reference element along with jca file and integration WSDL file.

## 4.3.1 JCA File

The JCA file provides adapter configuration information for the service. A connection factory is specified so that the adapter run-time can connect to the Salesforce Cloud Servers, as shown in Figure 4-16.





#### 4.3.2 Integration WSDL

Integration WSDL is a simplified, abstract WSDL file as compared to the actual Salesforce WSDL. It has information in reference to selected operation and objects during configuration of the Oracle Cloud Adapter for Salesforce.com. Figure 4-17 and Figure 4-18 shows parts of the Sample Integration WSDL generated by Salesforce Adapter for delete operation.

#### Figure 4-17 Integration WSDL part showing delete operation request and response schema

```
<xs:schema xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Applicationl/Projectl/sample"
    elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Applicationl/Projectl/sample"
    xmlns:ns2="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Applicationl/Projectl/sample"
    xmlns:ns4="urn:enterprise.soap.sforce.com">
   <xs:import namespace="urn:enterprise.soap.sforce.com"/>
   <xs:element name="delete" type="ns2:deleteType"/>
   <xs:complexType name="deleteType">
       <xs:sequence>
           <xs:element name="ids" type="xs:ID"/>
       </mms:sequence>
   </xs:complexType>
    <xs:element name="deleteResponse" type="ns2:deleteResponseType"/>
   <xs:complexType name="deleteResponseType">
       <xs:sequence>
           <xs:element name="DeleteResult" type="ns4:DeleteResult"/>
       </mms:sequence>
   </ms:complexType>
</xs:schema>
```

#### Figure 4-18 Integration WSDL part displaying delete operation details

<wsdl:message name="deleteRequestMessage"> <wsdl:part name="parameters" element="nsl:delete"/> </wsdl:message> <wsdl:message name="deleteResponseMessage"> <wsdl:part name="parameters" element="nsl:deleteResponse"/> </wsdl:message> <wsdl:message name="UnexpectedErrorFault"> <wsdl:part name="parameters" element="fns:UnexpectedErrorFault"/> </wsdl:message> <wsdl:portType name="samplePortType"> <wsdl:operation name="delete"> <cloud:CloudOperation xmlns:cloud="http://xml.oracle.com/types" targetOperation="delete"/> <wsdl:input message="nsl:deleteRequestMessage"/> <wsdl:output message="nsl:deleteResponseMessage"/> <wsdl:fault name="UnexpectedErrorFault" message="nsl:UnexpectedErrorFault"/> </wsdl:operation> </wsdl:portType>

# <u>5</u>

# Integration with Different Service Components (BPEL/Mediator) in Oracle SOA Suite

Oracle Cloud Adapter for Salesforce.com facilitates integration to various Salesforce.com objects via operations exposed by the Salesforce.com API. This chapter walks you through a simple integration wherein user creates a new account on Salesforce.com using Oracle Cloud Adapter for Salesforce.com. The scenario would enable you to create an easy and seamless integration to Salesforce.com using BPEL Process Manager.

This section describes Oracle Cloud Adapter for Salesforce.com concepts through a use case, which is a complete walkthrough of the Adapter configuration wizard. In addition, this use case also describes how by using the Adapter configuration wizard, you can access various operations available to your Enterprise on Salesforce.com, select objects specific to your business requirements, generate corresponding WSDL to expose the necessary operations etc. These services are consumed to define partner links that are used in the BPEL process. You use the Adapter configuration wizard to both create and edit adapter services.

This chapter contains the following topics:

- Section 5.1, "Overview"
- Section 5.2, "Configuring the CSF Key on Enterprise Manager Console"
- Section 5.3, "Designing a Composite for Service Integration"
- Section 5.4, "Configure Oracle Cloud Adapter for Salesforce.com"
- Section 5.5, "Integration with BPEL"
- Section 5.6, "Deploy the Composite"
- Section 5.7, "Test the Composite"

## 5.1 Overview

Account is one of the various standard objects provided by Salesforce.com. An account on Salesforce.com represents an individual or business associated with the business. Oracle Cloud Adapter for Salesforce.com allows you to create an account on Salesforce.com. The below scenario would provide you step by step instructions to accomplish the same.

To integrate with Oracle BPEL Process Manager, the organization's Enterprise WSDL should be available to the user. The underlying adapter services must be exposed as WSDL files, which are generated during design-time in the configuration wizard of the Oracle Cloud Adapter for Salesforce.com. For more information, refer to the section "A.1 Generating the Enterprise WSDL".

The generated WSDL files are used 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 an SOA Suite server, every newly deployed process is viewable in the Oracle Enterprise Manager console, where you can run, monitor, administer BPEL processes, and monitor adapter events.

## 5.2 Configuring the CSF Key on Enterprise Manager Console

For steps to configure the CSF key on Enterprise Manager Console, refer to the section "CSF Key in Enterprise Manager".

## 5.3 Designing a Composite for Service Integration

The steps mentioned below design a composite using the Oracle JDeveloper Studio Edition (12.1.3.0.0), which is a comprehensive tool for developing Oracle Fusion Middleware applications. It provides an easy-to-use Integrated Development Environment that let you create your integrations efficiently.

## 5.3.1 Define Composite for BPEL and Mediator

Perform the following steps to define a composite for BPEL and Mediator:

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

0	Oracle JDeveloper 12c Development Build - Testing.jws : S_E_B_13_001_02.jpr : C:\JDeveloper 12c Development Build - Testing.jws : S_E_B_13_001_02.jpr : C:\JDeveloper 12c Development Build - Testing.jws : S_E_B_13_001_02.jpr : C:\JDevelopment Build - Testing.jpr : C:\JDev										
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>A</u> pplicatio	on	Refa <u>c</u> tor	<u>S</u> ear	ch	<u>N</u> avigate	<u>B</u> uild	<u>R</u> un	Tea <u>m</u>
	<u>N</u> ew				•	-	<u>A</u> p	plication			
	<u>O</u> pen			Ctrl	-0		<u>P</u> ro	ject			
	<u>R</u> eopen				•	8	BPE	EL <u>2</u> .0 Subpi	rocess		
	Check C	ode Co	mpliance			_		EL Process			
	Close			Ctrl	E4	-	Bus	siness <u>R</u> ules			
	Close Al				+Shift-F4		<u>C</u> or	mposite Te	st		
×	Delete			0ai	- 01111-1-4		Cro	oss Re <u>f</u> erenc	e(XREF)		
-	_					- 🖽	<u>D</u> oi	main Value	Map(D\	/M)	
	Save			Ctrl	-S	4	<u>E</u> ve	nt Definitio	n		
	S <u>a</u> ve As.					2	<u>H</u> u	man Task			
-	Save As					a		ve <u>n</u> POM fo	or Projec	ct	
6	Save A <u>I</u> I						—	diator			
	Rena <u>m</u> e							ing Context			
	Import					@	_	DL Docume			
	Export							IL <u>S</u> chema			
	Compar	e With			,			uery File <u>v</u> e			
	Replace	_			,			uery <u>L</u> ibrary	/ ver 1.0.		
						- 65	<u>X</u> SL	. Map			
.8.	Page Se Print	tup		Ctrl	P		Fro	m <u>G</u> allery			Ctrl-N
	Print Pre	wiew		Gui	-1						
	Print Are	_		,							
	E <u>x</u> it			Alt-	F4	-					

#### Figure 5-1 Navigation Window

2. The New Gallery page is displayed. Select SOA Application from the Items list, as shown in Figure 5-2.

Figure 5-2 Create SOA Application

🕐 New Gallery	23
Q	
Categories:	Items: Show All Descriptions
Categories: 	Image: Control of the second secon
Spring TopLink/JPA	UML Application     WebCenter Portlet Producer Application
Help	OK Cancel

3. Provide a suitable name to your application, as shown in Figure 5-3.

Figure 5-3 Name your application

O Create SOA Application	- Step 1 of 3	×
Name your application	01	F
	Application Name:	
Application Name	Application	
Project Name	Directory:	
<ul> <li>Project SOA Settings</li> </ul>	C:\JDeveloper\mywork\Application	Browse
	Application Package Prefix:	
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

4. Click Next and provide a suitable name to your project, as shown in Figure 5-4.

#### Figure 5-4 Name your project

Create SOA Application	- Step 2 of 3	
Name your project		01010101010101010101010
Application Name     Project Name	<u>P</u> roject Name: Dir <u>e</u> ctory:	: Project1 C:\JDeveloper\mywork\Application\Project1 Browse
Project SOA Settings	Project Featu SOA Suite SOA Suite is a	
Help		< Back Next > Einish Cancel

- 5. Click Next.
- 6. Select Composite with BPEL Process from Standard Composite list, as shown in Figure 5-5.

Figure 5-5 Configure SOA Setting

Create SOA Application	- Step 3 of 3		~	23
Configure SOA settin	gs		1939493935346	F
Application Name     Project Name     Project SOA Settings	Composite Name: Project1 Start from:  Standard Composite Empty Composite Composite With Human Task Composite With BPEL Process Composite With Business Rule Composite With Business Rule Composite With Spring Composite With Mediator	SOA <u>T</u> emplate		
	<u>C</u> ustomizable			
Help	< <u>B</u> ack	Next >	<u>F</u> inish	Cancel

- 7. Click Finish.
- 8. Select the Synchronous BPEL Process from Template drop-down and click OK, as shown in Figure 5-6.

Figure 5-6 Create BPEL Process

🕜 Create BPE	L Process	×					
A BPEL pro	BPEL Process A BPEL process is a service orchestration, based on the BPEL specification, used to describe/execute a business process (or large grained service), which is implemented as a stateful service.						
BPEL 2.0 S	pecification O BPEL 1.1 Specification						
<u>N</u> ame:	BPELProcess 1						
Namespace:	http://xmlns.oracle.com/Application/Project1/BPELProcess1						
Directory:	C:\JDeveloper\mywork\Application\Project1\SOA\BPEL	_ 🔍					
Template:	😂 Synchronous BPEL Process	- 3					
Service Name:	bpelprocess 1_client						
	Expose as a SOAP service						
	Transaction: required	- 3					
	Input: {http://xmlns.oracle.com/Application/Project1/BPELProcess1}process	_ 🔍					
	Qutput: {http://xmlns.oracle.com/Application/Project1/BPELProcess1}processResponse						
Help	OK	Cancel					

9. The composite.xml looks as shown in Figure 5-7.

Figure 5-7 Composite.xml

③ Start Page × 메일 Project1 × 옮 BPELProcess1.bpel ×					
🖌 🕼 🌄 💥 🖏 I 🕅 👩	) 🙆 i 🖶 🖶 🏟 🔂	Project1			
Exposed Services	Components	External References			
∉ Design Source History		• • •			

**10.** In the **Application Navigator**, under the **Schemas** folder, an XML schema file with the name **BPELProcess1.xsd** is displayed after BPEL process creation, as shown in Figure 5-8.

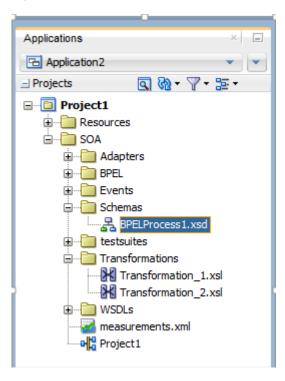


Figure 5-8 XML Schema File

**11.** Edit this schema file as per your business requirement. It is the responsibility of the front-end application to enforce the data validations and to ensure that the input sent to SFDC via SOA is error free. The structure of the schema used in this use case is as shown in Figure 5-9.

#### Figure 5-9 Edit XML Schema File

Fi	ind			
	xml v</td <td>ersion="1.0" encoding="UTF-8"?&gt;</td> <td></td>	ersion="1.0" encoding="UTF-8"?>		
Ξ	<pre>schema</pre>	attributeFormDefault="unqualified"		
		elementFormDefault="qualified"		
	targetNamespace="http://xmlns.oracle.com/Application2/Project1/BPELProcess1"			
		<pre>xmlns="http://www.w3.org/2001/XMLSchema"&gt;</pre>		
Ξ	9	<element name="process"></element>		
Ξ	0	<complextype></complextype>		
Ξ	3	<sequence></sequence>		
		<pre><element name="Account_Name" type="string"></element></pre>		
		<pre><element name="Phone" type="string"></element></pre>		
		<pre><element name="Website" type="string"></element></pre>		
		<pre><element name="Description" type="string"></element></pre>		
Ξ	9	<pre><element name="processResponse"></element></pre>		
Ξ	9	<complextype></complextype>		
Ξ	0	<sequence></sequence>		
		<pre><element name="ID" type="string"></element></pre>		
		<pre><element name="Status" type="string"></element></pre>		
		<pre><element name="Error_Fields" type="string"></element></pre>		
		<pre><element name="Error_Code" type="string"></element></pre>		
		<pre><element name="Error_Message" type="string"></element></pre>		
ana	a 🔻		1:1	

**12.** Figure 5-10 shows **Create Account** page on Salesforce.com. The fields with red mark are mandatory fields. This structure may vary for different organizations.

Figure 5-10 Create Account Page on Salesforce.com

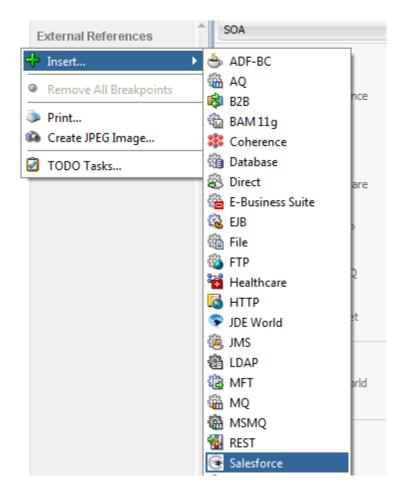
Account Edit New Account			Help for this Page 🥹
Account Edit	Save Save & New Cancel		
Account Information			= Required Information
Account Owner		Rating	None V
Account Name		Phone	
Parent Account		Fax	
Account Number		Website	
Account Site		Ticker Symbol	
Туре	None 🗸	Ownership	None V
Industry	None V	Employees	
Annual Revenue		SIC Code	
Address Information			Copy Billing Address to Shipping Address
Billing Street	$\bigcirc$	Shipping Street	$\bigcirc$
Billing City		Shipping City	
Billing State/Province		Shipping State/Province	

## 5.4 Configure Oracle Cloud Adapter for Salesforce.com

Perform the following steps to configure a New Oracle Cloud Adapter for Salesforce.com:

1. In External References swim lane of the composite.xml file, right-click and select Salesforce adapter, as shown in Figure 5-11.

Figure 5-11 Salesforce Adapter



**2.** The Salesforce Cloud Adapter Configuration Wizard - Welcome page is displayed, as shown in Figure 5-12.

#### Figure 5- 12 Welcome Page

Salesforce Cloud Adapter Configuration Wizard - S	Step 1 of 5
Salesforce Cloud Adapter Reference	
Welcome to the Adapter Configuration	Wizard
This wizard helps you create a service using a Salesforce C parameters and define an operation for the service.	Cloud Adapter. You will be asked to specify configuration
Enter a Reference Name.	
Name: salesforceReference	
Help < Back	Next > Einish Cancel

- 3. Click Next.
- 4. The Salesforce Cloud Server Connection page is displayed. The WSDL Location and Authentication Key text boxes are already populated. It picks up these values from the cache. You can re-enter these values. If you want to use a different value, click the Find existing WSDLs icon, which is located to the right of the WSDL Location field, as shown in Figure 5-13.

Salesforce Cloud Adapter Configuration Wizard	- Step 2 of 5
Salesforce Cloud Server Connection	010101010101010101040400
A Salesforce Cloud Server connection is required to acce	ess the operations and business objects available.
WSDL Location: file:/C:/JDeveloper/mywork/Auton	nation/Sample_Create/SOA/WSDLs/SalesforceEnterprisi
Authentication Key: SFDC_USER	
Offline Configuration	
<u>Q</u> lear Cache	
Test Connection	
Help < Back	Next > Einish Cancel

Figure 5-13 Salesforce Cloud Server Connection Page

**5.** The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in Figure 5-14.

Figure 5-14 SOA Resource Browser

👌 WSDL Chooser		an lantan	the Real Property lies	plati .				x
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL			
Location:	C:\offical					- 🗘 🔘 (	à 🗳	:= III
Work Project Application	SalesforceEr	ıterprise.wsdl						
	File Name: Sales	forceEnterprise	.wsdl					
Home	File <u>Type</u> : Web	Service Definitio	on Files (*.wsdl)					-
Selection: file:/C:/o	offical/SalesforceE	interprise.wsdl						
Help						OK		Cancel

6. Click OK. The following screen appears as shown in Figure 5-15.



1 Localize Files	×
file:/C:/offical/SalesforceEnterprise.wsdl is external to the current project. In order to make this file available project at runtime, JDeveloper can now make a local copy of this file and any dependent files that it imports of includes.	
Copy Options:           Maintain original directory structure for imported files         The following files will be created in directory         C:\JDeveloper\mywork\Application1\Project1\SOA :	
WSDLs/SalesforceEnterprise.wsdl	
Нер ОК Саг	ncel

7. Click OK. You are returned to the Salesforce Cloud Server Connection page.

Figure 5-16 Salesforce Cloud Server Connection Page

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5	x
Salesforce Cloud Server Connection	
A Salesforce Cloud Server connection is required to access the operations and business objects available.	
WSDL Location: C:\JDeveloper\mywork\Application1\Project1\SOA\WSDLs\SalesforceEnterprise.wsdl	6
Authentication Key: SFDC_USER 💌 🕂 🥢 💥	
<u>Q</u> lear Cache	
Test Connection	
Help < Back Next > Einish Cancel	

Note that as an alternative, you can store WSDL at an MDS location and access it, as shown in Figure 5-17.

Figure 5-17 SOA Resource Browser

	Components	Resources ×	
PDEMO	🗳 - Q- (Nar	ne	
<b>A</b>	🗄 My Catalogs		
	- IDE Connectio	ns	
	🕀 🛃 Application	n Server	
	🗄 🗟 Database		
	🖮 📲 SOA-MDS		
	🖶 📲 🖶 MDSC	Connection_76	
	🖮 🖏 SOA_	DesignTimeRepository	
	🛓 👘 🧰 aj	pps	
	<u> </u>	🗋 wsdls	
		SalesForceEnterpriseAPI.ws	dl

- 8. Traverse 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**.
- The WSDL location should be of the form 'oramds:/apps/SOA/WSDLs/Integration/SalesforceReference.wsdl', as shown in Figure 5-18.

Figure 5- 18 WSDL location

Salesforce Cloud Adapter Configuration	on Wizard - Step	2 of 5		×
Salesforce Cloud Server Conne	ction	01010101010		*
A Salesforce Cloud Server connection is requ	uired to access the	operations and b	ousiness objects ava	ilable.
WSDL Location: oramds:/apps/SOA/WS			ce.wsdl	•
Authentication Key: SFDC_USER		+ 🧷 🗙		
Offline Configuration				
<u>C</u> lear Cache				
Test Connection				
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

### 10. Click OK.

11. Click "+" button to create a new Authentication Key, as shown in Figure 5-19.

Salesforce Cloud Adapter Config	uration Wizard - Step	2 of 5		x
Salesforce Cloud Server Co	nnection			
A Salesforce Cloud Server connection	is required to access the	e operations and busines	s objects available.	
WSDL Location: C:\JDeveloper\m	ywork\Application1\Proj	iect1\SOA\WSDLs\Salesf	orceEnterprise.wsdl	2
Authentication Key: SFDC_USER	•	•] 🕂 🥖 🗙		
Offline Configuration		Add a new authen	tication credential to CS	SF key st
<u>C</u> lear Cache				
Test Connection				
Help	< <u>B</u> ack	<u>N</u> ext >	Finish Cancel	

Figure 5-19 Create a New Authentication Key

**12.** The **Add Credential** dialog box is displayed, as shown in Figure 5-20. Provide a suitable name and the Salesforce.com credentials and click **OK**.

**Note:** The password should be a combination of Salesforce.com password and Salesforce.com Security Token.

Figure 5-20 Add Credential

👌 Add Cre	edential	
and the ke	new password credential by supplying a user name, password by alias. The new credential will be added to the n.security credential map.	
User ID:		
Password:		
<u>C</u> SF Key:		
Help	OK Cancel	

# **13.** Click **Test Connection** button to validate the Authentication Key, as shown in Figure 5-21.

### Figure 5-21 Test Connection

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					23	
Salesforce Clou	d Server Conn	ection			-	5
A Salesforce Cloud S	erver connection is re	quired to access th	ne operations ar	nd business objects a	available.	
WSDL Location:	C:\JDeveloper\mywo	rk\Application1\Pro	oject1\SOA\WS[	DLs\SalesforceEnter	prise.wsdl	1
Authentication Key:	SFDC_USER	[	- 🕂 🥖 🗴	\$		
Offline Configura	tion					
Olear Cache						
Test Connection						
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cance	el 📄

14. Click Next.

15. The Cloud Operation Configuration page is displayed, as shown in Figure 5-22.

Salesforce Cloud Adapter Configuration	ation Wizard - Ste	ep 3 of 5		×
Cloud Operation Configuratio	n	01010101010	101010101010101	*
Select a Salesforce Cloud Operation and	d its primary busine	ss objects and spec	tify a unique WSDL	Operation name.
Operation Category: CRUD	Api Version:	29.0	]	
SFDC Operation: create  Business Objects	WSDL Operation:	; create		
Available: Account AccountContactRole AdditionalNumber ApexClass ApexComponent ApexTestQueueItem ApexTrigger Approval Approval AccountContactRole				
Help	< <u>B</u> ack	Next >	Einish	Cancel

Figure 5-22 Cloud Operation Configuration Page

16. Since the scenario is to create an Account on Salesforce.com, select Operation Category as CRUD and SFDC Operation as create. Now move Account from the list of Available objects to the list of the Selected objects. The WSDL Operation by default is create (same as SFDC Operation). You can edit the same by providing an operation name suitable to your business requirement, as shown in Figure 5-23.

👌 Salesforce Cloud Adapter Configura	tion Wizard - Step	o 3 of 5	×
Cloud Operation Configuratio	n	01	*
Select a Salesforce Cloud Operation and	its primary busines	s objects and specify a uniqu	e WSDL Operation name.
Operation Category: CRUD	Api <u>V</u> ersion:	29.0	
SFDC Operation: create 💌	WSDL Operation:	create	
Available: Q Thilter		Selected:	~ v
AdditionalNumber ApexClass ApexComponent			
ApexPage ApexTestQueueItem ApexTrigger			
Approval Asset	-		
Suppress Response			
Help	< <u>B</u> ack	Next > Einis	h Cancel

Figure 5-23 Cloud Operation Configuration Page

**17.** Click **Next**. The **Header and Properties** page is displayed, as shown in Figure 5-24.

Figure 5-24	Header and Properties	Page
-------------	-----------------------	------

Salesforce Cloud Adapter Co	onfiguration Wizard - Step 4 of 5	×
Header and Properties		5
Select Header properties for sele	cted Salesforce.com Cloud Operation	
Header Properties		
AllOrNoneHeader:		â
✓ allOrNone:		
AllowFieldTruncationHeader:		
allowFieldTruncation:		
AssignmentRuleHeader:		
assignmentRuleId:		
useDefaultRule:		
DebuggingHeader:		
debugLevel:		
EmailHeader:		Ŧ
Help	< Back Next > Finish Car	ncel

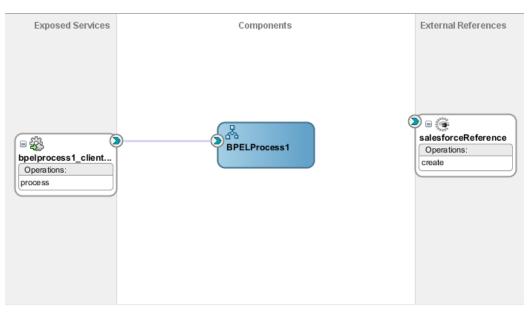
- **18.** Select the appropriate header to your requirement. Headers displayed in this page depend on the operation selected in the previous page.
- 19. Click Next.
- **20.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation would operate and the headers selected for that operation, as shown in Figure 5-25.

Figure 5-25 Finish Page

Salesforce Cloud Adapter Configure	ration Wizard - Ste	ep 5 of 5		×	
Finish		01010101010		*	
salesforceReference	You have finished defining the Salesforce Cloud Adapter Reference : salesforceReference				
When you click Finish, the wizard will cre C:\JDeveloper\mywork\Automation\A_U WSDLs directory.		OA\WSDLs\salesfor	ceReference.wsdl file	e in your project	
Selected Operation Name: create Selected Object(s) Name: [Account] Selected SOAP Header: {AllOrNoneHead	er.allOrNone=true}				
Help	< <u>B</u> ack	Next >	<u>F</u> inish	Cancel	

- 21. Click the Finish button to complete the Adapter Configuration Wizard.
- **22.** After clicking on **Finish** button, the following screen appears, as shown in Figure 5-26.

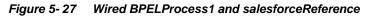
Figure 5-26 SFDC Cloud Account

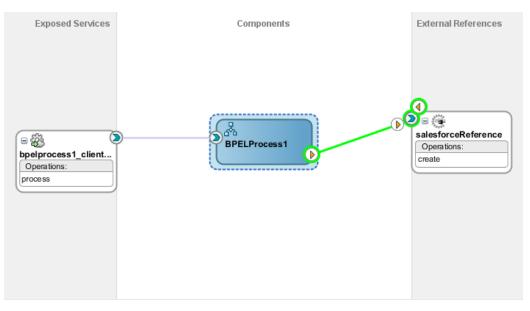


# 5.5 Integration with BPEL

Perform the following steps to integration with BPEL:

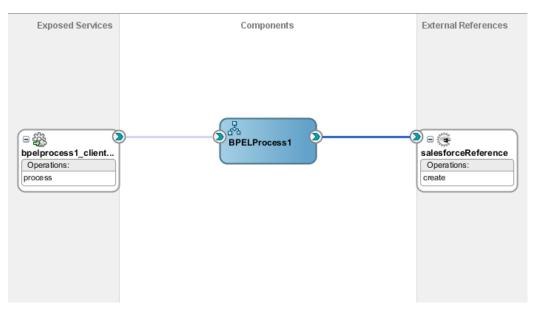
 Connect BPELProcess1 and salesforceReference via a wire, as shown in Figure 5-27.





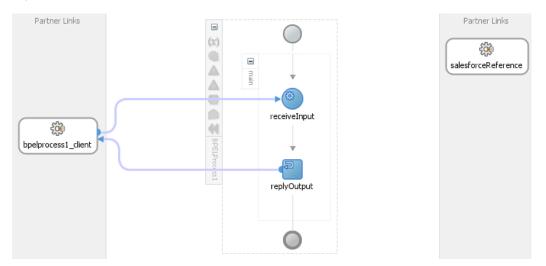
2. After wiring your composite looks like as shown in Figure 5-28.

### Figure 5-28 Wiring BPELProcess1 and salesforceReference



**3.** Double-click and open **BPELProcess1**. The salesforceReference adapter should be present as a part of the Partner Links, as shown in Figure 5-29.

Figure 5-29 Open BPELProcess1



- **4.** Add an invoke activity to invoke the salesforceReference Partner Link. To add the invoke activity, follow the below provided steps:
  - a) Drag and drop the invoke activity from the BPEL constructs, as shown in Figure <u>5-30</u>.

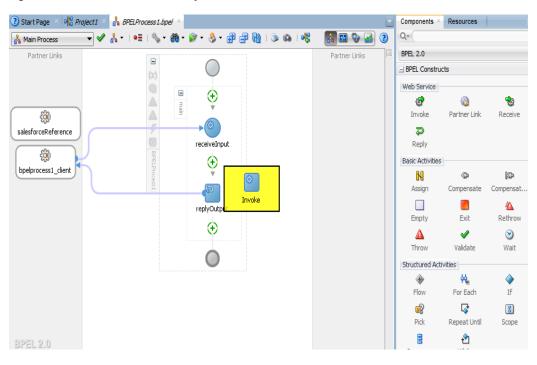
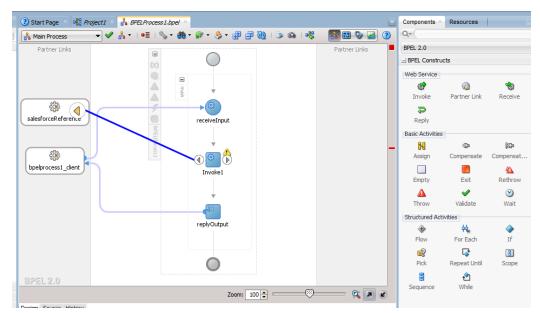


Figure 5- 30 Add invoke activity to invoke the salesforceReference Partner Link

 b) After dropping the Invoke property, wire the invoke activity to the salesforceReference partner link. Now, the composite will appear as shown in Figure 5-31.





 Create an input variable to the partner link by clicking the '+' button adjacent to Input text box in the Variables section. The Create Variable dialog is displayed, as shown in Figure 5-32.

👌 Edit Invoke			23
Assertions Skip General	Condition Header	s Sources Tar Properties	gets Annotations
Name:	Invoke 1	Properties	Annotations
Conversation ID:			
O Create Variable	-		×
<u>N</u> ame: Invoke	1_create_InputVariab	e_1	
	/xmlns.oracle.com/pcb pal Variable () Local V		ce/Automation/Sample_
Help			OK Cancel
Operation: Variables	reate 🐚		
Input:			
Output:			
Help		Apply	OK Cancel

Figure 5- 32 Create an Input Variable

 Create an output variable from the partner link by clicking the '+' button adjacent to Output text box in the Variables section. The Create Variable dialog is displayed, as shown in Figure 5-33.

👌 Edit Invoke		-	22
Assertions Sk	ip Condition Heade	rs Sources Tar	gets
General	Correlations	Properties	Annotations
Name:	Invoke 1		
<u>C</u> onversation ID	:		
👌 Create Variable			23
Name: Invok	e1_create_OutputVari	able_1	
			ce/Automation/Sample_
	bal Variable 🔘 Local		
	01		
Help			OK Cancel
Operation:	🐚 create		<b>▼</b>
Variables			
Input:			
Output:			
0 <u>u</u> puu			
<u>H</u> elp		Apply	OK Cancel

Figure 5-33 Create an Output Variable

7. Introduce two transform activities, one prior to the invoke activity and another after it, as shown in Figure 5-34.



Partner Links		Partner Links
	receiveInput	
	Transform1	
bpelprocess1_client	Invoke1	sfdcCreateAccount
Transform? Invasors/out uproduction[2]	Transform2 Transformation	700m 100 1

**8.** Map Transform1 values from receive activity's input variable to invoke activity's input variable, as shown in Figure 5-35.

Figure 5-35 Edit Transform

Edit Transfor	mation		X
Annotations	Skip Condition	Sources	Targets
Gene	eral	-	Transformation
Source:			🛉 / 🗙 🕆 🗦
Variable		Part	
inputVariable		payload	1
(w) invokel	_create_InputVa	inaple	parameters
<u>M</u> apper File: [	≥\SOA\Transform	mations\Transfo	rmation_1.xsl 🔍 🖶 🥒
Help		Apply	OK Cancel

- 9. Click the '+' button adjacent to Mapper File text box to open the Transformation\_1.xsl file.
- 10. Perform the mapping between inputVariable and Invoke1\_create\_InputVariable:

- Map Account\_Name with Name.
- Map Phone with Phone.
- Map Website with Website.
- Map Description with Description, as shown in Figure 5-36.

Figure 5- 36 Mapping between inputVariable and Invoke1\_create\_InputVariable

SLT map 🔹 📌	• •   🙏 🗣 🗟 🔟	Q Search XSLT	Map XSLT
<sources></sources>	]]	xsl:st	ylesheet 🕸 🚖
		xsl:template(match	n=/) 🛄 🛁 🗍
ms0:Account_Name		tns:create	()
ms0:Phone		tns:Account 🚸	<b>:</b>
ms0:Website		ens:fieldsToNull 瀫 … 🔅	
www.so:Description		ens:Id 🚸 🕂	
· 🗋 Variables		ens:AccountContactRoles 🚱 🕀	
		ens:AccountNumber 🚷 🖷	
		ens:AccountPartnersFrom 🚳 👾	U
		ens:AccountPartnersTo 🚱 🕁	
		ens:AccountSource 🚳 🖷	
		ens:Active_c 🚳 🖷	
		ens:ActivityHistories 🚳 🖷	
		ens:AnnualRevenue 🚳 🚎	
		ens:Assets 🚳 🖷	
		ens:AttachedContentDocuments 🚳 🚎	
		ens:Attachments 🐼 🖷	
		ens:BillingCity 🚳 🚎	
		ens:BillingCountry 🚳	
		ens:BillingLatitude 🚳 🕁	
		ens:BillingLongitude 🚳 🖷	
		ens:BillingPostalCode 🚳 🕁	
		ens:BillingState ญ	
		ens:BillingStreet 🚳 🕁	
		ens:Cases 🚯 🕁	
		ens:CombinedAttachments 🔞 🕁	
		ens:Contacts 🚯 🖽	
Search by local name		ens:Contracts 🔕 🕀	

**11.** Map Transform2 values from invoke activity's output variable to reply activity's input variable, as shown in Figure 5-37.

	-				l	×
Annotations Skip Condition	on So	urces	Targe	ts		
General			Transf	ormation	ı	
Source:			G	₽ /	× ÷	٩.
Variable		Part				
Invoke1_create_OutputVari	iable	param	eters			
Target Variable:				Target F	Part:	
Target Variable:			•	T <u>a</u> rget f		
			•			
	ormations	s\Transf		🛱 pay	rload	

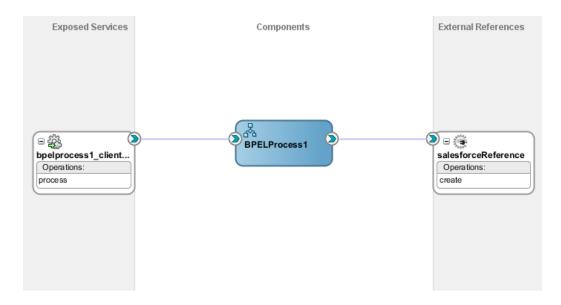
12. Perform the mappings for output variable, as shown in Figure 5-38.

(SLT map 🔹 🗣 🕶 🛛	🞄 🗣 🗟 🖺 🗆	Q Search XSLT	Map XSL1
<sources></sources>	<u>]</u>		xsl:stylesheet 👸
		xsl:te	mplate(match=/) 🛄 🖻
🖃 🚸 ns0:SaveResult		tns:proc	essResponse 🚷 🚊
🖨 🔣 ns2:errors			-tns:ID
🗄 🚷 ns2:fields			s:Status 🚷
ns2:message			or_Fields 🚷
s2:statusCode			or_Code 《》
⇒ ≪> ns2:id			Message 🍪
xvi xsi:nil		uis.ciroi_	nessage V
····· Variables			
Variables			
Search by local name			

Figure 5-38 Mappings for Output Variable

 This completes the project creation. The composite.xml looks, as shown in Figure 5-39.

Figure 5- 39 Composite.xml after Project Creation



# 5.6 Deploy the Composite

Perform the following steps to deploy the composite.

1. In the Application Navigator pane, right-click Project1 and select Deploy → Project1, as shown in Figure 5-40.

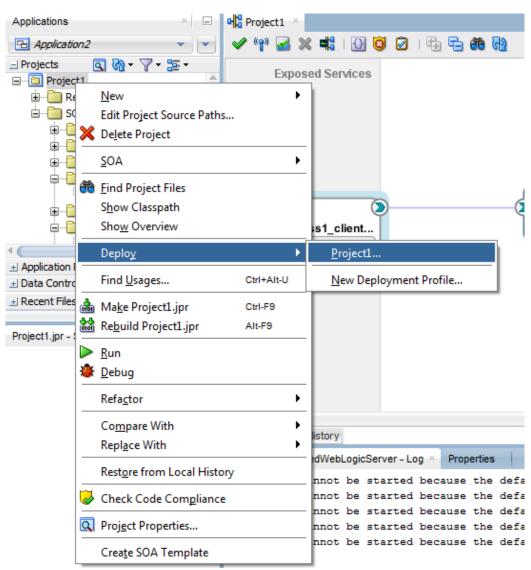


Figure 5-40 Deploy the Composite

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.

## 5.7 Test the Composite

You can run and test the instances of deployed SOA composite applications from Oracle Enterprise Manager Grid Control Console. This enables you to manage a composite application, initiate and track an instance of a composite and to view detailed component instance audit trails. Perform the following process to test the composite:

### 5.7.1 Test the Outbound Process

Perform the following steps to test the Outbound process:

- 1. Login to Enterprise Manager 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, as shown in Figure 5-41.

### Figure 5- 41 Test the Web Service

SOA Compos	ite 🔻		
Active Retir	re Shut Down	Test Settings 👻	S.
Dashboard		Instances Unit Toots Policies	
Name	1		
<b>BABAELPIC</b>	ICESS 1		

**4.** Provide the input payload and click the **Test Web Service** button, as shown in Figure 5-42.

Figure 5- 42 Test Web Service

	Test Web Service
Web service, enter the WSDL or	r WADL and click

**5.** After successful execution, the response contains ID of the account created on Salesforce.com and **Status** as success, as shown in Figure 5-43.

Figure 5- 43 Test Status

-	Response		
10	est Status Request successfully red	eived. 🏲	
	Time (ms) 811		
Tree Viev	/ ▼		
new flow	instance was generated. Launch I	Flow Trace	
lame	Туре	Value	
payload	payload		
ID	string	001900000shBZFAA2	
Statu	is string	true	
Error	_Fields string		
E	_Code string		
Error	_Message string		

6. Click the Launch Flow Trace button to view the Audit Trail, as shown in Figure 5-44.

### Figure 5-44 Launch Flow Trace

### Flow Trace <sup>(1)</sup>

This page shows the flow of the message through various composite and component instances.

Recover 👻 View 👻				
Error Message faults found.		Fault Nan	ne	Error Code
race				
race Actions - View -	Show Instance 🔲 IDs			
Actions 👻 View 👻		Туре	Usage	State
Actions - View - Instance	IDs	Type Service	Usage	State Completed
	IDs		-	

7. The Audit Trail will look like Figure 5-45.

### Figure 5- 45 Audit Trail

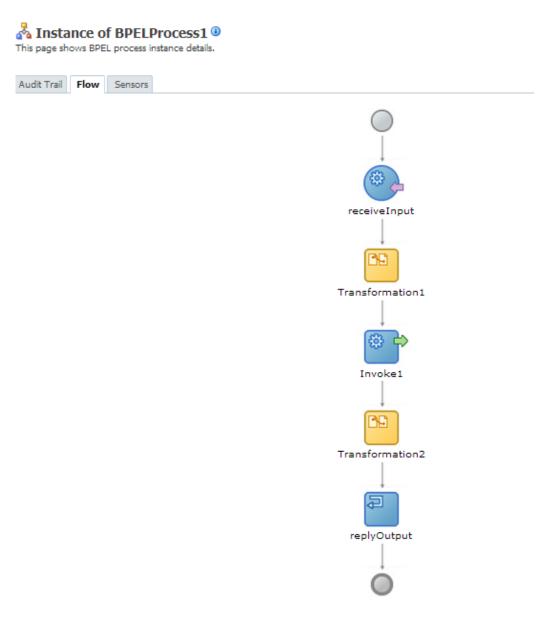
### A Instance of BPELProcess1 (1)

This page shows BPEL process instance details.

Audit Trail	Flow Sensors	
Actions 🗸	View 👻 Highlight Faults	3
▲ <process< p=""></process<>		
✓ <main< p=""></main<>	receiveInput	
	-	M Received "process" call from partner "bpelprocess1_client"
	Apr 2, 2014 4:30:14 PM	Received process call from parcher operprocessi_clienc
	View Payload	
⊿ ∆.	Transformation1	
	Apr 2, 2014 4:30:14 PM	Updated variable "Invoke1_create_InputVariable_1"
	View Payload	
	Apr 2, 2014 4:30:14 PM	M Completed assign
⊿ ⇔®	Invoke1	
	Apr 2, 2014 4:30:14 PM	M Started invocation of operation "create" on partner "salesforceReference".
4	Apr 2, 2014 4:30:14 PM	M Invoked 2-way operation "create" on partner "salesforceReference".
	View Payload	
⊿ DC	Transformation2	
	Apr 2, 2014 4:30:14 PM	M Updated variable "outputVariable"
	View Payload	
	Apr 2, 2014 4:30:14 PM	M Completed assign
⊿ ⇔®	replyOutput	
	Apr 2, 2014 4:30:14 PM	M Reply to partner "bpelprocess1_client".
	View Payload	
Apr 2	. 2014 4:30:14 PM	BPEL process instance "40474" completed

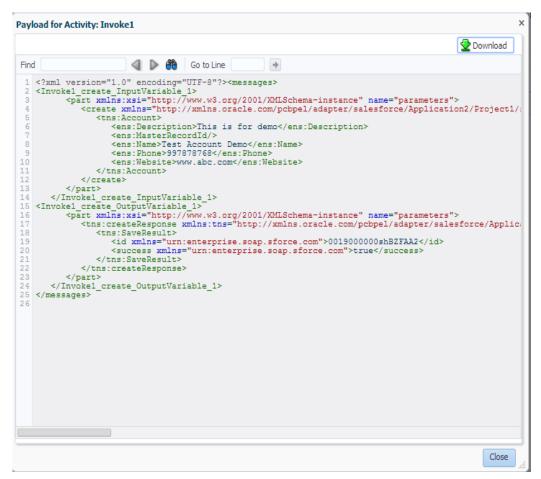
8. Click on Flow tab, The Flow tab is shown in Figure 5-46.

Figure 5- 46 Flow Tab



9. The Invoke activity of the process is shown in Figure 5-47.





10. This completes the Create Account scenario. The success of the task can be verified on Salesforce.com using the ID returned as response of create call, as shown in Figure 5-48.

Figure 5- 48 Create Account

Test Acco	ount Demo		
		Cu	istomize Page   Edit Layout   Printable View   Help for this Page 🍕
	Opport	tunities [0]	
Account Detail	Edit Delete Include Offline		
Account Owner	Changel	Rating	
Account Name	Test Account Demo [View Hierarchy]	Phone	997878768
Parent Account		Fax	
Account Number		Website	http://www.abc.com
Account Site		Ticker Symbol	
Туре		Ownership	
Industry		Employees	
Annual Revenue		SIC Code	
Account_Ext_Id			
Project_Street_Address			
Project_City			
Project_Zipcode			
Billing Address		Shipping Address	
Customer Priority		SLA	
SLA Expiration Date		SLA Serial Number	
Number of Locations		Upsell Opportunity	
Created By	Shalindra Singh, 2/4/2014 4:28 PM	Last Modified By	Shalindra Singh, 2/4/2014 4:28 PM
AccountMap			

# 6

# Configuring Outbound Processing Using Oracle Service Bus

Oracle Service Bus (OSB) make use of the Oracle Cloud Adapter for Salesforce.com via the Oracle SOA Suite components and JDeveloper IDE. This chapter describes the process of creating OSB projects using JDeveloper IDE or using OSB console, deploying the OSB services to an OSB domain, and finally testing the OSB services.

This chapter contains the following topics:

- Section 6.1, "Overview of Application Adapter Integration with Oracle Service Bus"
- Section 6.2, "Creating Outbound Processes Using Oracle Service Bus"

# 6.1 Overview of Application Adapter Integration with Oracle Service Bus

Oracle Service Bus can be leveraged to access the APIs exposed by Salesforce.com to achieve application integration via the Oracle Cloud Adapter for Salesforce.com. OSB uses the Oracle SOA Suite components and JDeveloper to employ the Oracle Cloud Adapter for Salesforce.com. This chapter will use the same business case of creating an Account in Salesforce.com as in Chapter 5:

Integration with Different Service Components (BPEL/Mediator) in Oracle SOA Suite.

# 6.2 Creating Outbound Processes Using Oracle Service Bus

Oracle Service Bus interacts with the Oracle Cloud Adapter for Salesforce.com through the 'Oracle Cloud Adapter for Salesforce.com Artifacts' generated using the SOA components. This section describes the process of generating the Oracle Cloud Adapter for Salesforce.com artifacts and creating OSB services based on these artifacts.

Oracle Service Bus provides two ways of designing OSB projects. One is JDeveloper IDE, and second option is to create projects and services directly on the Oracle Service Bus console. This chapter explains both ways of creating OSB projects and services.

## 6.2.1 Creating OSB Projects Using OSB Console

This section explains how to create OSB projects using OSB console. For this you first need to generate Oracle Cloud Adapter for Salesforce.com artifacts using JDeveloper 12c, and then those artifacts would be used while creating OSB projects and services using OSB console.

To create the Salesforce.com artifacts to be used by the OSB services, you need to use JDeveloper 11g in preview mode. JDeveloper can be started in preview mode using prompt and by passing *-J''-Dsoa.preview.mode=true''* as parameters as shown below:

\$Middleware\_Home\jdeveloper\jdev\bin> jdev.exe -J"-Dsoa.preview.mode=true"

For information on how to test the OSB projects created using OSB console, refer to the section "Testing OSB project from Service Bus Console".

### Generating Oracle Cloud Adapter for Salesforce.com Artifacts:

To create OSB projects using OSB Console, you need to use Oracle Cloud Adapter for Salesforce.com artifacts generated using JDeveloper 12c.

To create a BPEL composite, refer to the section "Designing a Composite for Service Integration". Next, to configure the Oracle Cloud Adapter for Salesforce.com, refer to the section "Configure Oracle Cloud Adapter for Salesforce.com". Save the Oracle Cloud Adapter for Salesforce.com artifacts in a directory. You will use the artifacts generated in section 5.4 "Configure Oracle Cloud Adapter for Salesforce.com" in creating OSB business services in OSB console.

### Creating OSB projects and services using the OSB console:

Follow the steps given below to create OSB projects and services using the OSB console.

- 1. Log in to OSB Console: <*host:port/sbconsole*>
- 2. On right side of webpage, click on **Create**, as shown in the Figure below. This opens a new session in the OSB console to enable you to make changes.



**3.** Enter a new project name, right-click on **All Projects** and click **Create - Project**, as shown in the Figure below.

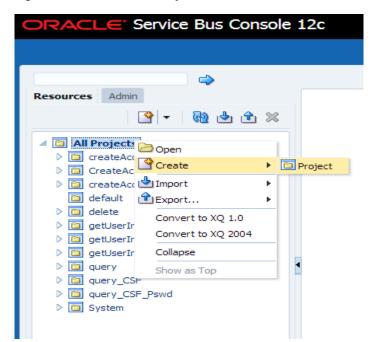


Figure 6-2 Add a New Project to OSB

- 4. A dialog box will appear with title Create a new project.
- 5. Enter the project name in the **Resource Name** field, and provide the description in **Description** field, as shown in the Figure below.

Figure 6-3 Create a New Project

Create a new Proj	ject ×
* Resource Name	SFDC_create
Description	Creating simple Business Service in OSB
3	Create Cancel

- 6. Click on Create. A new project named SFDC\_Create appears in under All Projects.
- 7. Import the Oracle Cloud Adapter for Salesforce.com artifacts in this project. Rightclick on the Project name, Select **Create** and then **WSDL** as shown in the Figure below.

Figure 6-4 Choose WSDL Resource

Resources Admin		SFDC_create × Project Definition
· 🔮 ·	Create	Folder
<ul> <li>▲ All Projects</li> <li>▶ □ createAccount</li> <li>▶ □ CreateAccount</li> </ul>	Move Pename	Polaer     Proxy Service     Business Service     Pipeline
CreateAccount     CreateAccount     default	요즘 Clone	@ WSDL
<ul> <li>delete</li> <li>getUserInfo_Mc</li> <li>getUserInfo_Mc</li> <li>getUserInfoNev</li> <li>query_CSF</li> <li>query_CSF_Psw</li> <li>SFDC_create</li> </ul>	Import Export Convert to XQ 1.0 Convert to XQ 2004 Collapse Show as Top	WADL D      Schema      Schema      WS Policy      X JCA Binding      XQuery      XLT      MFL
▷ 🗖 System		Service Account  Service Key Provider  Archive  Alert Destination  XML Document  MThrottling Group  Cross Reference (XRef)  DVM

**8.** WSDL Creation Page is displayed. Click on **Browse** and browse to the directory where the artifacts received from the JDeveloper 12c are stored. Choose the Oracle Cloud Adapter for Salesforce.com WSDL, as shown in the Figure below.

Figure 6-5 Create WSDL

Create	WSDL				×
• Res	ource Name Description	SalesForceEnterprise			
	File Upload	SalesForceEnterprise.wsdl	Upd	ate	
?				Create	Cancel

- 9. Click Create.
- **10.** Again right-click on the Project name, from the menu select **Create** and then **WSDL**. Now on the WSDL Creation Page, browse for salesforceReference WSDL as shown in the Figure below.

Figure 6-6 Create WSDL

Create WSDL	;	<
* Resource Name	salesforceReference	
Description		
File Upload	salesforceReference.wsdl Update	
?	Create Cancel	

- 11. Click Create.
- **12.** Select **JCA Binding** from the **Create** drop-down list under **Project Name**, as shown in the Figure below.

Figure 6-7 Select JCA Binding from Create Resource list

ORACLE Service Bus Conso	ole	12c	
		SFDC_create ×	salesforceEnterpri
Resources Admin	► E	WSDL Definiti	on
<ul> <li>All Projects <ul> <li>createAcco</li> <li>createAcco</li> <li>default</li> <li>delete</li> <li>getUserInfi</li> <li>getUserInfi</li> <li>getUserInfi</li> <li>getUserInfi</li> <li>query_CSF</li> <li>SFDC_createret</li> <li>System</li> </ul></li></ul>		Proxy Service Business Service WDL WDL WDL WSDL WS Policy Schema WS Policy SCA Binding KQuery KSLT Service Account Service Account Archive Archive Archive Archive Cross Reference () COSS Reference () DVM JavaScript	

**13.** The JCA Binding creation dialog box is displayed. Click on **Browse** and browse to the directory where the artifacts received from the JDeveloper 12c are stored. Choose the Oracle Cloud Adapter for Salesforce.com JCA file, as shown in the Figure below.

Figure 6-8 Create Adapter JCA Binding

Create JCA Bindin	g	×
* Resource Name	salesforceReference_salesforce	
Description		
File Upload	salesforceReference_salesforce.jca Upda	ate
3	Create	Cancel

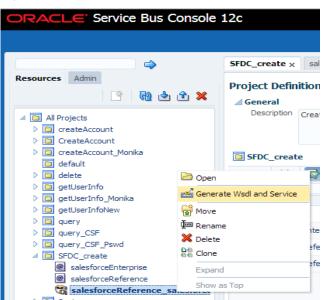
- 14. Click Create. You are returned to the project page.
- **15.** You may get an error message as "The JCA Binding 'salesforceReference\_salesforce' was successfully created with validation errors. View the JCA Binding/Conflicts to see detailed diagnostic messages." This error is thrown because JCA binding cannot find the associated WSDL.
- 16. To rectify the above error, click on the JCA file created and then click on Edit.
- **17.** Click **Browse**. Search for the WSDL you created and click **Submit** after choosing the WSDL, as shown in the Figure below.

Figure 6-9 Edit JCA Binding References

JCA Binding Definition		③ □ 🖉 K .=
3 General Description		
// WSDL Dependency		
Name satesforce/Enformerce	Q	
Fully SPOC_preate		

- 18. Click Save.
- 19. Go back to the project folder.
- **20.** Right-click on the JCA Binding just created, and click on "Generate WSDL and Service" option as shown in the Figure below.

Figure 6-10 Generate WSDL and service from JCA Binding



**21.** 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.

22. Click Generate, as shown in the Figure below.

nerate Wsdl and Service			
JCA Binding Name	salesforceReference_salesforce		
* New WSDL Name	salesforceReference_salesforce		
New Business Service Name	salesforceReference_salesforce		
Destination			
View 🗸 🔁 🖶			
Co default			
Resources			
✓ Image Action Ces			
Resources			
✓ I getUserInfoNew			
Resources			
🔺 🛅 query			
Resources			
✓ D query_CSF			
🚞 Resources			
⊿ interaction of a state of a			
Resources			
SFDC_create			
		Generate	Cance

Figure 6-11 Generating WSDL and Business Service for Salesforce

- 23. The new WSDL and the new business service are generated.
- **24.** Activate the OSB session by clicking on **Activate** in the right corner, as shown in the Figure below.

Links 🗸 🛛 I	Help <del>-</del> we	blogic <del>-</del>	C
🔮 weblogic Session	Activate	Discard	Exit
	Activate	e the current	t sessio

Figure 6-12 Activate Session

- **25.** A **Confirm Session Activation** dialog box will appear. Click on **Activate** to activate the session as shown in the Figure below.
- Figure 6-13 Confirm Session Activation

Confirm Session Activation					
	weblogic weblogic				
Description					
	Activate Cancel	77			

Click **Activate** on the Activate Session page. Once the session is activated, all the generated artifacts and the services are deployed to the OSB server.

### 6.2.2 Creating OSB Projects Using JDeveloper

This section explains how to create OSB projects using JDeveloper 12c. It includes creating an empty composite for OSB, then defining an OSB outbound process and finally deploying that OSB project on server.

### 6.2.2.1 Create an Empty Composite for OSB

Perform the following steps to create an empty composite for OSB:

1. Create a new OSB application, Select File → New → Application, as shown in the Figure below.

Figure 6-14 New Application Page

<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>Application</u>	Refa <u>c</u> tor	<u>S</u> earch	<u>N</u> avigate	<u>B</u> uild	<u>R</u> un	Tea <u>m</u>	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp
<u>[</u>	lew			•	🔁 <u>А</u> р	plication				۰ 🏶		
	<u>)</u> pen		Ct	rl-O	🖻 <u>P</u> ro	oject						
<u> </u>	<u>l</u> eopen			•	👗 BP	EL 2.0 Subp	ocess					

The New Gallery page is displayed as shown in Figure 6-14.

#### Figure 6-15 Choose Application

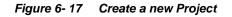
Q service bus	8	
<u>C</u> ategories:	 Items:	Show All Description
Service Bus TierServicesInterfacesTransformationsSecurityUtilityUtilitySystemSOA TierFaultsFaultsInterfaces	<ul> <li>Service Bus Application (Application Create a new Service Bus application with application is needed for the import of a S</li> <li>Service Bus Application with Service Bus P</li> <li>Service Bus Configuration (Deployment Pr</li> <li>Service Bus Project (Deployment Profiles)</li> <li>Service Bus Project (Projects)</li> </ul>	out a project. Useful when a Service Bus Service Bus configuration jar. Project (Applications) rofiles)

2. Enter a name for the new SOA Application and click **Finish**, as shown in the Figure below.

Figure 6-16 Name Your Application

🕜 Create Service Bus App	lication - Step 1 of 1			×
Name your application	DN	010101010101010	19999999999	5
Application Name	Application Name: ServiceBusApplication1 Directory:			
	C:\JDeveloper\mywork\Jdev12c Application <u>P</u> ackage Prefix:	_Stage 14\ServiceBusApplica	ition 1	B <u>r</u> owse
Help		Next >	<u>F</u> inish	Cancel

3. Create a new OSB application, Select File → New → Project, as shown in the Figure below.



ategories:	 Items:	Show All Description
	Eaching Service Bus Application (Applications) Service Bus Application with Service Bus Project (Application 2000) Service Bus Configuration (Deployment Profiles) Service Bus Project (Deployment Profiles) Service Bus Project (Projects) Create a new Service Bus Project	

4. The Name Your Project page is displayed, as shown in the Figure below.

Figure 6-18 Name Your Project	Figure	6- 18	Name You	ır Project
-------------------------------	--------	-------	----------	------------

Create Service Bus Proje	ect - Step 1 of 1		X
ame your project		0101010101010101010101010	
Project Name	Project Name:	SBProject1	
	Directory:	C:\JDeveloper\mywork\ServiceBusApplication1\SBProject1	Browse
	Project Featu	res:	
		s is a proven, lightweight SOA integration platform. It is designed manage interactions between heterogeneous services, legac	
		enterprise service bus (ESB) instances across an enterprise-v	

5. Click Finish.

### 6.2.2.2 Define an OSB Outbound Process

This section describes how to define an OSB outbound process for the Salesforce.com integration using Oracle Cloud Adapter for Salesforce.com, which consists of the following stages:

- 1. Configure a Salesforce Adapter Component.
- 2. Configuring an Outbound OSB Process Component.

### **Configure a Salesforce Adapter Component**

- 1. Open JDeveloper.
- 2. Drag and drop the Salesforce Adapter component from the **Resources Components** pane to the **External Service** pane, as shown in the Figure below.

	Resources	Components ×		
SBProject1	Q.			0
External Services	Service Bus			•
	£03:	:03	ŝ	<b>^</b>
	FTP Transport	JCA	JMS	
	<b>6</b> 0	-203		
	Local	MQ Transport	SFTP	
	<b>*</b>			
	Third Party			
	Cloud			— N
	۲			
	Salesforce			Y
Calesfana			-	*
G Salesforce				
A Salesforce Cloud ada from Salesforce Cloud		and receive mes	sages	?

Figure 6-19 Salesforce Adapter Configuration Wizard

The **Welcome** page of the Adapter configuration wizard is displayed, as shown in the Figure below.

Figure 6-20 Welcome Page

Salesforce Close	ud Adapter Configuration Wizard -	Step 1 of 5		×
Salesforce Clo	oud Adapter Reference	0101010101010	1019394939355 🐲	5
Welcome to	the Adapter Configuration	Wizard		
	ou create a service using a Salesforce fine an operation for the service.	Cloud Adapter. You will b	e asked to specify config	guration
Enter a Reference	Name.			
<u>N</u> ame:	salesforceReference			
Service Directory:	C:\JDeveloper\mywork\12C_RC3\Serv	viceBusApplication 1\SBPr	oject1	_ Q
Help	< <u>B</u> ack	Next >	Einish	Cancel

**3.** Enter a reference name for the Salesforce Adapter reference in the **Name** field and then click **Next**.

**4.** On the Connection Information page, browse for the Enterprise WSDL location by clicking on the browse button as highlighted in the Figure below.

Salesforce Cloud Adapter Configuration Wizard - S	tep 2 of 5
Salesforce Cloud Server Connection	01010101010101010101010101010
A Salesforce Cloud Server connection is required to access	the operations and business objects available.
WSDL Location:	1
Authentication Key:	- + 🧷 X
Offline Configuration	
<u>C</u> lear Cache	
Test Connection	
<u>H</u> elp < <u>B</u> ack	Next > Einish Cancel

5. The WSDL Chooser dialog is displayed. Browse and select the downloaded Enterprise WSDL and click OK, as shown in the Figure below.

Figure 6-22 SOA Resource Browser

👌 WSDL Chooser	r	Appendiculation	a Real	141			×
Application	Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL	
Location:	: 🛅 C: \officia	1				- 🔾 🗘 😫	:= III
Work	Salesforc	Enterprise.wsdl					
	Eile Name: Sa	lesforceEnterprise.v	vsdl				
Home	File <u>T</u> ype: W	eb Service Definition	Files (*.wsdl)				•
Selection: file:/C:/	/official/Salesfor	ceEnterprise.wsdl					
Help						ОК	Cancel

6. Click OK. The following screen appears as shown in the Figure below.

Import Service Bus Reso	urces - Step 1 of 2	2	X
Source			
Source	Resource Type: Source URL: Resource Name:	d select an import destination.          WSDL         C:\official\SalesforceEnterprise.wsdl         SalesforceEnterprise.wsdl         C:\Developer\mywork\12C_RC3\ServiceBusApplication1\SBProject1\Resources	
<u>H</u> elp		< Back Next > Einish	Cancel

Figure 6-23 Import Service Bus Resources

7. Click Next. The following screen appears as shown in the Figure below.

Figure 6-24 Import Service Bus Resources

<u>Source</u>	Select the resources to import.		
Configuration			e 6
	Resource	Operation	URL
	in- کا ایک ایک ایک ایک ایک ایک ایک ایک ایک	Create	file:/C:/official/Salesforcet

8. Click Finish. You are returned to the Salesforce Cloud Server Connection page.

Figure 6-25 Connection Page

Salesforce Cloud Adapter Config	juration Wizard - Ste	ep 2 of 5		x
Salesforce Cloud Server Co	nnection	0101010101010	1017394939494	1
A Salesforce Cloud Server connection	is required to access th	ne operations and bus	iness objects available.	
WSDL Location: //work\12C_RC3\	ServiceBusApplication 1	\SBProject1\Resource	es\SalesforceEnterprise	.wsdl 🔞
Authentication Key:		• 🕂 🥢 🗙		
Offline Configuration				
<u>C</u> lear Cache				
Test Connection				
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

- **9.** Select an authentication key from the dropdown, if available, or create a new Authentication key by clicking on "+" button.
- **10.** The **Add Credential** dialog box is displayed, as shown in the Figure below. Provide a suitable name and the Salesforce.com credentials and click **OK**.

**Note:** The password should be a combination of Salesforce.com password and Salesforce.com Security Token.

Figure 6-26 Add Credential

Add Credential		
and the ke	new password credential by supplying a user name, password ey alias. The new credential will be added to the m.security credential map.	
User ID:		
Password:		
CSF Key:		
Help	OK Cancel	

**11.** Click **Test Connection** button to validate the Authentication Key, as shown in the Figure below.

Salesforce Cloud	Adapter Configura	tion Wizard - Ste	p 2 of 5		×
Salesforce Clou	ıd Server Conn	ection	0101010		*
A Salesforce Cloud S	erver connection is re	quired to access th	e operations a	nd business objects a	available.
WSDL Location: Authentication Key: Offline Configura Clear Cache			\SBProject1\Re		interprise.wsdl
<u>H</u> elp		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

**12.** Click **Next.** The Operation Configuration page is displayed, as shown in the Figure below.

Salesforce Cloud Adapter Configurat	ion Wizard - Step	3 of 5		x
Cloud Operation Configuration	1	01010101010	0101010101010101	*
Select a Salesforce Cloud Operation and i	ts primary business	objects and spec	fy a unique WSDL (	Operation name.
Operation Category: CRUD 💌	Api Version:	29.0		
SFDC Operation: create 💌	WSDL Operation:	create		
Available:       Qr       filter         Account       Account_Test_c         AccountContactRole       AdditionalNumber         ApexClass       ApexClass         ApexPage       ApexTestQueueItem         ApexTrigger       ApexTrigger		Selected:		
Suppress Response				
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 6-28 Operation Configuration Page

**13.** The default operation is create. Select the **Account** object from the Available objects list, and move to the selected objects list as shown in the Figure below.

Salesforce Cloud Adapter Configura	tion Wizard - Ste	ep 3 of 5	×
Cloud Operation Configuration	n	01	Heber 🌸
Select a Salesforce Cloud Operation and	its primary busines	ss objects and specify a unique	WSDL Operation name.
Operation Category: CRUD 💌	Api Version:	29.0	
SFDC Operation:	WSDL Operation:	create	]
Available:       Q* filter         Account_Test_c       AccountContactRole         AdditionalNumber       ApexClass         ApexClass       ApexComponent         ApexPage       ApexTrigger         Approval       Aperval         Suppress Response       Suppress Response			
Help	< <u>B</u> ack	Next > Einis	h Cancel

Figure 6-29 Operation Configuration Page

14. Click Next. The Header and Properties Page is visible as shown in the Figure below.*Figure 6- 30 Headers Page* 

Salesforce Cloud Adapter Co	onfiguration V	/izard - Ste	p 4 of 5			x
Header and Properties			010101010	10101010101010101010101	-	5
Select Header properties for sele	cted Salesforce	.com Cloud (	Operation			
Header Properties						
AllOrNoneHeader:						â
✓ allOrNone:	✓					
AllowFieldTruncationHeader:						
allowFieldTruncation:						
AssignmentRuleHeader:						
assignmentRuleId:						
useDefaultRule:						
DebuggingHeader:						
debugLevel:						
EmailHeader:						Ŧ
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cano	el

- **15.** Select any header and provide its value.
- 16. Click Next.

The Finish page is displayed, as shown in the Figure below.

#### Figure 6-31 Finish Page

Salesforce Cloud Adapter Cor	figuration Wizard - Step 5	of 5	×
Finish		01	840 <b>*</b> *5
You have finished defini salesforceReference When you dick Finish, the wizard w	-	oud Adapter Refer	ence :
C: \JDeveloper \mywork \12C_RC3\S your project WSDLs directory.		ect1\Resources\salesforcef	Reference.wsdl file in
Selected Operation Name: create Selected Object(s) Name: [Account Selected SOAP Header: {AllOrNone			
<u>H</u> elp	< <u>B</u> ack	Next > Einist	n Cancel

### **Configuring an Outbound OSB Process Component**

Perform the following steps to configuring an Outbound OSB Process Component:

1. Right-click on **Pipeline/Split Joins** pane and click on **Insert** and then **Pipeline** as shown in the Figure below.

Figure 6-32 Pipeline Component

	🖷 🖁 SBProject1 🐣		
)	@		
	Proxy Services	Pipelines/Split Joins	I

The Create Pipeline Service dialog is displayed, as shown in the Figure below.

Figure 6-33 Create Pipeline Service

Oreate Pipeline Service	e - Step 1 of 2			×
Create Service				
Create Service Type	General Service N <u>a</u> me: Location: Description	Pipeline C:\JDeveloper\mywork\12C_RC3\ServiceBusApplic	ation1\SBProject1	Q
	Definition     From <u>T</u> emplate			Q,
Help		< <u>B</u> ad: <u>N</u> ex	t > Einish	Cancel

- **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, as shown in the Figure below.

Гуре		01	-
<u>Create Service</u>	Service Type: V	VSDL-based service	
🔊 Туре	WSDL:		ē 4
		Binding:	
	O Any SOAP:	SOAP 1.1	
	◯ Any <u>X</u> ML		
	O Messaging:	Reguest:	
		Response:	
	✓ Expose as a	Proxy Service	
	Proxy Name:	PipelineProxyService	
	Proxy Location:	C:\JDeveloper\mywork\12C_RC3\ServiceBusApplication1\SBProject1	Q
	Proxy <u>T</u> ransport:	http 🗸	
	Messages:		
	🔞 A WSDL resou	rce must be specified.	
			ancel

Figure 6-34 Create Pipeline Service

- **4.** Click **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  $\rightarrow$  Resources, as shown in the Figure below.

Figure 6-35 Select WSDL

👩 Select WSDL						_	×
	pplication Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL	
@ sa	1 irces alesforceEntei alesforceRefei	-	sdi				
Selection: file:/C:/JDe	veloper/mywo	rk/12C_RC3/Serv	iceBusApplicatio	n 1/SBProject 1/Re	sources/salesfor	ceReference-concr	ete.wsdl
Help						OK	Cancel

### 6. Click OK.

The selected WSDL and corresponding binding is displayed, as shown in the Figure below.

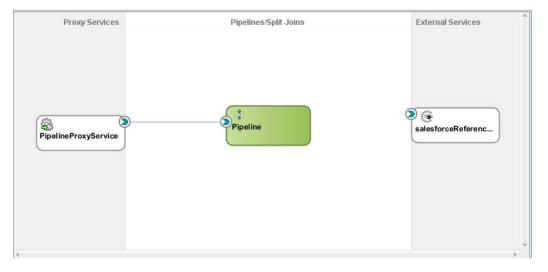
👌 Create Pipeline Servi	ice - Step 2 of 2		×
Туре		01	
<u>Create Service</u>	Service Type: W	/SDL-based service	
Type	WSDL:	SBProject1/Resources/salesforceReference-concrete	١
		Binding: salesforceReferencePortType-binding	
	O Any SOAP:	SOAP 1.1	
	O Any XML		
	O Messaging:	Reguest:	
		Response:	
	✓ Expose as a	Proxy Service	
	Proxy Name:	PipelineProxyService	
	Proxy Location:	C:\JDeveloper\mywork\12C_RC3\ServiceBusApplication1\SBProject1	Q
	Proxy <u>Transport</u> :	http 🗸	
	Messages:		
Help		< Back Next > Einish C	ancel

Figure 6-36 Create Pipeline Service

- 7. Select checkbox for Expose as a Proxy Service.
- 8. Select Proxy Transport as http.
- 9. Click Finish.

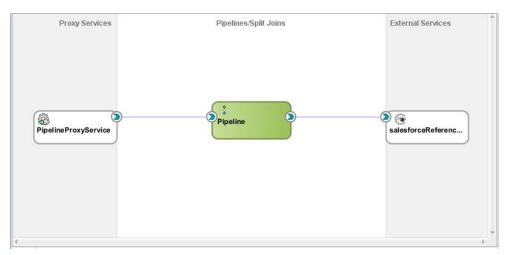
The Pipeline component is displayed as shown in the Figure below.

Figure 6-37 Pipeline Component



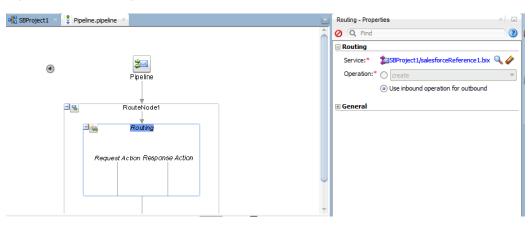
10. Connect salesforceReference to the Pipeline, as shown in the Figure below..

Figure 6-38 Pipeline Component



**11.** Open the pipeline which shows the default routing. Verify the service and corresponding operation will be displayed in the Routing Properties, as shown in the Figure below.

Figure 6-39 Routing Properties



The outbound endpoint is ready to be deployed.

### 6.2.2.3 Deploying Outbound OSB Process

Perform the following steps to deploy the outbound OSB Process:

1. Select the project and Deploy to Service Bus Server, as shown in the Figure below.

Figure 6- 40	Deployment Action Page
--------------	------------------------

Deploy ServiceBusApplic	cation1_SBProject1_	ServiceBusProje	tProfile		X
Deployment Action					
Deployment Action	Select a deploymen	t action from the li	st below.		
Summary	Deploy to Service B		blogic server which i	ncludes a Service	: Bus runtime.
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

**2.** Select the already configured Application Server and click **Next**, as shown in the Figure below.

Figure 6- 41 Select Server Page

Deploy ServiceBusAppl	ication1_SBProject1_ServiceBusProjectProfile	x
Select Server		
Deployment Action	Application Servers:	🕂 음 🚱
😠 Select Server	IntegratedWebLogicServer (domain unconfigured)	
i <u>Summary</u>	server132	
Help	< Back Next > Einish	Cancel

3. Check the deployment summary and click **Finish**, as shown in the Figure below.

Figure 6- 42 Summary Page

Deploy ServiceBusApplic Summary	cation1_SBProject1_ServiceBusProjectProfile
Deployment Action Select Server Summary	Deployment §ummary: □Service Bus Deployment Summary Server Name: server 132 Server Platform: Weblogic 12.x ■Service Bus Application Deployment Settings
<u>H</u> elp	< Back Next > Einish Cancel

4. The Project is successfully deployed, as shown in the Figure below.

Build - Issues 🔕 0 🛕 0 🚺 0   🖉 +   📌				
Description		File	Location	Project
	Success! Build	completed with 0 errors,	0 warnings, 0 infos	

The successfully deployed project can be tested from service bus console.

## 6.3 Testing OSB project from Service Bus Console

Follow the steps given below to test OSB project form Service Bus Console:

1. Open the **Service Bus Console** and enter user ID and Password, as shown in the Figure below.

### Figure 6-44 Service Bus Console

RACLE' Service Bus Console 12c	
	Sign In
	User ID weblogic
	Password
	[Sign In]

2. All the deployed projects are displayed under **All Projects**, as shown in the Figure below.

Figure 6- 45 Service Bus Console

Resources Admin	
<ul> <li>Al Projects</li> <li>createAccount</li> <li>CreateAccount</li> <li>default</li> <li>delete</li> <li>getUserInfo</li> <li>getUserInfoNew</li> <li>query_CSF</li> <li>query_CSF_Pswd</li> <li>SBProject1</li> <li>Resources</li> <li>gelpelneProxyService</li> <li>salesforceReference</li> <li>SFDC_create</li> <li>System</li> </ul>	

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

#### Figure 6-46 Business Service Definition

DRACLE' Service Bus Console	12c	Links + Help + weblogic + C
		Create Discard Exit
4	salesforceReference ×	8 9 9 -
Resources Admin	Business Service Definition	🕚 🖂 🖂 🕑
13 🖬 🖄 🖄 🕺	Configuration Security SLA Alert Rules	
Image: A Projects         Image: Im	General         General           Transport Transport Detail         Cencration           Message Handing Performance         Cencration           Transport Detail         Cencration           Message Handing         Transport Jaa           Service Type WXDC Deard Service - 50AP 1.1         W320, SBP0qex11/Resource, MaleforceReforemente-concrete Binding salesforceReforementer/binding	
20 22 Y 22 TD 20 Gas 2 date of Long / and second	Conflicts 👸 History 📴 References 🔍 Search results 🍈 Find And Replace Results	

**4.** Option for **Launch Test Console** (Green arrow button) is displayed for testing the outbound endpoint, as shown in the Figure below.

Figure 6-47 Launch Test Console

Exit
3+0
Console
unch Test

5. Launching Test Console opens new window displaying Business Service and the operation to test along with **Execute**, **Execute-Save**, **Reset** and **Close** button, as shown in the Figure below.

Figure 6-48 Business Service Testing Page

🝃 Business Service Testing - salesforceReference Help							
Execute	Execute-Save Reset Close						
Service Ope	ration						
Operation:	create Y		l				
🔁 Request Doo	rument						
Forr	n XML						
50AP Header:	<soap:header xmins:soap="http://schemas.xmisoap.org/soap/envelope/"> </soap:header>	li					
* Payload:	Choose File No file chosen						
* Payload: Choose File No file chosen <pre></pre>							
🗐 Transport		۲	,				

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

6. Provide the input and click on the **Execute** button.

This would send the payload to Salesforce and the response is displayed under **Response Document** section.

7

# Configuring the Outbound Processing Using BPM

Oracle Cloud Adapter for Salesforce.com allows you to seamlessly integrate with Salesforce.com through the operations exposed by the Salesforce.com API. This chapter walks you through a simple integration wherein user creates a new account on Salesforce.com using Oracle Cloud Adapter for Salesforce.com. The scenario will enable you to create an easy and seamless integration to Salesforce.com using BPM.

This section describes how you can use Oracle Cloud Adapter for Salesforce.com to create the artifacts according to your business requirements, i.e. select salesforce.com objects and operations in the adapter configuration wizard. These generated artifacts are consumed in the BPM process. You can use the Adapter configuration wizard to both create and edit the Adapter services.

### 7.1 Overview

Account is one of the various standard objects provided by Salesforce.com. An account on Salesforce.com represents an individual or business associated with your organization. Oracle Cloud Adapter for Salesforce.com allows you to create an account on Salesforce.com. The scenario shown in the following sections will walk you through the same using BPM.

To integrate using a BPM process, the organization's Enterprise WSDL should be available to the user. The underlying adapter services must be exposed as WSDL files, which are generated during design-time in the configuration wizard of the Oracle Cloud Adapter for Salesforce.com. For more information, refer to the section "A.1 Generating the Enterprise WSDL".

The generated WSDL files are used to design the appropriate BPM services for outbound adapter services. A completed BPM process must be successfully compiled in JDeveloper and deployed to a SOA Suite server. Upon deployment to a SOA Suite server, every newly deployed process can be seen in the Oracle Enterprise Manager console, where you can run, monitor, administer BPM processes, and monitor adapter events.

### 7.2 Configuring the CSF Key on Enterprise Manager Console

For steps to configuring the CSF key on Enterprise Manager Console, refer to the section "CSF Key in Enterprise Manager".

# 7.3 Designing a Composite for Service Integration

This section walks you through the steps to configure the Oracle Cloud Adapter for Salesforce.com with a BPMN process in Oracle SOA Suite and to deploy it to the WebLogic server. The composite can then be executed from the Enterprise Manager Console.

### 7.3.1 Define Composite for BPM

Perform the following steps to define a composite for BPM

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

### Figure 7-1 Navigation Window

0	👩 Oracle JDeveloper 12c Development Build - Testing.jws : S_E_B_13_001_02.jpr : C:\JDeve										
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>A</u> pplicatio	on	Refa <u>c</u> tor	<u>S</u> ear	ch	<u>N</u> avigate	<u>B</u> uild	<u>R</u> un	Tea <u>m</u>
	<u>N</u> ew				•	93	<u>A</u> p	plication			
	<u>O</u> pen			Ctrl	-0	D	<u>P</u> ro	ject			
	<u>R</u> eopen				•	*	BPE	EL <u>2</u> .0 Subpi	rocess		
	Check C	Code Co	mpliance					EL Process			
					= 4			siness <u>R</u> ules			
	<u>C</u> lose			Ctrl	-F4 +Shift-F4		<u>C</u> o	mposite Tes	st		
$\sim$	Clos <u>e</u> Al Delete			Ctri	+5nift-F4		Cro	oss Reference	e(XREF)		
<u>_</u>	Delete					- 🖽	<u>D</u> o	main Value	Map(D)	/M)	
-	<u>S</u> ave			Ctrl	-S	4	<u>E</u> ve	ent Definitio	n		
	S <u>a</u> ve As					2	<u>H</u> u	man Task			
-	Save As					a	Ma	ve <u>n</u> POM fo	or Projec	:t	
	Save A <u>I</u> I					4	<u>M</u> e	diator			
	Rena <u>m</u> e					<u></u>	Spr	<u>i</u> ng Context	t		
	Import						_	DL Docume			
	Export							IL <u>S</u> chema			
	Compa	re With			•	- 188	-	uery File <u>v</u> e			
	Replace	_				0.00		uery <u>L</u> ibrary	ver 1.0.		
							<u>X</u> SL	. Map			
P	Page Se	tup				4	Fro	m <u>G</u> allery			Ctrl-N
ä	Print			Ctrl	Ctrl-P						
	Print Pre	-									
	Prin <u>t</u> Ar	ea			•	- []]					
	E <u>x</u> it			Alt-	F4						

2. The New Gallery page is displayed. Select **BPM Application** from the **Items** list, as shown in the Figure below.

Figure 7-2 Create BPM Application

🕐 New Gallery	Companying Conceptions	23
Q		
Categories:	Items: Show All Descr	iptions
Applications 	Java Desktop Application     Java Desktop Application     ADF Fusion Web Application     Application from EAR File     Application Template     BPM Application     Creates a BPM application. The application consists of one BPM project. This     project has also SOA technology     Custom Application     Database Application     Extension Application	
Business Tier     ADF Business Components     Business Rules     Contexts and Dependency Injecti     Data Controls	Image: Service Bus Application         Image: Service Bus Application         Image: Service Bus Application with Service Bus Project	
Help	OK Cano	el

3. Provide a suitable name to your application, as shown in figure below.

Figure 7- 3 Name your application

Create BPM Application	- Step 1 of 3		<b>X</b>
Name your application	n		<b>F</b>
Application Name     Project Name     Project SOA Settings	Application Name:           BpmApplication           Directory:           C:\JDeveloper\mywork\BpmApplication           Application Package Prefix:		Browse
Help	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish	Cancel

4. Click Next and provide a suitable name to your project, as shown in figure below. *Figure 7- 4 Name your project* 

Create BPM Application	- Step 2 of 3	
Name your project		
Application Name     Project Name	<u>P</u> roject Name: Dir <u>e</u> ctory:	: BpmProject C:\JDeveloper\mywork\BpmApplication\BpmProject Browse
<ul> <li>Project SOA Settings</li> </ul>	Project Featur BPM BPM Technolo	
	SOA Suite is a	a suite of tools to model SOA(Service Oriented Architecture) applications.
Help		< Back Next > Einish Cancel

- 5. Click Next.
- 6. Select Composite with BPMN Process from Standard Composite list, as shown in the Figure below.

Figure 7-5 Configure SOA Setting

Create BPM Application	- Step 3 of 3
Configure SOA settin	ngs
Application Name.     Project Name     Project SOA Settings	Composite Name: BpmProject Start from:  Standard Composite  SoA Template Empty Composite Composite With Mediator Composite With Human Task Composite With BPEL Process Composite With BPMN Process Composite With Case Management Composite With Subprocess Composite With Spring Composite With Business Rule
Help	Customizable

- 7. Click Finish.
- 8. Select the Synchronous Service from Type section and click Finish, as shown in the Figure below.

Figure 7-6 Create BPM Process

👌 BPMN 2.0 Process Wiza	rd		x
BPMN 2.0 Process W	fizard		
Definition	Name:	Process	۲
<ul> <li>Arguments</li> </ul>	Description:		۲
<ul> <li>Initial Implementation</li> </ul>			
O Advanced			
	Directory:	C:\JDeveloper\mywork\BpmApplication\BpmProject\SOA\processes	٩
	Type:		
		ronous Service s a process with a synchronous interface definition	^
		Start End	
	Manual		
Help		<ul> <li>&lt; <u>Back</u> <u>Next</u> &gt; <u>Finish</u> Cance</li> </ul>	

9. The composite.xml will look like the one displayed in the Figure below.

Figure 7-7 Composite.xml

pmProject × 🧧		BpmProje
Exposed Services	Components	External References
	Process	
Process.service Operations: start		

10. Next we will create the schema for our process. In the Application Navigator, under your project folder, right click on the schema folder and select New and then select From Gallery as shown in the Figure below.

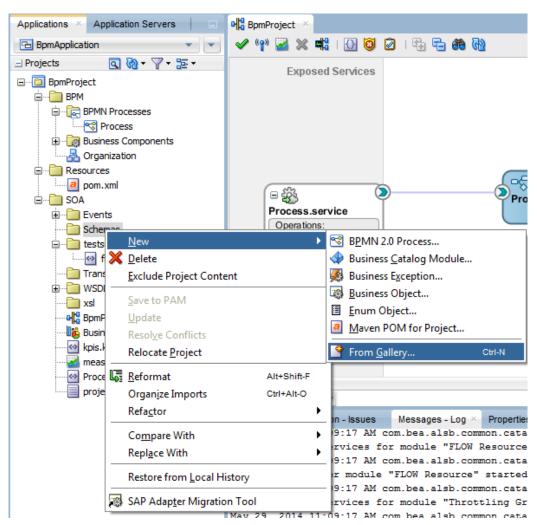


Figure 7-8 Create New Schema from Gallery

11. The New Gallery page is displayed. Select XML Schema from the Items list, and click OK as shown in the Figure below.

Figure 7-9 Select XML Schema

👌 New Gallery	<b>×</b>
٩	
Categories:	Items: Show All Descriptions
📮 General	A NXSD Schema
Ant	🐼 XML Document
Applications Connections	XML Document from XML Schema
Deployment Descriptors	XML Localization File (XLIFF)
Deployment Profiles	
Diagrams	🛃 XML Schema
Java	Opens the Create XML Schema dialog, in which you define a directory and
Maven Projects	filename for a new XML schema (.xsd ) file. To enable this option, you must select a project or a file within a project in the Application Navigator.
UML	a project or a file within a project in the Application Navigator.
	😤 XML Schema from XML Document
BPM Tier	💫 XQuery File
Activity Guide	
Business Components	XQuery File ver 1.0
·····Case Management	XQuery Library ver 1.0
Business Tier	XSL Map
ADF Business Components	XSL Map From XSL Stylesheet
Business Rules	
	🐼 XSL Style Sheet 🚽
Help	OK Cancel

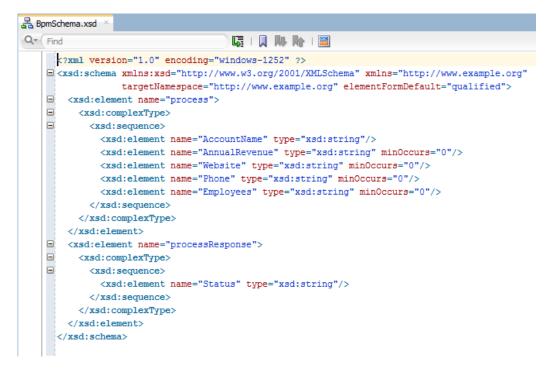
**12.** The **Create XML Schema** page is displayed, provide a suitable name to your schema and click **OK** as shown in the Figure below.

Figure 7- 10 Create XML Schema

Create XML Schema
Enter the details of your new file.
<u>F</u> ile Name:
BpmSchema xsd
Directory:
C:\JDeveloper\mywork\BpmApplication\BpmProject\SOA\Schemas Browse
Target Namespace:
http://www.example.org
Prefix:
Help OK Cancel

**13.** Edit the schema file as per your business requirement. It is the responsibility of the frontend application to impose the data validations and to ensure that the input sent to SFDC via SOA is correct. The structure of the schema used in this use case is shown in the Figure below.

Figure 7-11 Edit XML Schema



### 7.4 Configure Oracle Cloud Adapter for Salesforce.com

Perform the following steps to configure a New Oracle Cloud Adapter for Salesforce.com:

1. In External References swim-lane of the composite.xml file, right-click and select Salesforce adapter, as shown in the Figure below.

#### SOA External References 📥 ADF-BC Insert... 🖀 AQ Remove All Breakpoints hce C 🔯 B2B Print... 🛍 BAM 11g Create JPEG Image... 🎎 Coherence 🏐 Database TODO Tasks... Direct are 🝓 E-Business Suite 🔏 EJB 籀 File 🚳 FTP 错 Healthcare [ НТТР 📀 JDE World 🚳 JMS 👸 LDAP 🔞 MFT orld 🖀 MQ 🛍 MSMQ 🝓 REST 🧿 Salesforce

Figure 7-12 Salesforce Adapter

**2.** The Salesforce Cloud Adapter Configuration Wizard - Welcome page is displayed, as shown in the Figure below.

#### Figure 7-13 Welcome Page

👌 Salesforce Cloud Adapter Configurati	on Wizard - Ste	ep 1 of 5		x
Salesforce Cloud Adapter Refer	rence	01010101010	01010101010101510	*
Welcome to the Adapter Conf	iguration W	/izard		
This wizard helps you create a service using parameters and define an operation for the		ud Adapter. You wil	l be asked to spec	ify configuration
Enter a Reference Name.				
Name: salesforceReference				
	(Ped)		( rote	
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

- 3. Click Next.
- 4. The Salesforce Cloud Server Connection page is displayed. The WSDL Location and Authentication Key text boxes are already populated. It picks up these values from the cache. You can re-enter these values. If you want to use a different value, click the Find existing WSDLs icon, which is located to the right of the WSDL Location field, as shown in the Figure below.

Salesforce Cloud Adapter Configuration Wizar	d - Step 2 of 5
Salesforce Cloud Server Connection	0101010101010101040404040
A Salesforce Cloud Server connection is required to ac	ccess the operations and business objects available.
WSDL Location: file:/C:/JDeveloper/mywork/Auto	omation/Sample_Create/SOA/WSDLs/SalesforceEnterprise 🔞
Authentication Key: SFDC_USER	▼ + / ×
Offline Configuration	
<u>C</u> lear Cache	
Test Connection	
Help < Bac	k Next > Einish Cancel

Figure 7-14 Salesforce Cloud Server Connection Page

5. The WSDL Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in the Figure below.

Figure 7-15 SOA Resource Browser

🔿 WSDL Chooser	r	April Cardigan	the Name of Street, or	plat.		-	-	×
Application Server	File System	Project Libraries	SOA-MDS		WSIL			
Location:	: 🛅 C: \offical					- 🗘 🔘	🗳 🗳	) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Work	Salesforce	Enterprise.wsdl						
	File Name: Sal	esforceEnterprise	.wsdl					
Home	File <u>Typ</u> e: We	b Service Definiti	on Files (*.wsdl)					•
Selection: file:/C:/	/offical/Salesforc	eEnterprise.wsdl						
Help						OK		Cancel

6. Click OK. The Localize Files Dialog appears, as shown in the Figure below.

### Figure 7-16 Localize Files Dialog

O Localize Files	x
file:/C:/offical/SalesforceEnterprise.wsdl is external to the current project. In order to make this file availabl project at runtime, JDeveloper can now make a local copy of this file and any dependent files that it imports includes.	
Copy Options:  Maintain original directory structure for imported files The following files will be created in directory C:\JDeveloper\mywork\Application1\Project1\SOA :	
WSDLs/SalesforceEnterprise.wsdl	
Неір ОК Са	ncel

7. Click OK. You will be returned to the Salesforce Cloud Server Connection page.

Figure 7-17 Salesforce Cloud Server Connection Page

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5	×
Salesforce Cloud Server Connection	5
A Salesforce Cloud Server connection is required to access the operations and business objects available.	
WSDL Location: C:\JDeveloper\mywork\Application1\Project1\SOA\WSDLs\SalesforceEnterprise.wsdl	1
Authentication Key: SFDC_USER 🗨 🕂 🖉 🛠	
Qear Cache	
<u>T</u> est Connection	
Help < Back Next > Einish Cano	:el

Note that as an alternative, you can store WSDL at an MDS location and access it, as shown in the Figure below.

Figure 7-18 SOA Resource Browser

	Components	Resources ×	
PDEMO	🗳 - 🔍 Nar	ne	
<b>^</b>	± My Catalogs		
	- IDE Connectio	ns	
	🕀 📷 Applicatio	n Server	
	🗄 🗟 Database		
	🗄 📲 🖁 SOA-MDS		
	🖶 📲 🙀 MDSC	Connection_76	
	🖮 📆 SOA_	DesignTimeRepository	
	🖮 🚞 a	pps	
	ė	🔄 wsdls	
		🦾 🞯 SalesForceEnterpriseAPI.ws	dl

- 8. Traverse 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**.
- **9.** The WSDL location should be of the form 'oramds:/apps/SOA/WSDLs/Integration/SalesforceReference.wsdl', as shown in the Figure below.

Figure 7-19 WSDL location

Salesforce Cloud Adapter Configuration Wizard -	- Step 2 of 5
Salesforce Cloud Server Connection	
A Salesforce Cloud Server connection is required to acce	ess the operations and business objects available.
WSDL Location: oramds:/apps/SOA/WSDLs/Integra	ation/salesforceReference.wsdl
Authentication Key: SFDC_USER	▼ + / ×
Offline Configuration	
🗌 🔤 Glear Cache	
Test Connection	
Help < Back	Next > Einish Cancel

### **10.** Click **OK**.

**11.** Click "+" button to create a new Authentication Key, as shown in the Figure below.

Salesforce Cloud Adapter Configur	ation Wizard - Step	2 of 5	-	×
Salesforce Cloud Server Con	nection	0101010101010101	194449494	-
A Salesforce Cloud Server connection is r	equired to access the	operations and busine	ess objects available.	
WSDL Location: C:\JDeveloper\myw	vork\Application1\Proje	ect1\SOA\WSDLs\Sale	sforceEnterprise.wsg	li 🔮
Authentication Key: SFDC_USER		🕂 🥖 🗙		
Offline Configuration		Add a new authe	entication credentia	al to CSF key st
<u>C</u> lear Cache				
Test Connection				
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 7-20 Create a New Authentication Key

**12.** The **Add Credential** dialog box is displayed, as shown in the Figure below. Provide a suitable name and the Salesforce.com credentials and click **OK**.

**Note:** The password should be a combination of Salesforce.com password and Salesforce.com Security Token.

\_

Figure 7-21 Add Credential

👩 Add Cre	edential		x	
Create a new password credential by supplying a user name, password and the key alias. The new credential will be added to the oracle.wsm.security credential map.				
<u>U</u> ser ID:				
Password:				
<u>C</u> SF Key:				
Help		OK Cano	el	

**13.** Click **Test Connection** button to validate the Authentication Key, as shown in the Figure below.

Figure	7- 22	Test	Conne	ction
--------	-------	------	-------	-------

Salesforce Cloud	Adapter Configuration	on Wizard - Step	2 of 5			23
Salesforce Clou	d Server Conne	ction		1010101010101010101	-	5
A Salesforce Cloud S	erver connection is requ	uired to access the	operations and	d business objects a	available.	
WSDL Location:	C:\JDeveloper\mywork		ect1\SOA\WSD		orise.wsdl	2
Offline Configura	tion					
Clear Cache						
Test Connection						
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Canc	el

14. Click Next.

**15.** The **Cloud Operation Configuration** page is displayed, as shown in the Figure below.

Salesforce Cloud Adapter Configuration	tion Wizard - Step 3 of 5	×
Cloud Operation Configuration	n 01010101010101010101010101010101010101	*
Select a Salesforce Cloud Operation and	its primary business objects and specify a unique W	VSDL Operation name.
Operation Category: CRUD    SFDC Operation: create	Api Version: 30.0 WSDL Operation: create	
Business Objects	Selected:	~ ~
Account Account_Test_c AccountContactRole AdditionalNumber Announcement ApexClass ApexComponent ApexPage ApexTestQueueItem Constructions		
Help	< Back Next > Einish	Cancel

Figure 7-23 Cloud Operation Configuration Page

16. Now move Account from the list of Available objects to the list of the Selected objects. The WSDL Operation by default is create (same as SFDC Operation). You can edit the same by providing an operation name suitable to your business requirement, as shown in the Figure below.

Salesforce Cloud Adapter Configura	tion Wizard - Stej	p 3 of 5	X
Cloud Operation Configuration	n	0101010101010101010	*
Select a Salesforce Cloud Operation and	its primary busines	s objects and specify a uniqu	e WSDL Operation name.
Operation Category: CRUD    SFDC Operation: create	Api <u>V</u> ersion: WSDL <u>O</u> peration:	30.0 create	
Available:       Q* filter         AccountContactRole       AdditionalNumber         ApexClass       ApexComponent         ApexPage       ApexTestQueueItem         AperTrigger       Approval         Asset       Autochurch         Suppress Response       Suppress Response		Selected:	
Help	< <u>B</u> ack	<u>N</u> ext > Eini	sh Cancel

Figure 7-24 Cloud Operation Configuration Page

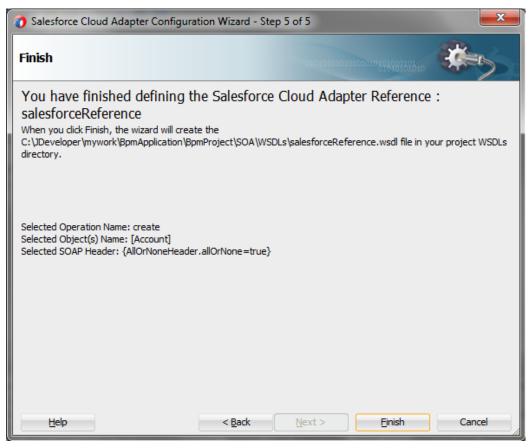
**17.** Click **Next**. The **Header and Properties** page is displayed, as shown in the Figure below.

Figure 7-25 Header and Properties Page

Salesforce Cloud Adapter Co	onfiguration Wizard - Step 4 of 5	×
Header and Properties	01	*
Select Header properties for select	cted Salesforce.com Cloud Operation	
Header Properties		
AllOrNoneHeader:		â
✓ allOrNone:		
AllowFieldTruncationHeader:		
AssignmentRuleHeader:		
assignmentRuleId:		
useDefaultRule:		
DebuggingHeader:		
EmailHeader:		-
<u>H</u> elp	< <u>B</u> ack <u>N</u> ext > Einish	Cancel

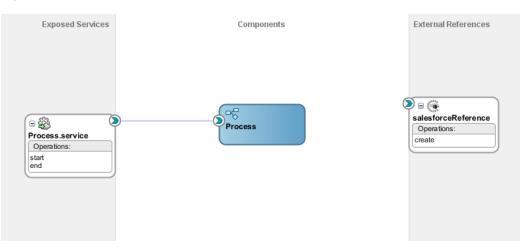
- **18.** Select the appropriate header according to your requirement. Headers displayed in this page depend on the operation selected in the previous page.
- 19. Click Next.
- **20.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation will operate and the headers selected for that operation, as shown in the Figure below.

Figure 7-26 Finish Page



- 21. Click the Finish button to complete the Adapter Configuration Wizard.
- **22.** After clicking on **Finish** button, the following screen appears, as shown in the Figure below.

#### Figure 7-27 SFDC Cloud Account

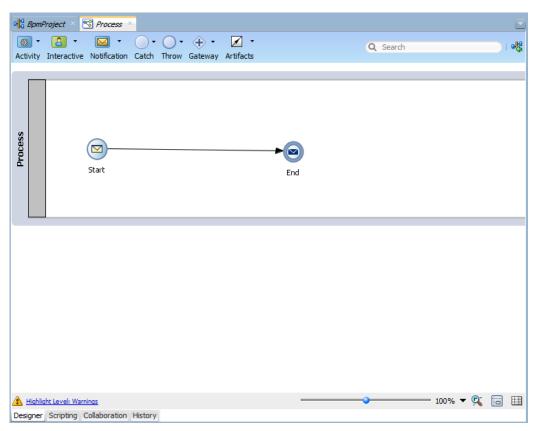


### 7.5 Integration with BPM

Perform the following steps to integrate with BPM:

1. In the composite.xml file of your project, a component with the name **Process** exists. Double-click and open the same. **Process.bpm** page opens, as shown in the Figure below.





2. Double-click on the Start activity. **Properties-Start** page is opened as shown in the Figure below.

**Note:** The Model Starts and Ends with two circular icons. The Left circle is a **Start Activity** and the circle which is on the right side is the **End Activity**. These two activities are joined with the help of a line that represents the flow of activities through the process known as Sequence Flow.

Figure 7-29 Start Activity

Properties	- Start	-	x
Basic Imple	ementation		
Name:	Start	۲	
			۲
Description:			
Is Draft:			
13 Diana			
Help		ОКС	ancel

**3.** Left-click on **Implementation** Tab. Now in the **Argument Definition**, click on the '+' sign to create the input argument/s.

Properties - Start	3
Basic Implementation	
Implementation Type: 🔘 Message	-
Message Exchange	
Type: 😡 Define Interface 🗸 🗸	
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>	
Define Interface	
Arguments Definition	
Name 🕐 Edit Argument	
Name: argument1	
Type: abc string	
Operatio	
Help OK Cancel	-
Associations         Correlations         Log Handlers	
Message Headers Service Properties	
Help OK Cancel	

Figure 7- 30 Start – Implementation Tab – Add Argument

4. In the **Edit Argument** page, provide a name to your argument in the **Name** section and in the **Type** section, scroll down and select the **Browse** option.

Figure 7-31 Edit Argument

👌 Properties - Start		23
Basic Implementation		
Implementation Type: 💿 Message	2	-
Message Exchange		
Type: 🦃 Define Interfa	ace	•
Conversation: <ul> <li>Default</li> <li>Ad</li> </ul>	vanced	
Define Interface		
Argume 👩 Edit Argument		۱ ک
Name Name: argument_Inp	uut	
Type: abc string		
♦ duration		
Operati Help 🔝 base64Bir	hary	
99E float 999 byte	2	
Data Associations 999 short		
Message Headers to date		
Browse	Ų.	
p.	owse	
	owsen.	
Help	ОКСа	ancel

5. Next, a new **Browse Type** page opens. Click on the **Business Object** button to create one.

Figure 7-32 Browse Types

🕜 Prope	erties - Start		23
Basic	Implementation		
Impleme	ntation Type: Message		
Mess	👌 Browse Types		
Туре	Find:		3
Conv	abc string		Business Object
Def	999 int		
Are	S boolean		
Are	199E double		
N	1999 decimal		
	ateTime		
	999 long		
	<-> duration		
Ор	base64Binary		
	199E float		
2~2	999 byte		
8≈8 <mark>Da</mark>	999 short		
* 🗆 <u>Me</u>	🖄 date		
	🖄 time		
	MaidFieldFault		-
	Help	OK Cance	
Help		UK	Cancel

6. In the **create business object** page, provide a **Name** to it and then click on the **Magnifying** icon in front of the **Destination Module** to browse for a module in which the business object exists.

Figure 7- 33 Create Business Object

👌 Properties - Sta	rt		-	X
Basic Implement	ation			
Implementation Tyr				
Mess. O Brow	se Types			
Type Find:				
Conv abc string	1			
Del 999 int				
Create Business	Object			
Business Object	:			
Name:	Bus	inessObject_Input		
Destination M	odule:			Q
Based on F	External Schema			Browse
				Browse
Help			O	K Cancel
time				
	idFieldFault			-
Help			OK	Cancel
Help				

7. In the **Browse Module** Page, create a new module there by clicking on the module button as shown in the Figure below.

Figure 7-34 Select Module

🕜 Propert	ies - Start	X
Basic Ir Implement Mess	nplementation	
Create Busine Name	ss Obje	
Help	Assed or The based or The based of the bas	Cancel

8. In the create module page give a suitable **Name** to the module and click on **OK** button. Select the module you just created in the Browse module page and click **OK** as shown in the Figures below.

Figure 7-35 Create Module

Create Module	23
Module: Module_Input	
Help	OK Cancel

👌 Browse Modules		x
Search:		
-		
Search Results:		
Business Catalog		
Errors		
Events		
References		
🗄 🖳 🧑 Types		
Module_Input		
Help	ОКС	ancel

Figure 7-36 Select created module

**9.** In the **Create Business Object** page, click on the checkbox **Based On External Schema** and browse to the respective schema file and select the input element (**Process** in this case) from the Schema and click on **OK**.

👌 Type Chooser	x
	*
ia ia ia ia ia ia	
process	
processResponse	
Type: {http://xmlns.oracle.com/BpmApplication/BpmProject/BpmSchema}process	
Show Detailed Node Information	
Help OK Ca	ncel

Figure 7-37 Select input element from external schema

10. The create Business object page appears. Click OK.

Figure 7-38 Business object created

Create Business Object	
Business Object	
Name:	BusinessObject_Input
Destination Module:	Module_Input
Based on External Schema	acle.com/BpmApplication/BpmProject/BpmSchema}process
Help	OK Cancel

**11.** Now a Business Object is created. Select the business Object you have created for the input and click **OK**, as shown in the Figure below.

Figure 7- 39 Select the created Business Object

Browse Types	
Find:	
999 short	
allo t	
🔯 time	
🖗 InvalidFieldFault	
🖗 InvalidIdFault	
🖗 InvalidSObjectFault	
M UnexpectedErrorFault	
BusinessObject_Input	
R Update	
Real UpdateResponse	
Radid Field Fault	
Realized InvalidIdFault	
Reality InvalidSObjectFault	
Contracted Error Fault	
Module_Input.BusinessObject_Input	
Help	OK Cancel

12. Properties-Start page will contain an argument for the input.

Figure 7- 40 Input Argument added

Properties - Start
Basic Implementation
Implementation Type: 💿 Message 👻
Message Exchange
Type: 😡 Define Interface 🗸
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>
Define Interface
Arguments Definition 🕂 🖉 💥
Name Type
argument_input BusinessObject_Input
Operation Name: start
Data Associations De Correlations
Message Headers Ervice Properties
Help OK Cancel

Follow the same steps to create Business object for output in the End activity of your process. But choose the respective schema file and select the Output element (processResponse in this case) from the Schema in Create Business Object page.

Figure 7- 41	Output	argument	added
--------------	--------	----------	-------

Properties - End			x
Basic Implementation			
Implementation Type: 🙆 Messa	ge		a ôl
Force commit after execution			
Message Exchange			
Type: 🦃 Define Inter	face	-	
Conversation: <ul> <li>Default</li> <li>A</li> </ul>	dvanced		
Define Interface			
Arguments Definition		<b>+</b> ∕ ×	
Name	Туре		
argument_Output	Business	sObject_output	
Asynchronous      Synchro	nous		
Reply To:	💿 Start	- 4	
Throw Error			
2010 Data Associations	DD <u>Correlations</u>	Log Handlers	U
* Message Headers	Service Properties		-
Help		OK Cano	cel

**14.** Again go to the **Start** activity and click on **Implementation** tab. Next, click on **Data Association** as shown in the Figure below.

Figure 7- 42 Select Data Associations

🕐 Properties - Start 📃
Basic Implementation
Implementation Type: O Message
Message Exchange
Type: 😡 Define Interface 🔻
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>
Define Interface
Arguments Definition 🕹 🥢 💥
Name Type
argument_input BusinessObject_Input
Operation Name: start
Data Associations Data Associations
Message Headers Service Properties
Help OK Cancel

- **15.** New Data Association page opens. In the data objects under **process**, create **Data objects** for Input, Output and Salesforce Adapter Response.
- 16. Right-click on the data object and click **New** as shown in the Figure below.

Figure 7-43 Add new data object

Data Associations		B. 🛋 K
) Start Arguments 교생 argument_input 전 Process	Drag objects here	Process C Predefined SOA C
		+ × 4 3
From	То	

**17.** Provide a suitable **Name** for the data object (Input in this case) and in the **Type** section, scroll down and select the **Browse** option.

Figure 7- 44 Create Data Object

🕜 Cre	ate Data Object
Name:	dataObject_Input
Type:	abc string 🗸 🗸
	<>> duration
	📓 base64Binary
Help	199E float
	999 byte
_	999 short
	🖄 date
	🖄 time
	🔍 Browse 👻
	Browse

**18. Browse Type** page opens. Select the business object you created for Input argument and click **OK** button as shown in the Figure below.

### Figure 7- 45 Browse to input business object

🕐 Browse Types	×
Find:	
🖄 date	
🖄 time	
🖗 InvalidFieldFault	
🌠 InvalidIdFault	
A InvalidSObjectFault	
MunexpectedErrorFault	
👸 BusinessObject_Input	
BusinessObject_output	
🖓 Update	
P UpdateResponse	
Real InvalidFieldFault	
Radio InvalidIdFault	
Reality InvalidSObjectFault	
Contracted Error Fault	•
Module_Input.BusinessObject_Input	
Help	OK Cancel

## 19. Click OK on Create Data Object page.

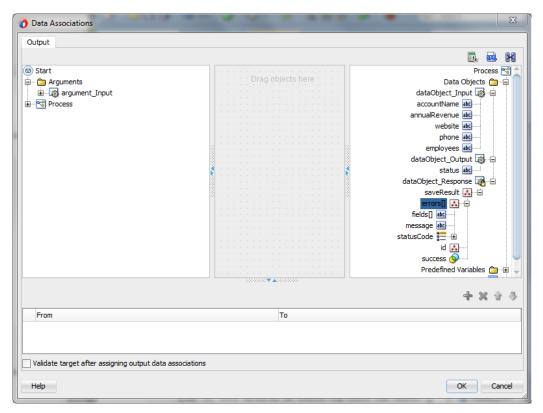
**20.** Data object is created for Input which can be seen under **Data Objects** of **Process**, as shown in the Figure below.

Figure 7-46 Input data object added

Image: Start         Image: Start	Drag objects here	Process ( Data Objects ) dataObject_Input ( ) accountName ( ) annualRevenue ( ) website ( ) phone ( ) phone ( ) Predefined Variables  BmProject ( )
		<b>+</b> X ☆ {
From	То	

**21.** Follow the same steps for creating **Data Objects** for Output and Response (createResponse in this case).

Figure 7-47 Output data object added



**22.** Map the **argument\_input** under **Start** to **dataObject\_Input** and click **OK** button as shown in the Figure below.

Figure 7-48 Map Data Associations

Data Associations		×
Output		
		🔜 📾 🔀
© Start □ □ Arguments	Drag objects here	Process 😪 Data Objects 🍅
		dataObject_Input 🐻 🕀 dataObject_Output 🐻 🕀 dataObject_Response 🖓 🕀
		Predefined Variables 💁 🕀 SOA 😪 – ⊕
Copy  From: argument_input	To: dataObject_Input	🔜 🕂 🗙 🕁 🤴
From	То	
📋 폟 argument_input	🐯 dataObject_Input	
Validate target after assigning output data association	)S	
Нер		OK Cancel

**14.** Drag the **Service** activity from the **Activity** tab and place it in between **Start** and **End** Activity. A new page **Properties – ServiceTask** opens as shown in the Figure below.

Figure 7- 49 ServiceTask

Properties - Servi	ceTask	* Z *	A Composition	×
Basic Implementat	ion			
<u>نې</u>	Name:	ServiceTask		
	Description:			
	Is Draft:			
		Point		
Help			ОК Са	ancel

15. Click on Implementation tab and select Service call in Type Section.

Figure 7- 50 Select Service Call for Type

Properties - ServiceTask	x
Basic Implementation	
Implementation Type: B Service task	<b></b>
Message Exchange	
Type:       Service Call         Conversation:       Not Implemented         Service Call       Process Call         Service:       Service Call         Operation:       Service Call	
Image: Service Properties	
Help ОК	Cancel

**16.** In **Service** section, click on **Magnifier** button and select your service for Salesforce as shown in the Figure below.

Properties - Se	rviceTask		X )
Basic Implemen	tation		
Implementation Ty	pe: 👩 Service task		
Force commit a	fter execution		
-Message Exchar	👌 Service	×	
Type:	Search:		-
Conversation:			
Service Call -	Search Results:		
Service: S	** <u>1</u>		S 🖉
Operation:			-
👯 Data Associa			5
Message Hea			
Help			Cancel
Varnings	Help	OK Cancel	100%
Collaboration Histo			

Figure 7-51 Choose Salesforce Adapter Service

**17.** Click on **Data Association** and a new **Data Association** page will open as shown in the Figure below.

Figure 7- 52 Data Associations

Data Associations Toput Output		X
Input Output	Drag objects here	Image: ServiceTask Image     Arguments     □-⊡     create
From	To	<b>+ ×</b> ☆ ∛
Validate target after assigning input data ass Help	sociations	OK Cancel

**18.** Now Click on **Transformation** button and drag it to **create** under Arguments in **ServiceTask**.



👌 Data Associations		×
Input Output		
		🗒 📾 🔀
Image: Second state of the second	Drag objects here	ServiceTask @ Arguments ☐ — — ( account ▲ — ④
		+ × + -
From	То	
Validate target after assigning input data ass	ociations	
Help		OK Cancel

**19.** A new page **Create Transformation** opens. Now, move **dataObject\_Input** from the list of **Source** side to the list of **Selected** and click **OK** Button as shown in the Figure below.

Figure 7-54 Create Transformation

Oreate Transformation	×
Sources Sources:	Selected:
Target	update  ▼
Create     Use Existing	dataObject_Input_parameters
Help	OK Cancel

20. Click on the Output tab and map the updateResponse from the serviceTask to the dataObject\_Response in Process and click OK button, as shown in the Figure below.

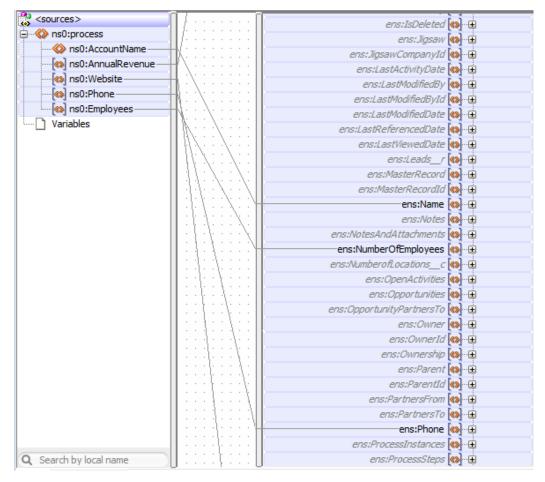
Figure 7- 55 Map Data Associations

Input Output		
		B. 🔜 👪
ServiceTask → Case Arguments → Case Arguments		Process C Data Objects C dataObject_Input C dataObject_Output C dataObject_Response C Predefined Variables C SOA SOA
	50000000 <b>*</b> A00000000	
Copy   From: updateResponse	To: dataObject_Response	🖳 🕂 🗙 🕆 🛛
From	То	
and the construction of th	🚜 dataObject_Response	
Validate target after assigning output data associati	ne	
_ vandate target after assigning output data associati	10	

- **21.** Perform the mapping from Source side to the Target side:
- Map AccountName to Name.
- Map AnnualRevenue to AnnualRevenue

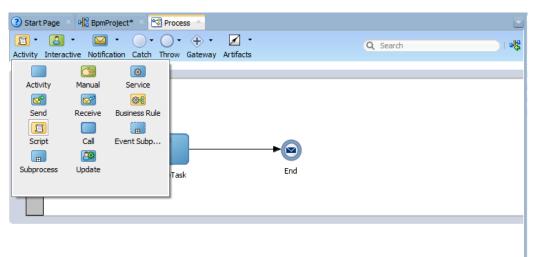
- Map Website to Website.
- Map Phone to Phone.
- Map Employees to NumberOfEmployees.

### Figure 7-56 Mappings for input variable



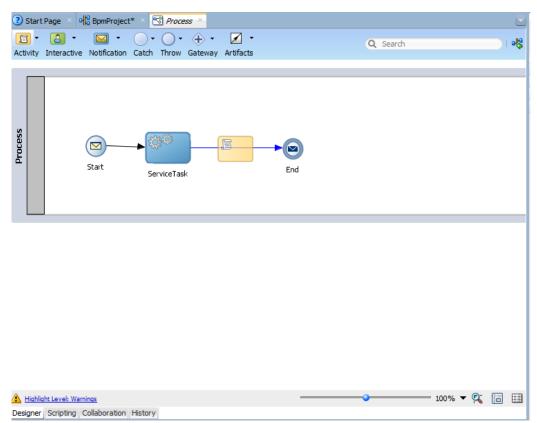
22. From the Activity Tab, click and drag the Script Activity in between ServiceTask and End Activity, as shown in the Figures below.

Figure 7-57 Activity Tab



					-	_	_
🔺 <u>Highlig</u>	ht Level: Wa	rnings		100%	- 🕰		
Designer	Scripting	Collaboration	History				
	_						

Figure 7-58 Script Activity



**23.** A new page **Properties-ScriptTask** opens. Click on **Implementation** tab and then click on **Data Association** as shown in the Figure below.

### Figure 7-59 Select Data Associations

Properties - ScriptTask		×
Basic Implementation		
Implementation Type: 🛐 Script task		-
Force commit after execution		
💸 Data Associations	Log Handlers	
Help		DK Cancel

24. A new Data Association page opens. Click and drag the transformation icon to dataObject\_Output under DataObjects of process as shown in the Figure below.

Figure 7-60 Transform in Data Associations

Data Associations Output		
ScriptTask ☐ Arguments ⊒ ─☆ Process	Drag objects here	Constraints of the second
		<b>+</b> × ☆ 3
From	То	
Validate target after assigning outp	ut data associations	OK Cancel

**25.** The **Create Transformation** page opens. Move **dataObject\_Response** from the list of **Source** side to the list of **Selected** and click **OK** Button as shown in the Figure below.

Figure 7-61 Create Transformation

Create Transformation	
Sources:          Image: Sources:         Image:	Selected:          Selected:         Image: Selected:
Target Target:	dataObject_Output ▼
Create     Use Existing	dataObject_Response_dataObject_Output dataObject_Input_parameters
Help	OK Cancel

**26.** Now perform the mapping from Source side to the Target side.

Figure 7-62 Mappings for Output Variable

sources>	i آ	xsl:stylesheet 🔬
ScreateResponse		xsl: template(match=/)
⊟ ☆ ns0:SaveResult		ths:processResponse
⊕ 🛞 ns2:errors		tns:Status 🔇
s2:success		
Variables		

**27.** Now Double Click the **End** activity and then click on **Implementation** tab and then click on **Data Association** as shown in the Figure below.



🔿 Properties - End	
Basic Implementation	
Implementation Type: 💿 Message	
Force commit after execution	
Message Exchange	
Type: 😡 Define Interfac	•
Conversation: <ul> <li>Default</li> <li>Advi</li> </ul>	ced
Define Interface	
Arguments Definition	+ / ×
Name	Туре
argument_Output	BusinessObject_output
Asynchronous   Synchrono	,
Reply To:	Start 🗸 🧳
Throw Error	Q
Data Associations	Correlations 📃 Log Handlers
* Message Headers	Service Properties
Help	OK Cancel

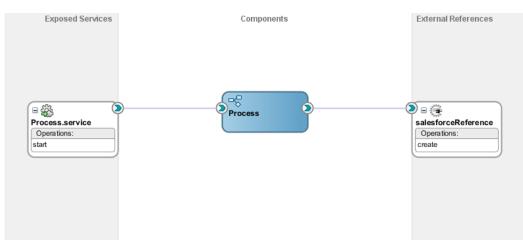
**28.** A new **Data Association** page will open, map the **dataObject\_Output** of **process** to **argument\_Output** of **End** and click **OK** as shown in the Figure below.

Figure 7-64 Map Data Associations

👌 Data Associations		
Input		
Signature       Data Objects	Drag objects here	I I I I I I I I I I I I I I I I I I I
Copy From: dataObject Output		🖳 🕂 🗙 🕆 🕹
From: dataObject_Output	To: argument_Output	
From	To argument_Output	
Validate target after assigning input data associations		
Help		OK Cancel

**29.** This completes the project creation. The composite.xml looks as shown in the Figure below.

Figure 7-65 Composite.xml



# 7.6 Deploy the Composite

Perform the following steps to deploy the composite

1. In the Application Navigator pane, right-click BpmProject and select Deploy  $\rightarrow$  BpmProject, as shown in the Figure below.

Figure 7-66 Deploy the composite

	_		~	
Applications		New	•	🕆 📲 BpmProject 🐣 😒 Process 🔌
🔁 BpmAppli		Edit Project Source Paths		🐹 🖏   🕢 🧿 🖉   🖏 🖬 🏘
- Projects	×	-		
🖃 🗝 🖻 BpmPr	~	Version Project		sed Services
🖨 🫅 BF		version <u>P</u> roject		
<b>₽</b> - <b>[</b>		<u>B</u> PM	•	
		<u>S</u> OA	•	
	<b>6</b>	Find <u>P</u> roject Files		
🗐 🖓 🔁 🖪		Show Classpath		
		Show Overview		
		Deplo <u>y</u>	•	<u>B</u> pmProject
		Sa <u>v</u> e to PAM		New Deployment Profile
<b>₽[</b>		<u>U</u> pdate		<b>4</b>
		Resolve Conflicts		service
		Relocate Project		ms:
		Find Usages	Ctrl+Alt-U	
		Ma <u>k</u> e BpmProject.jpr	Ctrl-F9	
	盐	Rebuild BpmProject.jpr	Alt-F9	
		Run		
		<u>D</u> ebug		
		Refa <u>c</u> tor	•	
<b>0</b> -		Co <u>m</u> pare With	•	
		Replace With	•	
«		-		
		Restore from Local History		
+	-	SAP Adapter Migration Tool		History
Application     Data Control		Project Properties		Messages - Log × Properties
		Crea <u>t</u> e SOA Template		_xtensions ×

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.

# 7.7 Test the Composite

You can run and test the instances of deployed BPM composite applications from Oracle Enterprise Manager Console. This enables you to manage a composite application, initiate and track an instance of a composite and to view detailed component instance audit trails. Perform the following process to test the composite.

# 7.7.1 Test the Outbound Process

Perform the following steps to test the Outbound process:

- 1. Login to Enterprise Manager Console for the server on which you have deployed your project.
- 2. Open BpmProject under the Default partition.
- 3. Click the **Test** button to test the Web service, as shown in the Figure below.

### Figure 7-67 Test the project

ttive Retire Shut Down Test Settings 🔻 🚱		
ashboard Composite Definition Flow Instances Unit Tests Policies		
(O		
Components		
Name		
a Process		
▲ Services and References		
	Туре	Usage
Services and References Name Process.service	Type Web Service	

**4.** Provide the input payload and click the **Test Web Service** button, as shown in the Figure below.

Figure 7-68 Test Web Service

Test Web Service Web service, enter the WSDL or WADL and click

**5.** After successful execution, the response contains **Status** as true for Account update, as shown in the Figure below.

Figure 7- 69 Test Status

Request Response				
Test Status Request successfully received. Response Time (ms) 10802 Tree View A new flow instance was generated. Launch Flow Trace				
Name	Туре	Value		
⊿ parameters	parameters			
processResponse	processResponse			
Status	string	true		

6. Click the Launch Flow Trace button to view the Audit Trail, as shown in the Figure below.

### Figure 7- 70 Flow Trace

Recover 👻 View 👻				Flow Instance 2001
Error Message	Fault Owner			Fault Time Recovery
faults found.				
olumns Hidden 8				
ace				
tions - View - Show Instance IDs				
istance	Туре	Usage	State	Time Composite
Process.service	Service	Service	Completed	May 30, 2014 6:17:41 PM BpmProject [1.0]
Process	BPMN		Completed	May 30, 2014 6:17:41 PM BpmProject [1.0]
Reference	Reference	Reference	Completed	May 30, 2014 6:17:41 PM BpmProject [1.0]

7. Click on List view and select Tree view to see the Audit trail in details, as shown in the Figure below.

Figure 7-71 Audit Trail

This page shows BPMN process (1)

ıdit Trail				
List View 🔻 Hur	man Activities; Service Activiti 💌 🛛 🖣	û 🖓		
List View				
Tree View	Status	Start	End	Location
Graphical View	Activity completed	May 30, 2014 6:17:41 PM	May 30, 2014 6:17:51 PM	/Process
Thee view				

### 8. The Audit Trail will look like as shown in the Figure below.

### Figure 7-72 Audit Trail – Tree View

Tinstance of Process (1)

lit Trail		
Free View   Human Activities	; Service Activiti 💌	
Process	Thread 0	Instance created May 30, 2014 6: 17:41 PM
Start		Activity completed May 30, 2014 6:17:41 PM
Start	Thread 0	Instance entered the activity May 30, 2014 6:17:41 PM
Start	Thread 0	Instance left the activity May 30, 2014 6:17:41 PM
ServiceTask	Thread 0	Activity completed May 30, 2014 6:17:41 PM
ServiceTask	Thread 0	Instance entered the activity May 30, 2014 6:17:41 PM
ServiceTask	Thread 0	Instance left the activity May 30, 2014 6:17:51 PM
ScriptTask	Thread 0	Activity completed May 30, 2014 6:17:51 PM
ScriptTask	Thread 0	Instance entered the activity May 30, 2014 6:17:51 PM
ScriptTask	Thread 0	Instance left the activity May 30, 2014 6:17:51 PM
🖻 End	Thread 0	Activity completed May 30, 2014 6:17:51 PM
End	Thread 0	Instance entered the activity May 30, 2014 6:17:51 PM
🖾 End	Thread 0	Instance left the activity May 30, 2014 6:17:51 PM

9. The Service Task of the process is shown in the Figure below.

Figure 7-73 End Activity with Response returned



**10.** This completes the Create Account scenario. The created account can be seen in the Figure below.

### Figure 7-74 Created Account

David Jones			Custonice Page   Edit Layout   Printable View   Help for this Page
Account Detail	Edit Delete Include Offline Submit for App		
Account Own Account Nan		Rating	
Parent Account Nan		Phone Fax	12345078
Account Numb		V/ebsite	http://www.david.com
Account \$		Ticker Symbol	http://www.david.com
Typ		Ownership	
Indust		Employees	
Annual Reven		SIC Code	
Account_Ext_	1		
Project_Street_Addre	é		
Project_Cl	8		
Project_Zipcor	ð		
CaseLooku	2		
Account_Test_Looku	2		
Billing Addres	5	Shipping Address	
Customer Prior	8	SLA	
SLA Expiration Da	3	SLA Serial Number	
Number of Location	5	Upsell Opportunity	
Created I	9 Shalindra Singh, 30/5/2014 11:25 AM	Last Modified By	Shalindra Singh, 30/5/2014 5:30 PM
AccountMs			

8

# Configuring the Oracle Cloud Adapter for Salesforce.com on Oracle WebLogic Server

This chapter gives an overview of the design-time and run-time configuration properties. This chapter contains the following topics:

Section 8.1, "Oracle Cloud Adapter for Salesforce.com Run-Time Properties"

# 8.1 Oracle Cloud Adapter for Salesforce.com Run-Time Properties

The section describes different run-time properties. This section is subdivided into multiple sections that includes:

- Section 8.1.1, "Generic Properties"
- Section 8.1.2, "Properties available in the response"
- Section 8.1.3, "Retry Properties"
- Section 8.1.4, "Precedence of Salesforce.com Property Values"

# 8.1.1 Generic Properties

Table 8-1 shows the Run-time properties supported by Oracle Cloud Adapter for Salesforce.com. You can provide the values for these properties while creating the BPEL process inside the invoke activity or using the Enterprise Manager console, as desired.

Some of these properties are also available in **Salesforce Cloud Adapter Configuration Wizard** for some particular operations.

Property Name	Туре	Default Value	Description	Configurable At
jca.salesforce.A llOrNoneHeade r.allOrNone	Boolea n	True	The AllOrNoneHeader hea der property allows a call to roll back all changes unless all records are processed successfully.	Oracle Cloud Adapter for Salesforce Configuration Wizard/ BPEL invoke activity
jca.salesforce.L ocaleOptions.la nguage	String	en_US	Specifies the language of the labels returned. The value must be a valid user locale (language or country), such as en_US.	BPEL invoke activity

Figure 1-4 Run-time Properties

jca.salesforce.Q	integer	500	Specifies the batch size for	Oracle Cloud
ueryOptions.bat	mugu	500	queries.	Adapter for
chSize			queries.	Salesforce
CHISTZE			The default is 500; the	Configuration
			minimum is 200, and the	Wizard/ BPEL
			maximum is 2,000.	invoke activity
ian colorforma U	Integar	10 sec	Maximum value 120 sec. It	BPEL invoke
jca.salesforce.H	Integer	10 sec		
ttpTimeout			specifies the timeout value	activity
· 1 C	а. ·	NT A	for the transactions.	
jca.salesforce.q	String	NA	The queryLocator value is	BPEL invoke
ueryLocator			returned in case of query	activity
			and queryAll calls from	
			Salesforce.com. If	
			queryLocator value is not	
			empty, it means there are	
			more records to fetch for	
			the same query.	
			You can assign the	
			queryLocator value to this	
			property	
			(jca.salesforce.queryLocato	
			r) in your BPEL process	
			and invoke query or	
			queryAll again. It will	
			fetch the next set of	
			records for the same query	
			string. It is similar to	
			calling queryMore	
			operation to fetch the next	
			set of records.	
			Refer to the section "How	
			to use query and	
			queryMore Operations"	

# 8.1.2 **Properties available in the response**

Table 8-2 shows the properties available in the response.

 Table 8-1
 Properties Available in the Response

Property Name	Туре	Default Value	Description	Configurable At
jca.salesforce.re sponse.debugLo g	String	NA	debugLog is returned as part of Header response, if you provide a value for debug header in the configuration wizard of the Salesforce.com adapter. To access this value you need to create a variable of type 'string' and extract the value of debug log into this variable in the properties section of your Invoke activity.	BPEL invoke activity

jca.salesforce.re	String	NA	This value is returned as	BPEL invoke
sponse.limitInfo			part of Header response,	activity
.current			specifying the number of calls that have already been	
			used in the organization.	
			(Supported in	
			Salesforce.com 29.0	
			version or higher)	
			To access this value you	
			need to create a variable of	
			type 'string' and extract the	
			value of this property into	
			that variable in the properties section of your	
			Invoke activity.	
jca.salesforce.re	String	NA	This value is returned as	BPEL invoke
sponse.limitInfo	U		part of Header response,	activity
.limit			specifying the	
			organization's limit for the	
			number of calls it can	
			make. (Supported in Salesforce.com 29.0	
			version or higher).	
			version of ingher).	
			To access this value you	
			need to create a variable of	
			type 'string' and extract the	
			value of this property into	
			that variable in the properties section of your	
			Invoke activity.	
			myoke activity.	

## Providing the Property Values in BPEL Invoke Activity

**Figure 8-1** depicts the properties available in the Invoke activity of BPEL Process. The prefix **jca.salesforce** determines that these properties are pertaining to the Salesforce.com adapter. In the value section, you can assign values to these properties using a variable or an expression if the type of property is "input". On the other hand, if the type of property is "output", its value can be extracted into a variable.

ssertions	Skip Condition	Headers	Sou	rces	Targets		
General	Correlatio	ns	Prop	perties		Annotat	ions
Properties:							
Name			١	/alue	T	уре	
							-
jca.msmq.m		- D L					
	essage.MaxTimeTr	okeachQuei	Je				
	essage.Priority						
	essage.SentTime						
	essage.TimeToLive						-
	ce.AllOrNoneHead	er.allOrNone	е				
jca.salesforce.HttpTimeout							
	ce.LocaleOptions.l						
	ce.QueryOptions.I	oatchSize					
	ce.queryLocator						_
	ce.response.debu						-
	ce.response.limitIr						
	ce.response.limitIr	nto.limit					_
jca.socket.h							
jca.socket.p							
jca.ums.bcc							
ica.ums.cc							T
🛃 <u>F</u> it to Wie	dth						

Figure 8-1 Properties Available in the Invoke Activity of BPEL Process

# 8.1.3 Retry Properties

Table 8- 2 shows the configurable properties related to Oracle Cloud Adapter forSalesforce.com. These properties can be modified in the composite file or at the EnterpriseManager console.

Table 8-3 Oracle Cloud Adapter for Salesforce.com Configurable Properties

Property Name	Туре	Default Value	Description	Available at
jca.retry.count	integer	4	Specifies the number	Composite.xml,
			of retries to post the	EM console
			message.	
jca.retry.backoff	integer	2	Specifies the retry	Composite.xml,
			interval growth factor.	EM console
jca.retry.interval	integer	1	Specifies the time	Composite.xml,
			interval between two	EM console
			retries.	

jca.retry.maxInte	integer	120	Specifies the	Composite.xml,
rval			maximum interval	EM console
			between two retries.	

## 8.1.3.1 Providing the Property Values in the Composite

Figure 8-2 shows the properties available in the composite.xml file.

Figure 8-2 Composite.xml File Properties

Project	
1110	
	<pre> </pre> <pre></pre> <pre></pre> <pre></pre> <pre>// type="xs:string" many="false"&gt;async.persist</pre>
	<pre></pre>
	<pre><reference name="salesforceReference" ui:wsdllocation="WSDLs/salesforceReference.wsdl"></reference></pre>
	<pre><interface.wsdl adapters="" interface="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application6/Projectl/&lt;/pre&gt;&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;&lt;pre&gt;dbinding.jca config=" salesforce.jca"="" salesforcereference=""></interface.wsdl></pre>
	<pre><pre>chinal.g.joa contry</pre></pre>
	<pre><pre><pre>cproperty name="joa.retry.interval" type="xs:integer" many="false" override="may"&gt;</pre></pre></pre>
	<pre>&gt;property name="jca.retry.backoff" type="xs:integer" many="false" override="may"&gt;2</pre>
	<pre>cproperty name="jca.retry.maxInterval" type="xs:integer" many="false" override="may"&gt;120</pre>
	<pre>/reference&gt;</pre>
B	(wire)
	<source.uri>bpelprocess1_client_ep</source.uri>
	<target.uri>BPELProcess1/bpelprocess1_client</target.uri>
8	<pre></pre>
	<source.uri>BPELProcessl/salesforceReference</source.uri>
	<target.uri>salesforceReference</target.uri>

You can also edit the value of these properties in the **Properties** section of Salesforce.com Adapter. The properties section appears if you click on the Salesforce.com Adapter in the **External References** section as shown in Figure 8-3.

A	AllOTIVOTELLEAUEL.all	U uue
External References	oracle.cloud.rt.sfdcA	A http://xmlns.oracle.
	targetOperation	create
	selectedObjects	Account
	Composite Prop Properties	erties
	Properties	
		+
	Name	Value
	jca.retry.count	4
	jca.retry.interval	1
salesforceReference	jca.retry.backoff	2
Operations:	jca.retry.maxInterva	al 120
create	···· Binding Properties	
	binding Proper des	
		<b>T</b>
	Name	Value
	···· Callback Binding Pr	
	(No callback binding)	
	Policies	
	···· Binding Policies ·····	
	URI Cat	egory Status
	···· Callback Binding Po	olicies

Figure 8-3 Salesforce Adapter Properties

### 8.1.3.2 Providing the Property Values at Enterprise Manager Console

To provide the property values at the Enterprise Manager Console, follow the steps given below:

1. Proceed to Services & References section of your project, as shown in Figure 8-4.

Figure 8-4 Services & References Section

Services and References		
Name	Туре	
Spelprocess1_client_ep	Web Service	
😪 get Updated Demo	JCA Adapter	

2. Select the service name of your Salesforce.com Adapter from this section, and click on the **Properties** tab on the subsequent page, as shown in Figure 8-5.

### Figure 8-5 Salesforce Adapter Properties

			m Adapter)	
ashboard	Policies	Properties	Adapter Reports	
'ou can eo	dit or delete	the following b	inding properties. Cl	ick Add to add additional propertie
View 🔻	-	🗒 Revert		
Name (Operation or Port Type)		Value		
jca.retry.count		4		
jca.retry				
	y.backoff			2
jca.retry				

### .... .

### 8.1.4 Precedence of Salesforce.com Property Values

If there is provision to set a particular property at multiple positions, the highest priority would be given to the value provided at the Enterprise Manager Console, next priority would be given to the value provided while creating the composite, while the lowest priority would be given to the value provided at Salesforce Cloud Adapter Configuration Wizard.

# **Troubleshooting and Error Messages**

This chapter explains the troubleshooting information and error messages that you can come across while configuring the Oracle Cloud Adapter for Salesforce.com. It contains the following topics:

- Section 9.1, "Troubleshooting and Error Messages"
- Section 9.2, "API Fault"
- Section 9.3, "Status Code"
- Section 9.4, "Known Issues"

# 9.1 Troubleshooting and Error Messages

The Oracle Cloud Adapter for Salesforce.com supports the adapter diagnostic framework for reporting and alerting. This provides run-time adapter diagnostic information as read-only reports in EM console.

The troubleshooting information is categorized as follows:

- Oracle Cloud Adapter for Salesforce.com Design-Time JDeveloper
- Oracle Cloud Adapter for Salesforce.com Run-Time

Log file information that can be relevant in troubleshooting can be found in the following locations based on the adapter installation.

The Oracle Cloud Adapter for Salesforce.com trace information can be found under the following directory:

#### For Oracle SOA Suite:

```
<ORACLE_HOME>\soa\user_projects\domains\${soa_server
domain}\servers\${soa_server name}\logs\soa-server_diagnostic.log
```

## 9.1.1 Oracle SFDC Cloud Adapter Design-Time JDeveloper

 Table 9-1 shows the common errors faced while using Oracle Cloud Adapter for

 Salesforce.com in JDeveloper and their possible solutions.

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 Salesforce.com credentials. Delete the CSF key and add it again providing the correct credentials.
Metadata for the enterprise WSDL is not available in the cache.	Connect to the internet and click on the offline configuration checkbox. This will download the metadata for offline usage.
Unable to connect to Salesforce.com server.	Ensure that you are connected to the internet and not blocked by or behind the firewall of your organization.
Error deploying the composite on soa_server: Composite with same revision ID already exists.	Check whether 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.	Check whether the SOA server is up and running.

### Table 9-1 Oracle Cloud Adapter for Salesforce.com in JDeveloper

# 9.1.2 Oracle SFDC Cloud Adapter Run-time

Table 9-2 shows the common errors faced in the SOA server run-time.

Table 9- 2Error in SOA server Run-time

Error	Solution
Unable to find username in credential store.	Make sure that CSF key being used in the adapter during the design-time is available in the credential store in the WebLogic server.
Invalid ID. ID does not belong to the selected object.	Ensure that you are providing only the ID's corresponding to the objects selected at the design-time for the operation.
Bind Parameter's values are missing.	Ensure that you have provided the values of all the bind parameters defined in the query or search string at design-time.
Bind Parameter's value is empty.	Ensure that the value of bind variable is not empty.
FileNotFoundException.	Ensure that the Enterprise WSDL file you have provided is localized into your composite, or, in case you are using MDS, make sure that it is available in the MDS.
Unknown exception while transforming request message.	Please make sure that parameter Hostname Verification field (Under the tab SSL) is set to NONE on the server side as this is the most common reason.

### Set Hostname Verification to None

You might come across the Exception: *javax.net.ssl.SSLKeyException* due to failed hostname verification check on the server side when you test your composite. This error comes when Hostname Verification parameter on the server side is set to a value other than "*None*". To overcome this you can follow the below mentioned steps:

- 1. Login into WebLogic console.
- 2. Browse to the servers and select manage server on which Salesforce adapter is running (e.g., soa\_server1).
- **3.** Go to Configuration  $\rightarrow$  SSL.
- 4. Expand Advanced section. You will see 'Hostname Verification'.
- 5. Select the "None" value from the dropdown and save the changes.

# 9.2 API Fault

You can refer the link below to get more information about the API Fault.

http://www.salesforce.com/us/developer/docs/api/Content/sforce \_api\_calls\_concepts\_core\_data\_objects.htm#i1421192

## 9.3 Status Code

You can refer the link below to get more information about the Status Code.

http://www.salesforce.com/us/developer/docs/api/Content/sforce \_api\_calls\_concepts\_core\_data\_objects.htm#i1421521

# 9.4 Known Issues

 Run-Time execution failure due to absence of the local copy of Enterprise WSDL in JDeveloper SOA Project: While configuring Oracle Cloud Adapter for Salesforce.com, you will need to browse for the Enterprise WSDL of your Salesforce.com organization. When you point to the location of the WSDL, JDeveloper creates a copy of the WSDL in the JDeveloper SOA Project (say Project1). This copy of the WSDL is needed by the Oracle Cloud Adapter for Salesforce.com during Run-Time execution.

The next time you create the adapter in a different project (say Project2), the adapter (by default) picks the location of the Enterprise WSDL localized in the previous project (Project1) and the previously CSF key from the cache, as shown in Figure 9-1.

#### Figure 9-1 WSDL Location

Salesforce Cloud Adapter Configuration	Wizard - Step	2 of 5		×
Salesforce Cloud Server Connect	ion			*
A Salesforce Cloud Server connection is require	ed to access the	operations and	l business objects av	vailable.
WSDL Location: file:/C:/JDeveloper/mywo		on/BpmProject/		rise_Shalindra 🔞
Offline Configuration     Clear Cache				
				]
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

You can click on **Next** button without browsing for the WSDL again and the adapter will be configured, but the execution will fail during Run-Time as the Enterprise WSDL has not been localized in the folder of Project2.

**Temporary Fix:** To avoid this, always browse to the location of the Enterprise WSDL (either in the file system or MDS) to localize it in the project folder.

- 2. Package Version Header does not support multiple package versions: Salesforce.com supports multiple package versions per operation in its SOAP calls. In Cloud Adapter for Salesforce.com, currently only one Package Version can be configured per operation, using the Header page of the Adapter Configuration Wizard.
- **3.** Relationship queries with custom object in which the child object is not suffixed with 's' is not working for Oracle Cloud Adapter for Salesforce.com: In relationship queries for standard objects, the child object ends with "s".

For the custom objects, the child object may or may not have the "s" appended at the end depending on how the Salesforce admin has configured the custom objects' relationship.

For instance, consider the following queries:

1) In the following parent-to-child query for standard object, the child object 'Contact' is suffixed with "s" and hence the query is working for the Adapter. SELECT ID, Name, (SELECT ID, FirstName, LastName FROM Contacts) FROM

Account

2) In the following parent-to-child query for custom objects, the child object may or may not be suffixed with "s" depending on how the relationship was configured by the Salesforce admin. Such queries (Daughters\_r and Daughter\_r) which are not suffixed with 's' are currently not working for the Adapter. SELECT ID, Name, Anniversary\_c, (SELECT Id, Name, Birthday\_c FROM Mother\_c.**Daughters\_r**) FROM Mother\_c

OR

SELECT Id, Name, Anniversary\_c, (SELECT Id, Name, Birthday\_c FROM Mother\_c.**Daughter\_r**) FROM Mother\_c

4. In BPEL orchestration of Oracle Cloud Adapter for Salesforce.com, "Transform" Oracle Extension with multiple sources gives error at Run-Time: If you use a "Transform" Oracle Extension with single source in your BPEL orchestration, it works as expected. But, if you use a "Transform" Oracle Extension with multiple sources then it gives an error at Run-Time.

**Temporary Fix:** Map the output of the Adapter (for e.g., to create operation) to an intermediate variable (referring to createResponse from the adapter WSDL i.e. a replica of response returned from Salesforce). Similarly, map the Output of the salesforce adapter for another operation (for e.g., to update operation) to another intermediate variable (referring to updateResponse from the adapter WSDL). Next a transform activity is introduced which has two sources -first, the intermediate variable that contained createResponse and second, the intermediate variable that contained updateResponse. This transform activity works with multiple sources of Salesforce Adapter responses

5. In BPEL 2.0, response cannot be mapped using Assign activity: While using BPEL 2.0 process, if you try to assign the value of response returned from Salesforce adapter to a BPEL variable, it fails with selection failure the exception message being - Exception is thrown because the "from – spec" is evaluated to be @ empty.

**Temporary Fix:** In your BPEL process, create a variable of message type using the response message of adapter generated WSDL. First copy the response of Invoke activity's output variable (the one that calls the salesforce adapter) to the intermediate variable created above. Thereafter, using the intermediate variable, perform any mapping / assign to any other variable in your BPEL orchestration.

6. Mobile Filter field on operation page: It is possible to drag the filter field on operation page which leads to uncaught exception in JDeveloper.

**Temporary Fix:** Do not try to drag the filter field on operation page of Oracle Cloud Adapter for Salesforce.com

- 7. Help content is not available on the Query/Search Test Window
- 8. Double-click does not select WSDL in WSDL Chooser dialog: You cannot select the Enterprise WSDL of your Salesforce organization in the WSDL chooser dialog of connection page, by double-clicking on it. You need to select the WSDL at the appropriate location, and then click **OK**.
- **9. Double-click to select Salesforce Object doesn't work:** On the 'Cloud Operation Configuration' Page in the Business Objects sections, if you double-click on an object in the 'Available' section, it does not move to the 'Selected' section. Vice versa is also true, when you double-clicking on an object in the 'Selected' section, it does not move to the 'Available' section.

Temporary Fix: Use the arrow buttons to select or unselect objects.

**10 In BPMN process, Transformation of Salesforce adapter response is not working:** If in the data association tab of a BPMN process, you introduce a transformation, wherein Adapter response is the source element; it will fail at the run-time.

**Temporary Fix:** Output of salesforce adapter is being mapped to a data object2 (referring to createResponse from the adapter WSDL – i.e., is a replica of response returned from salesforce). Next, a Script task is introduced (which is just like assign/transform activity in BPEL). Using this script activity, the value of dataobject2 is mapped to another dataobject1 (referring to an element in our custom XSD) using a transformation. It is working till the end point i.e. multiple outputs are being returned.

# 9.5 Limitations

It is important to note that Salesforce API either supports Unicode characters or ISO-8859-1 character. The character set for a user depends on the Salesforce instance it uses. For the instance SSL, the encoding is ISO-8859-1 and for the rest, it is UTF-8. Moreover, if ISO characters are used in Salesforce organization in an instance which is non-SSL instance, can result in an error.

The Adapter for Salesforce.com is built to work on a single character encoding at a time that could either be ISO-8859-1 or UTF-8. Hence, if the organization use a character encoding different than the encoding assigned as per the Instance, the adapter may not recognize it and return an error. To learn more about the supported character sets by Salesforce, check 'Internationalization and Character Sets' section here.

**Note:** The instance of an organization is indicated as a prefix in the URL of the Salesforce login. For example, https://na2.salesforce.com, here NA2 is the instance. For more information on list of available Salesforce Instance, Click here.

# **10** Migration Support

This chapter provides information about the migration support in 12c version of Oracle Cloud Adapter for Salesforce.com for the 11g version of Oracle Cloud Adapter for Salesforce.com. This can be used as a reference by the organizations currently using the Oracle Cloud Adapter for Salesforce.com on Oracle SOA Suite 11g and migrating to the Oracle SOA Suite 12c.

This chapter contains the following topics:

- Section 10.1, "Complete Backward Compatibility"
- Section 10.2, "Migrating 11g Application and Projects to 12c"
- Section 10.3, "Points to Remember"

# **10.1 Complete Backward Compatibility**

The Oracle Cloud Adapter for Salesforce.com is completely compatible with the previous release for Oracle SOA Suite 11g. All your composites containing the Oracle Cloud Adapter for Salesforce.com created in Oracle SOA Suite 11g can be ported to Oracle SOA Suite 12c by a simple process outlined in the next section of this chapter.

This will allow you to seamlessly upgrade to the latest version of Oracle SOA Suite and enjoy a host of new features. Once the migration of projects and application is done in the JDeveloper of 12c, you can upgrade your existing Oracle Cloud Adapter for Salesforce.com to the latest version by either double-clicking the adapter in External References swim lane or by right-clicking on it and selecting "Edit" as shown in the following section.

# 10.2 Migrating 11g Application and Projects to 12c

This section will outline the steps to migrate your applications and projects created in Oracle SOA Suite 11g to the latest version of Oracle SOA Suite 12c. Follow the steps as shown:

- 1. Create a copy of your existing 11g applications in a new directory inside your "mywork" folder, for example C:\JDeveloper\mywork\11g-12c\
- 2. Open JDeveloper 12c.
- 3. Click on Open Application

Eile     Edit     View     Application     Refac       ♀     ▶     ■     ■     ■     ■			<u>H</u> elp
Applications	×		
New Application			
Open Application			
Structure	×		
l			

Figure 10- 1 Open Existing Application

**4.** Select the .jws file of the 11g application you had copied into the location mentioned in step 1. If you only wish to migrate a single project, you can select the .jpr file of that project.

Figure 10- 2 Choose .jws of 11g application

👩 Open Applic	ation(s)			×
Location:	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration	00	🗳 🗳	ŧΞ Ⅲ
Work Work Home Desktop Documents	S_E_B_01_033_01         S_E_B_01_034_01         S_E_B_01_035_01         S_E_B_01_036_01         S_E_B_01_039_01         S_E_B_01_041_01         S_E_B_01_042_02         S_E_B_01_043_02         S_E_B_01_044_02         S_E_B_01_044_02         S_E_B_01_044_02         S_E_B_01_044_02         Src         .adf         DemoApp.jws         File Name:       DemoApp.jws         File Type:       Application files (*.jws)			
Help		Open	c	ancel

5. You will see a prompt warning stating that you are about to migrate your 11g files to the 12c format. Click "Yes" to continue.

Figure 10- 3 Confirm Migration to 12c

Open Warn	ing
	You are about to migrate the application C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\DemoApp.jws to JDeveloper version 12.1.3.0.0 file format. This operation will also migrate all projects contained in the application.
	Once the application and its contents are migrated, you will not be able to open the application or its projects using an older release. You may want to back up the application contents before proceeding.
	Do you want to migrate these files?
Help	<u>Y</u> es <u>N</u> o

6. Wait for a few minutes while JDeveloper migrates your application to 12c format. This process can take a few minutes depending upon the size of your application. During this time you will see the following dialog.

Figure 10- 4 Wait while migration completes

Migration Status	
Migrating files to JDeveloper version 12.1.3.0.0 file format	

**7.** After a few minutes, you will see the following dialog stating that successful migration for all your project files in the application.

Figure 10- 5 Migration successfully completed

	Migration successfully completed for the following file(s):
<b>(i)</b>	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\DemoApp.jws
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\Bind Parameter\Bind Parameter.jpr
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_001_01\S_E_B_01_001_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_002_01\S_E_B_01_002_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_003_01\S_E_B_01_003_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_004_01\S_E_B_01_004_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_005_01\S_E_B_01_005_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_006_01\S_E_B_01_006_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_007_01\S_E_B_01_007_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_008_01\S_E_B_01_008_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_009_01\S_E_B_01_009_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_010_01\S_E_B_01_010_01.
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	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_013_02\S_E_B_01_013_02.
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	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_013_04\S_E_B_01_013_04.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_013_05\S_E_B_01_013_05.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_014_01\S_E_B_01_014_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_014_02\S_E_B_01_014_02.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_014_03\S_E_B_01_014_03.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_015_01\S_E_B_01_015_01.
	C:\JDeveloper\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_015_02\S_E_B_01_015_02.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_015_03\S_E_B_01_015_03.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_015_04\S_E_B_01_015_04.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_016_01\S_E_B_01_016_01.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_016_02\S_E_B_01_016_02.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_016_03\S_E_B_01_016_03.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_016_04\S_E_B_01_016_04.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_017_01\S_E_B_01_017_01.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_017_02\S_E_B_01_017_02.
	C:\Developer\mywork\11g for 12c\DemoAppForMigration\S_E_B_01_017_03\S_E_B_01_017_03.
	C:\Developer\mywork\11q for 12c\DemoAppForMigration\S E B 01 017 04\S E B 01 017 04.
	OK

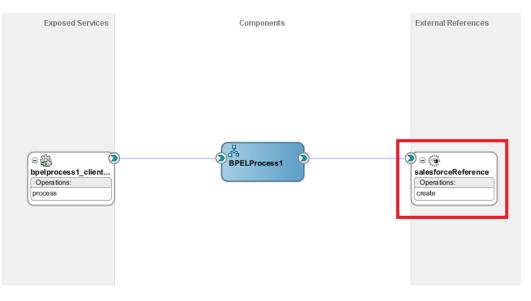
8. Click **OK** and you will see all your projects in the Projects Tab in Application. If you expand one of your projects, you will see the inner directory structure to be different than it was in 11g (this is expected behavior and will not affect the functioning of your projects).

Applications = B DemoApp ब 🖓 - 🝸 - 🔝 -Projects 🖮 🛅 SOA 🗄 📄 Events 🗄 💼 Schemas 🗄 💼 testsuites 🗄 📲 Transformations 🗄 👘 🛅 WSDLs 🗄 ··· 🛅 xsd 🗄 🖳 📩 xsl Enterprise\_WSDL\_v29.wsdl EnterpriseWSDL\_28\_0910.wsdl pom.xml • <u>S\_E\_B\_01\_002\_01</u> 💑 S\_E\_B\_01\_002\_01Process.bpel S\_E\_B\_01\_002\_01Process.wsdl sfdc\_salesforce.jca øfdc.wsdl 🗄 🛅 Web Content

Figure 10- 6 Migrated Project Structure

- **9.** This completes the migration of your 11g application/projects to 12c. You can now proceed to update your Oracle Cloud Adapter for Salesforce.com to the latest version.
- **10.** Open the composite.xml of the project you wish to update the adapter in, and edit the Oracle Cloud Adapter for Salesforce.com in External References swim-lane. (This project shown contains only one instance of the adapter, your projects may contain more and each instance will require the Steps 10.)

Figure 10- 7 Edit Oracle Cloud Adapter for Salesforce.com



On editing the adapter, you will see the Adapter Configuration Wizard – Page 1, you cannot make any changes here to maintain the sanctity of your mappings in the BPEL process. Click "Next".

Salesforce Cloud Adapter Configuration Wizard	- Step 1 of 5
Salesforce Cloud Adapter Reference	01010101010101010104040
Welcome to the Adapter Configuration	n Wizard
This wizard helps you update a SalesForce Cloud Adapt parameters and define an operation for the service.	er service. You will be asked to specify configuration
The Reference Name cannot be modified.	
<u>N</u> ame: sfdc	
<u>H</u> elp < <u>B</u> ack	Next > Einish Cancel

12. On the page that follows, you will see the Authentication Key field already populated with the key you had created during 11g project creation for the adapter. You will need to enter the username and password for this key again by clicking on the Edit button. (Please note that this step has to be followed only the first time you edit the adapter in a newly migrated application. Once you have configured the same key again in this application, it will show up in all future adapter edits within this application and you can skip the steps 13-14)

Figure 10	)- 9 Oracle	<b>Cloud Adapter</b>	for Salesforce.co	m Connection Page	- Edit CSF
Key					

👩 Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					
Salesforce Cloud Server Conn	ection	0101010101010	101039393939393		
A Salesforce Cloud Server connection is re	equired to access the	e operations and bus	siness objects ava	ilable.	
WSDL Location: C:\JDeveloper\mywo	ork\11g for 12c\Dem	oAppForMigration\S	_E_B_01_002_01	Enterprise 🔞	
Authentication Key: SFDC_USER	•	• 🕂 🖊 🗙			
Offline Configuration					
<u>C</u> lear Cache					
Test Connection					
Help	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel	

- 13. Configure the Authentication key as shown in section "4.2.2.2 Authentic Key".
- **14.** Click "**Next**" on all the subsequent screens without making any changes and Finish the configuration of the adapter on the Finish page.
- **15.** This completes the migration of your Oracle Cloud Adapter for Salesforce.com from 11g version to the latest 12c version.
- **16.** You can now proceed with deploying the composites to the WebLogic Server.

# **10.3 Points to Remember**

There are certain points you must remember while migrating your projects from 11g to 12c.

- **1.** Take a backup of your 11g applications/projects in a separate location before you migrate.
- 2. Once an application has been migrated, it will no longer be usable in Oracle SOA Suite 11g. This will not affect your already deployed composites, but you will not be able to make any changes to them after migration.
- **3.** It is better to make a copy of your 11g applications and then open it in 12c, this way if you face any issues during your migration, your original composites will still remain usable and editable.

# <u>11</u>

# Oracle Cloud Adapter for Salesforce.com Use Cases

This section provides details of a few Use Cases to illustrate the end-to-end use of Oracle Cloud Adapter for Salesforce.com. These can be used as a reference by an organization planning to integrate with Salesforce.com using the Oracle Cloud Adapter for Salesforce.com on Oracle Fusion Middleware.

This chapter aims to introduce the user to different integration scenarios to Salesforce.com using various components of Oracle SOA Suite. The chapter focuses on guiding the user on various functionalities of the Oracle Cloud adapter for Salesforce.com – queryMore operation, Offline Configuration, MDS, Salesforce headers, etc. by means of few examples. These examples would be beneficial in resolving any complexities associated with the integration to Salesforce.

This chapter is divided into two parts:

- Part I- BPEL Use Cases
- Part II- BPM Use Cases

# Part I

# **BPEL Use Cases**

This section provides details of a few BPEL Use Cases to illustrate the end-to-end use of Oracle Cloud Adapter for Salesforce.com. These can be used as a reference by an organization planning to integrate with Salesforce.com using the Oracle Cloud Adapter for Salesforce.com on Oracle Fusion Middleware.

This chapter contains the following topics:

- Section 11.1, "How can I build integration in which the SOA client is not interested in the response?"
- Section 11.2, "How to use query and queryMore Operations?"
- Section 11.3, "I do not have a net connection right now or Salesforce.com is down, how I create my Integration using Cloud Adapter for Salesforce.com?"
- Section 11.4, "How to use MDS for importing WSDL into JDeveloper?"
- Section 11.5, "How to use Debug Header (Response header)?"

# 11.1. How can I build integration in which the SOA client is not interested in the response?

**Overview:** This use case is an extension to the integration explained in Chapter 5 " Integration with Different Service Components (BPEL/Mediator) in Oracle SOA Suite". It demonstrates a scenario in which the response returned from Salesforce.com holds no significance to the user and to get rid of the unwanted load on the server (due to large response returned from Salesforce.com) the user can opt for the 'Suppress Response' functionality of Oracle Cloud Adapter for Salesforce.com. To sum up, this use case demonstrates an account creation on Salesforce.com and also explains how to suppress the response returned from Salesforce.com.

### 11.1.1. Creating the BPEL Process

### **Creating a New Application**

Perform the following steps to create a New Application:

- 1. In the File menu of JDeveloper, click New and select Application.
- 2. The New Gallery page is displayed, select SOA Application from the Items list and click OK, as shown in Figure, as shown in Figure 11-1.

۹			
ategories:		Items:	Show All Description
General Ant Applications Connections Deployment Descriptors Deployment Profiles Diagrams Java Maven Maven	Î	ADF Fusion Web Application     Application from EAR File     Application Template     BPM Application     Custom Application     Database Application	
ProjectsUMLXML		Extension Application     Java EE Web Application     Service Bus Application     Service Bus Application     Service Bus Application with Service Bus Project	
SimulationBusiness TierADF Business Components		SOA Application           Creates a SOA (service-oriented architecture) application. The consists of one SOA project for the SOA composite, component           UML Application	

Figure 11 - 1 Create SOA Application

3. Provide a suitable name to your application, as shown in Figure 11-2.

Figure 11 - 2 Name your application

Create SOA Application	- Step 1 of 3				×
Name your application	on		01010101010	10101010101010101	F
Application Name     Project Name     Project SOA Settings	Application Name: Application 1 Directory: C:\JDeveloper\mywc Application Package F				Browse
Help	[	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

4. Click Next and provide a suitable name to your project, as shown in Figure 11-3.

Figure 11 - 3 Name your project

Create SOA Application	- Step 2 of 3
Name your project	0101010101010101010101010
Application Name     Project Name	Project Name:       Project1         Directory:       C:\JDeveloper\mywork\Application1\Project1       Browse
Project SOA Settings	Project Features: SOA Suite SOA Suite is a suite of tools to model SOA(Service Oriented Architecture) applications.
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Cancel

5. Click Next and select Composite with BPEL Process from Standard Composite list, as shown in Figure 11-4.

Figure 10 - 4 Configure SOA Setting

Create SOA Application	Step 2 of 3	×
Application Name     Project Name	Project Name:       Project1         Directory:       C:\JDeveloper\mywork\Application1\Project1	e
Project SOA Settings	Project Features: SOA Suite SOA Suite is a suite of tools to model SOA(Service Oriented Architecture) applications.	
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Cano	el

6. Click Finish.

7. Select the Synchronous BPEL Process from Template drop-down and click OK.

🕜 Create BPE	L Process	23					
	<b>s</b> cess is a service orchestration, based on the BPEL specification, used to describe/execute a ocess (or large grained service), which is implemented as a stateful service.	<b>*</b>					
BPEL 2.0 S	pecification O BPEL 1.1 Specification						
<u>N</u> ame:	BPELProcess1						
Namespace:	http://xmlns.orade.com/Application1/Project1/BPELProcess1						
Directory:	C:\JDeveloper\mywork\Application1\Project1\SOA\BPEL	_ 🔍					
Template:	Synchronous BPEL Process	- 2					
Service Name:	e: bpelprocess1_dient						
	✓ Expose as a SOAP service						
	Transaction: required	- 3					
	Input: [http://xmlns.orade.com/Application1/Project1/BPELProcess1}process	<b>Q</b>					
	Qutput: [http://xmlns.orade.com/Application1/Project1/BPELProcess1}processResponse	] 🔍					
Help	ОК Са	ancel					

- **8.** The composite.xml looks as shown in Figure 11-5.
- Figure 11 5 Composite.xml

Applications		예영 Project1 - ※ 🔏 BPELProcess 1.bpel ×
🔁 Application 1		🖌 🖓 🚾 🗶 🖏 I 🔂 🧕 🖉 I 🔁 🖶 🏟 🖗
Projects     Image: Project     Image: Projects     Image: P	-	Exposed Services Components

**9.** In the **Application Navigator**, under the **xsd** folder, an XML schema file with the name **BPELProcess1.xsd** is displayed after BPEL process creation, as shown in Figure 11- 6.

Figure 11 - 6 XML Schema File

<u>File Edit View Application Refactor</u>
💁 - 🗁 🗒 🗐   🗐 🤍 - ()
Applications
B Application 1
🖃 Projects 💽 🔞 🕶 🍸 🗧
🗄 📲 Resources
a pom.xml
SOA
🖨 🔚 BPEL
BPELProcess 1.bpel
🗈 📲 Events
🚊 📲 Schemas
BPELProcess 1.xsd
🖃 📲 testsuites
fileList.xml
🖨 ··· 🛅 WSDLs
BPELProcess 1. wsd
measurements.xml
Project1
I contraction of the second se

**10.** Edit this schema file as per your business requirement. It is the responsibility of the front-end application to enforce data validations and to ensure that the input sent to SFDC via SOA is error free. The structure of the schema used in this use case is shown in Figure 11- 7.



Figure 11 - 7 Edit XML Schema File

**11.** Figure 11- 8 shows create account page on Salesforce.com. The fields with a red mark are mandatory fields. This structure may vary for different organizations.

Figure 11 - 8 Create Account Page on Salesforce

New Account				Help for this Page
Account Edit	Save	e Save & New Canc	el	
Account Information				= Required Information
Account Owner			Rating	None 🗸
Account Name			Phone	
Parent Account		<b>S</b>	Fax	
Account Number			Website	
Account Site			Ticker Symbol	
Туре	None	~	Ownership	None V
Industry	None 🗸		Employees	
Annual Revenue			SIC Code	
Address Information				Copy Billing Address to Shipping Addres
Billing Street	1	~	Shipping Street	
		~		
Billing City			Shipping City	
Billing State/Province			Shipping State/Province	

**12.** In **External References** swim lane of the composite.xml file, right-click and select **Salesforce** adapter, as shown in Figure 11-9.

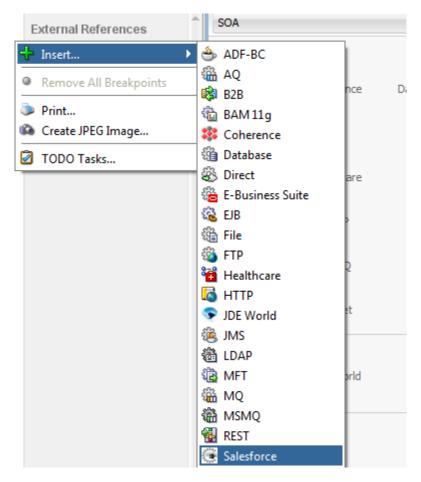


Figure 11 - 9 Oracle Cloud Adapter for Salesforce Adapter

**13.** The Salesforce Cloud Adapter Configuration Wizard -Welcome page is displayed, as shown in Figure 11- 10.

Salesforce Cloud Adapter Configuratio	n Wizard - Ste	ep 1 of 5	-	×
Salesforce Cloud Adapter Refere	ence	01010101010101	0101919191919191	*
Welcome to the Adapter Config This wizard helps you create a service using a parameters and define an operation for the s Enter a Reference Name.	Salesforce Clo		be asked to specify	configuration
<u>N</u> ame: salesforceReference				
Help	< <u>B</u> ack	Next >	Finish	Cancel

Figure 11 - 10 Salesforce Cloud Adapter Configuration Wizard -Welcome Page

14. The Name box is already populated. It picks up these values from the cache. You can re-enter Reference Name if you want to use a different Reference Name and click Next, as shown in Figure 11- 11.

Figure 11 - 11 E	nter Reference Name
------------------	---------------------

Salesforce Cloud Adapter Configuration	ation Wizard - Ste	ep 1 of 5		×			
Salesforce Cloud Adapter Ref	erence	0101010101010	101039494949494	*			
Welcome to the Adapter Configuration Wizard							
This wizard helps you create a service usi parameters and define an operation for t		ud Adapter. You will b	e asked to spec	ify configuration			
Enter a Reference Name.							
Name: sfdcCreateAccount							
Help	< <u>B</u> ack	<u>N</u> ext >	Finish	Cancel			

**15.** The **Salesforce Cloud Server Connection** page is displayed. The **WSDL Location** and **Authentication Key** text boxes are already populated. It picks up these values from the cache. You can re-enter these values. If you want to use a different value, click the **Find existing WSDLs** icon, which is located to the right of the **WSDL Location** field, as shown in Figure 11- 12.

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5	x
Salesforce Cloud Server Connection	
A Salesforce Cloud Server connection is required to access the operations and business objects available.	
WSDL Location:         C:\JDeveloper\mywork\Application1\Project1\SOA\WSDLs\SalesForceEnterprise.wsdl	6
Authentication Key: SFDC_USER 💌 🕂 🥢 🗙	
<u>Q</u> lear Cache	
Test Connection	
Help < Back Next > Einish Cancel	

Figure 11 - 12 Find existing WSDLs

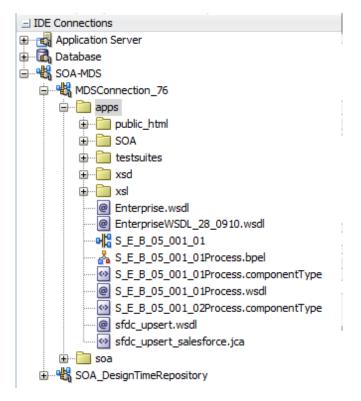
**16.** The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in Figure 11- 13.

Figure 11 - 13 SOA Resource Browser

Application Server	File System	Project Libraries	SOA-MDS	WSIL		
Location	n: 🛅 C:\WSDL	S			- 🔾 🗘 🔄	) 1
Work						
Project Application						
	Eile Name: Sa	lesForceEnterpris	e.wsdl			

Note that as an alternative, you can store WSDL at an MDS location and access it, as shown in Figure 11- 14.

Figure 11 - 14 SOA Resource Browser



17. Copy the WSDL to your project folder, as shown in Figure 11-15.

Figure 11 - 15 Copy WSDL to Your Project Folder

🕐 Localize Files
file:/C:/Official_Data/SalesForceEnterprise.wsdl is external to the current project. In order to make this file available to your project at runtime, JDeveloper can now make a local copy of this file and any dependent files that it imports or includes.
Copy Options:  Maintain original directory structure for imported files The following files will be created in directory C:\JDeveloper\mywork\Application1\Project1\SOA :
WSDLs/SalesForceEnterprise.wsdl
Help OK Cancel

**18.** Click **OK**. You are returned to the Salesforce Cloud Server Connection page.

**19.** Click "+" button to create a new Authentication Key, as shown in Figure 11- 16.

Salesforce Cloud Adapter Configurat	ion Wizard - Ste	ep 2 of 5		×
Salesforce Cloud Server Conne	ection	0101010101		*
A Salesforce Cloud Server connection is rec	quired to access t	he operations and	business objects av	ailable.
WSDL Location: C:\JDeveloper\mywor	k\Application1\Pr	oject1\SOA\WSDL	s\SalesForceEnterpr	rise.wsdl  懮
Authentication Key: SFDC_USER		- 🕂 🥢 🗙		
Offline Configuration				
🗌 <u>C</u> lear Cache				
Test Connection				
Help	< <u>B</u> ack	<u>N</u> ext >	Finish	Cancel

Figure 11 - 16 Create a New Authentication Key

**20.** The **Add Credential** page is displayed, as shown in Figure 11- 17. Provide a suitable name and the Salesforce.com credentials.

Figure 11 - 17 Add Credential

👩 Add Cre	edential 🗾
and the ke	ew password credential by supplying a user name, password y alias. The new credential will be added to the n.security credential map.
<u>U</u> ser ID: <u>P</u> assword: <u>C</u> SF Key:	
Help	OK Cancel

**21.** Click **Test Connection** button to validate the Authentication Key, as shown in Figure 11- 18.

3 Salesforce Cloud	Adapter Configura	tion Wizard - Ste	p 2 of 5		X
Salesforce Clou	d Server Conn	ection	0101010101		*
A Salesforce Cloud S	erver connection is re	quired to access th	e operations and	business objects av	vailable.
WSDL Location:	C:\JDeveloper\mywo	rk\Application1\Pro	ject1\SOA\WSDL	s\SalesForceEnterp	rise.wsdl 👔
<u>Authentication Key:</u>	SFDC_USER		- + / ×		
Offline Configura	tion				
Clear Cache					
Test Connection					
Success!					
Help		< <u>B</u> ack	<u>N</u> ext >	Finish	Cancel

Figure 11 - 18 Test Connection

- 22. Click Next.
- **23.** The **Cloud Operation Configuration** page is displayed, as shown in Figure 11- 19.

Salesforce Cloud Adapter Configura	tion Wizard - Step 3 of 5	×
Cloud Operation Configuratio	01	*
Select a Salesforce Cloud Operation and	its primary business objects and specify a unique WSDL	Operation name.
Operation Category: CRUD	Api Version: 29.0	
SFDC Operation: create 💌	WSDL Operation: create	
Business Objects Available: Q * filter	Selected:	≈ ≫
Account  Account_Testc  AccountContactRole  AdditionalNumber  ApexClass  ApexComponent  ApexPage ApexTestQueueItem ApexTrigger Approval Asset Attachment		
Suppress Response		
Help	< <u>B</u> ack Next > Einish	Cancel

Figure 11 - 19 Cloud Operation Configuration Page

- 24. Since the scenario is to create an Account on Salesforce.com, select Operation Category as CRUD and SFDC Operation as Create. Now, move Account from the list of Available objects to list of the Selected objects. The WSDL Operation by default is create (same as SFDC Operation). You can edit the same by providing an operation name suitable to your business requirement, as shown in Figure 11- 20.
- **25.** Check the **Suppress Response** option, because we do not have any use for the response returned by salesforce.com.

Salesforce Cloud Adapter Configura	tion Wizard - Step 3 of 5	×
Cloud Operation Configuratio	n 01010101010101010101010101010101010101	*
Select a Salesforce Cloud Operation and	l its primary business objects and specify a unique WSDL	Operation name.
Operation Category: CRUD	Api <u>V</u> ersion: 29.0	
SFDC Operation: create	WSDL Operation: create	
Business Objects		
Available: Q. filter	Selected:	~ ~
Account_Testc	🚖 🗏 Account	
AccountContactRole		
AdditionalNumber		
ApexClass	Sec. 1	
ApexComponent		
ApexPage		
ApexTestQueueItem		
ApexTrigger		
Approval		
Asset		
Attachment	_	
AuthProvider		
<ul> <li>Suppress Response</li> </ul>		
Help	< Back Next > Einish	Cancel

Figure 11 - 20 Cloud Operation Configuration Page

**26.** Click **Next**. The **Header and Properties** page is displayed, as shown in Figure 11-21.

leader and Properties					
Select Header properties for sel	ected Salesforce.	com Cloud Operation	on		
Header Properties					
AllOrNoneHeader:					
✓ allOrNone:					
AllowFieldTruncationHeader:					
allowFieldTruncation:					
AssignmentRuleHeader:					
assignmentRuleId:					
useDefaultRule:					
DebuggingHeader:					
debugLevel:					
EmailHeader:					
triggerAutoResponseEma	ail: 📃				
triggerOtherEmail:					
triggerUserEmail:					
MruHeader:					
updateMru:					
PackageVersionHeader.package	Versions:				
majorNumber:	0				
minorNumber:	0				
namespace:					
Help		< Back	Next >	Finish	Cancel

Figure 11 - 21 Header and Properties Page

- **27.** Select the appropriate header to your requirement. Headers displayed on this page depend on the operation selected in the previous page.
- 28. Click Next.
- **29.** The finish page is displayed. It provides a complete summary of the operation selected, the object on which the operation would operate and the headers selected for that operation, as shown in Figure 11- 22.

Figure 11	1 - 22	Finish	Page
-----------	--------	--------	------

Salesforce Cloud Adapter	Configuration Wizard - St	ep 5 of 5		×
Finish				-
You have finished up sfdcCreateAccount	odating the Salesford	e Cloud Ada	oter Reference	e :
When you click Finish, the wiza C:/JDeveloper/mywork/Applica directory.		fdcCreateAccount.	wsdi file in your proj	ect WSDLs
Selected Operation Name: crei Selected Object(s) Name: [Acc Selected SOAP Header: {AllOrl	count]	9		
Help	< <u>B</u> ack	(Next >	Einish	Cancel

- **30.** Click the **Finish** button to complete adapter configuration.
- **31.** After clicking on the **Finish** button. The following screen appears, as shown in Figure 11-23.





- **32.** Two artifacts are created after the adapter creation:
  - A. sfdcCreateAccount\_salesforce.jca
  - B. sfdcCreateAccount.wsdl

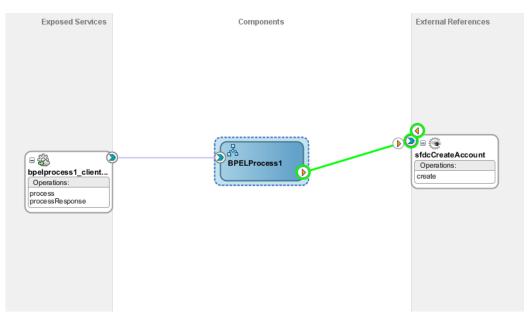
**33.** Double-click and open the WSDL file. The structure of 'createResponse' is shown in Figure 11- 24.

Figure 11 - 24 WSDL file

<xs:element name="createResponse" type="ns2:VoidType"/>
<xs:complexType name="VoidType"/>

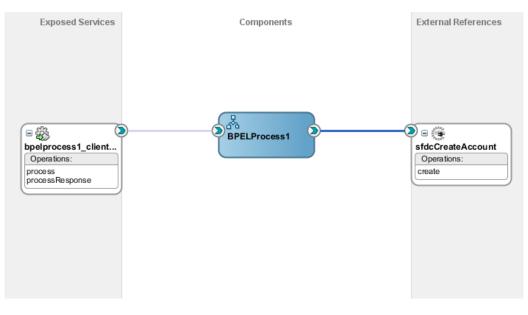
**33.** Connect **BPELProcess1** and **sfdcCreateAccount** via a wire, as shown in Figure 11-25.

Figure 11 - 25 Wiring BPELProcess1 and sfdcCreateAccount



34. After wiring your composite will look like Figure 11-26.

Figure 11 - 26 Wiring BPELProcess1 and sfdcCreateAccount



**35.** Double-click and open **BPELProcess1**. The **sfdcCreateAccount** adapter should be present as part of Partner Links, as shown in Figure 11- 27.

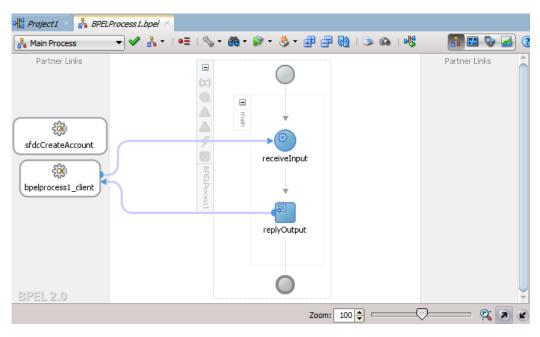
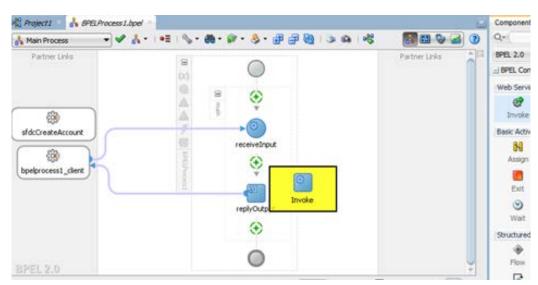


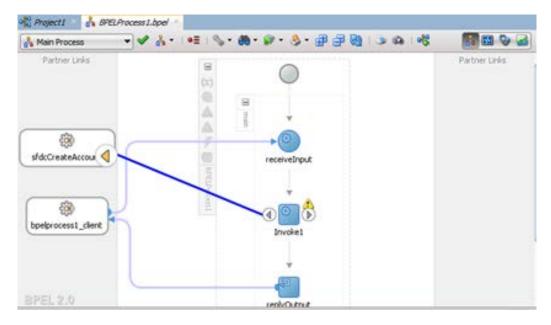
Figure 11 - 27 Open BPELProcess1

- 36. Invoke activity to invoke the sfdcCreateAccount Partner Link
- **37.** From the Component Palette select the '**Invoke**' activity and drag and drop the same in the middle of orchestration as shown in the Figure 11-28.

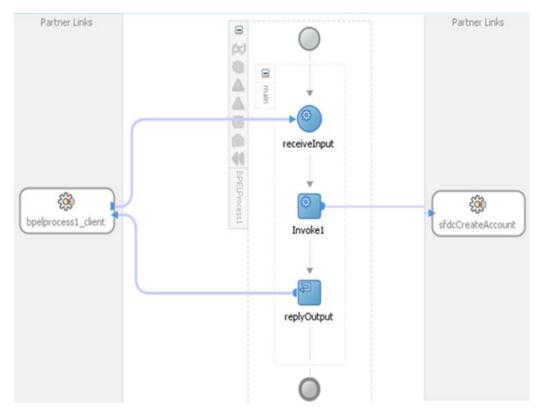
Figure 11 - 28 Add invoke activity to invoke the sfdcCreateAccount Partner Link



38. Wire the Invoke activity to partner link 'sfdcCreateAccount'



**39.** The BPEL orchestration should now look as shown in the screenshot below:



**40.** Create an input variable to the partner link by clicking the '+' button adjacent to **Input** text box in the **Variables** section. The **Create Variable** dialog is displayed, as shown in Figure 11-29.

Headers Do General	Correlations Properties Assertions Annotations
General	Correlations Properties Assertions Annotations
<u>N</u> ame:	Invoke1
Conversation I	ID:
Detail Label:	
	Invoke as Detail
👩 Create V	/ariable
N	
<u>N</u> ame:	Invoke1_create_InputVariable
Type:	{http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application1/Project
	Global Variable      Local Variable     Local Variable
Usla	OK Cancel
Help	
Input:	

Figure 11 - 29 Create an Input Variable

**41.** Create an output variable from the partner link by clicking the '+' button adjacent to **Output** text box in the **Variables** section. The **Create Variable** dialog is displayed, as shown in Figure 11- 30.

Edit Invoke	
Headers Do General	cumentation Skip Condition Targets Sources Correlations Properties Assertions Annotations
General	Correlations Properties Assertions Annotations
<u>N</u> ame:	Invoke 1
Conversation I	D:
Detail Label:	
	Invoke as Detail
👩 Create Va	ariable 🗾 🗾
N	
<u>N</u> ame:	Invoke1_create_OutputVariable
Type:	{http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application1/Project
	<u>G</u> lobal Variable <u>L</u> ocal Variable
Help	OK Cancel
Output:	
Help	Apply OK Cancel

Figure 11 - 30 Create an Output Variable

**42.** Introduce a transform activity, prior to the Invoke activity, as shown in Figure 11-31.

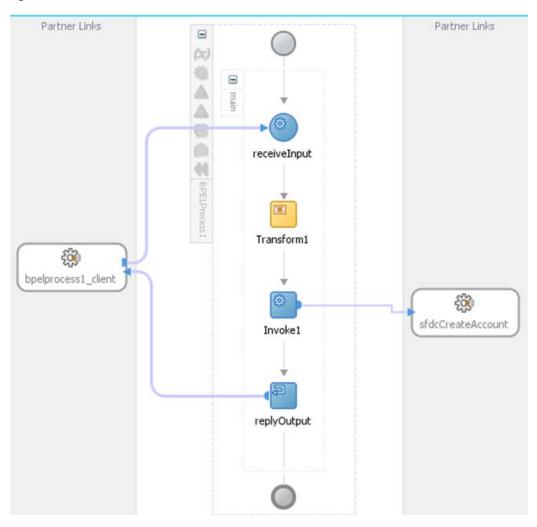


Figure 11 - 31 Transform Activities

**43.** Map values from receive activity's input variable to invoke activity's input variable, as shown in Figure 11-32.

Edit Transformation								
Documentation	Skip Condition	Targets	Sources					
General	Transforma	ation	Annotations					
Source:			💠 🧷 🗙 🕁 -	Ъ				
Variable		Part						
inputVariable		payload						
Target Part:	Invoke1_create_In	putvariable	<u> </u>					
	parameters							
Mapper File: 1\S	Mapper File: 1\SOA\Transformations\Transformation_1.xsl 🔍 🕂 🥖							
Help		<u>A</u> pply	OK Can	icel				

Figure	11 -	32	Edit Transform
--------	------	----	----------------

**44.** Click the '+' button adjacent to **Mapper File** text box to open the **Transformation\_1.xsl** file.

**45.** Perform the mapping between **inputVariable** and **Invoke1\_create\_InputVariablea**:

- Map Account\_Name with Name.
- Map Acc\_Ext\_Id\_C\_\_c with Acc\_Ext\_Id\_C\_\_c.
- Map AnnualRevenue with AnnualRevenue.
- Map BillingCountry with BillingCountry, as shown in Figure 11-33.



Figure 11 - 33 Mapping between inputVariable and Invoke1\_create\_InputVariable

- **46.** Since the response is suppressed, you would not map any element from **createResponse** to output variable.
- 47. Add an assign activity post the invoke activity, as shown in Figure 11-34.

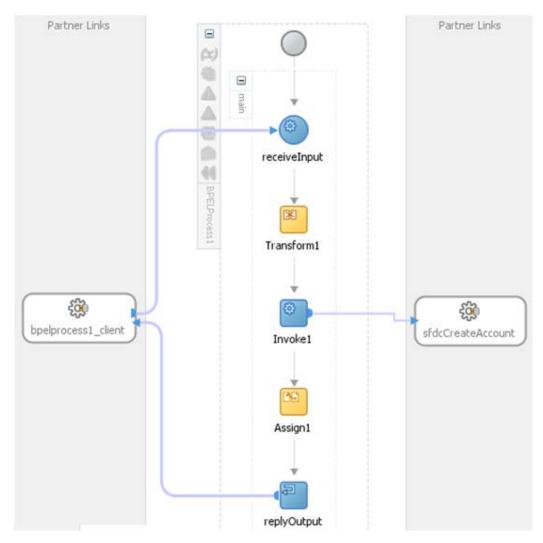


Figure 11 - 34 Assign activity and Invoke Activity

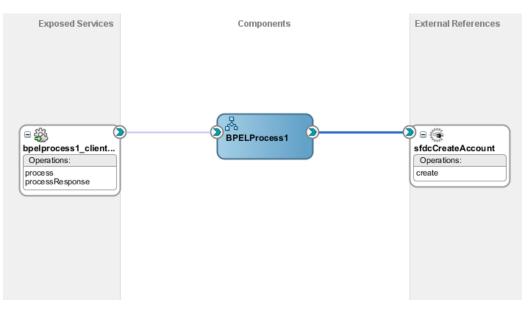
**48.** Provide a value to the output variable to ensure that the process is completed successfully, as shown in Figure 11-35.

Figure 11 - 35 Process Completed Screen

Сору •	To XPath: /client:processResponse/client:result
From	То
📄 🙀 'Process Completed'	🔊 outputVariable/payload//client:processResponse/client:result

**49.** This completes the project creation. The composite.xml will look Figure 11-36.

#### Figure 11 - 36 Composite.xml After Project Creation



## **Deploy the Composite**

To deploy the Composite, refer to the section "Deploy the Composite".

## **Testing the Process on Enterprise Manager Console**

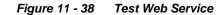
Perform the following steps to test the process on Enterprise Manager Console:

- 1. Login to Enterprise Manager Console for the server you deployed your project on.
- 2. Open **Project1** under the **default** partition.
- 3. Click the **Test** button to test the Web service, as shown in Figure 11-37.

Figure 11 - 37 Test the Web Service

tive Retir	··· 9	Shut Down	Test	Settings	. 8
A Compo		te Definition	Flow Instances	t Service	Policies
Name					

**4.** Provide the input payload and click the **Test Web Service** button, as shown in Figure 11-38.



 eblogicl 📃 HOSMDM04.bcom r 2, 2014 12:56:04 PM IST	
Test Web Service	

5. After successful execution the response is as shown in Figure 11-39.

Figure 11 - 39 Test Status						
Request Resp	onse					
Test Status Request successfully received. Response Time (ms) 8545 Tree View  A new composite instance was generated. Launch Flow Trace						
Name	1	Туре	Value			
⊽ payload	F	payload				
result	5	string	Process Completed			

6. Click the Launch Flow Trace button to view the Audit Trail, as shown in Figure 11-40.

Figure 11 - 40 Launch Flow Trace

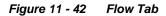
nis page shows the flow of the message throug	h various composite and component	instances. 🧿
Faults (0)		
Faults		
Select a fault to locate it in the trace view.		
Error Message		
No faults found		
➤ Sensors (0) race Click a component instance to see its detailed a	audit trail.	
≥ Sensors (0) race	audit trail. Type	Usage
Sensors (0)  race  Click a component instance to see its detailed a  Show Instance IDs		Usage
Sensors (0)  race Click a component instance to see its detailed a Show Instance IDs Instance Instanc	Туре	

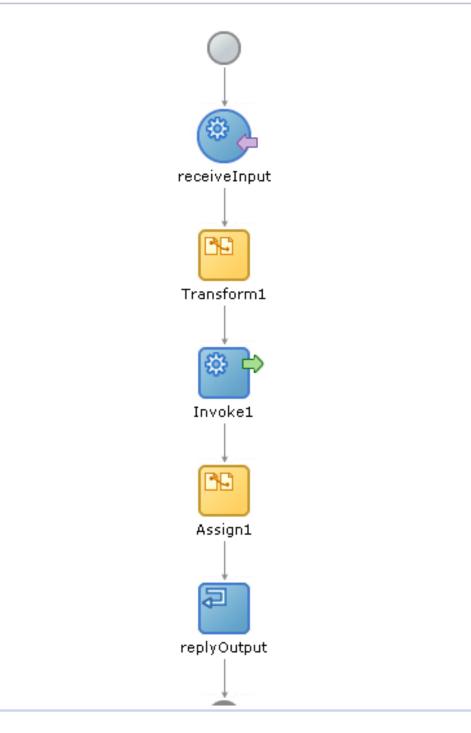
7. The Audit Trail will look like Figure 11-41.

## Figure 11 - 41 Audit Trail

Audit Trail Flow Sensor Values	Faults
Expand a payload node to view the details.	
▼ <process> ▼ <main (73)=""> ▼ ♥@receiveInput</main></process>	
<pre>▼ Jan 7, 2014 10:36:41 AM</pre>	Received "process" call from partner "bpelprocess1_client"
🗸 📴 Transform 1	
▼ Jan 7, 2014 10:36:41 AM <	Updated variable "Invoke1_create_InputVariable"
Jan 7, 2014 10:36:41 AM	Completed assign
⊽ 🕬 Invoke1	
Jan 7, 2014 10:36:41 AM	Started invocation of operation "create" on partner "sfdcCreateAccount".
▼ Jan 7, 2014 10:36:50 AM > payload>	Invoked 2-way operation "create" on partner "sfdcCreateAccount".
⊽ 🖳 Assign1	
<pre>▼ Jan 7, 2014 10:36:50 AM</pre> ▷ <payload></payload>	Updated variable "outputVariable"
Jan 7, 2014 10:36:50 AM	Completed assign
🗸 뺵 replyOutput	
<pre>▼ Jan 7, 2014 10:36:50 AM</pre> ▷ <payload></payload>	Reply to partner "bpelprocess1_client".
Jan 7, 2014 10:36:50 AM BPE	L process instance "1150142" completed

8. Click on Flow tab, The Flow tab is shown in Figure 11-42.





9. The Invoke activity of the process is shown in Figure 11-43.

#### Figure 11 - 43 Invoke Activity

⇒∰ Invoke1

[2014/01/06 22:28:45]
Started invocation of operation "create" on partner "sfdcCreateAccount".
[2014/01/06 22:28:51]
Invoked 2-way operation "create" on partner "sfdcCreateAccount".
- <messages></messages>
- <invoke1_create_inputvariable></invoke1_create_inputvariable>
- <part name="parameters" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> - <create <="" p="" xmlns:ns1="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Final/Project1/sfdcCreateAccount"></create></part>
xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Final/Project1/sfdcCreateAccount">
- <ns1:account></ns1:account>
<pre><ns0:acc_ext_id_cc xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">acct1</ns0:acc_ext_id_cc> <ns0:annualrevenue xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">1000000</ns0:annualrevenue></pre>
<pre><nso:billingcountry xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">USA</nso:billingcountry></pre>
<pre><ns0:name xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">New Account 1</ns0:name></pre> /ns0:Name>
- <ns1:account></ns1:account>
<pre><ns0:acc_ext_id_cc xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">acct2</ns0:acc_ext_id_cc></pre>
<ns0:annualrevenue xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">200000</ns0:annualrevenue>
<pre><ns0:billingcountry xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">US</ns0:billingcountry> <ns0:name xmlns:ns0="urn:sobject.enterprise.soap.sforce.com">New Account 2</ns0:name> </pre>
<pre>- <invoke1_create_outputvariable></invoke1_create_outputvariable></pre>
<t< td=""></t<>
Copy details to clipboard

**10.** This completes the create account scenario. The creation of account can be verified on Salesforce.com as shown in Figure 11-44 (because the response returned from salesforce.com is suppressed and not shown in the audit trail).

Figure 11 - 44	Create Account				
Home Accounts					Tell me more!   Help for this Page 🥝
View: All Accounts	▼ Go!	Edit   Create New	View		
Recent Accounts	3	New			Recently Created
Account Name			Billing City	Phone	
New Account 1					
New Account 2					

# 11.2. How to use query and queryMore Operations?

Perform the following steps to use query and queryMore Operations.

- 1. Create a New project in an existing application or in a new application.
- 2. Provide a suitable name to your project as shown in Figure 11-45.

Oreate SOA Application	- Step 2 of 3	x
Name your project		5
Application Name     Project Name	Project Name:       QueryProject1         Directory:       C: \JDeveloper \mywork \Application 7\QueryProject1       Browse.	
Project SOA Settings	Project Features:	
	SOA Suite is a suite of tools to model SOA(Service Oriented Architecture) applications.	
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Cancel	

Figure 11 - 45 Name your project

## 11.2.1. Create BPEL Process

Perform the following steps to create BPEL Process.

1. Click Next and select Composite with BPEL Process from Standard Composite list, as shown in Figure 11-46.

Configure SOA settings	
Application Name       QueryProject 1         Project SOA Settings       Start from: ③ Standard Composite ① SOA Template         Image: Standard Composite       Empty Composite         Image: Standard Composite       Start from: ③ Standard Composite         Image: Standard Composite       Empty Composite         Image: Composite With BPEL Process       Image: Composite With BUD Process         Image: Composite With Subprocess       Image: Composite With BPMIN Process         Image: Composite With Business Rule       Image: Composite With Business Rule         Image: Composite With Subprocess       Composite With Subprocess         Image: Composite With BPMIN Process       Image: Composite With Business Rule         Image: Composite With Subprocess       Image: Composite With Business Rule         Image: Composite With Spring       Image: Composite With Spring	
Customizable     Help <back next="">     Finish     Cancel</back>	

Figure 11 - 46 Configure SOA Setting

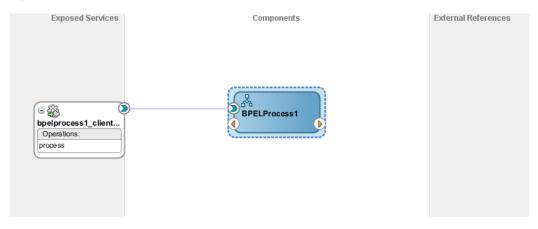
- 2. Click Finish.
- **3.** Select the BPEL 1.1 radio button and **Synchronous BPEL Process** from **Template** drop-down and click **OK**, as shown in Figure 11-47.

Figure 11 - 47 Create BPEL Process

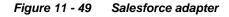
O Create BPE	L Process	x
	; ess is a service orchestration, based on the BPEL specification, used to describe/execute a ocess (or large grained service), which is implemented as a stateful service.	<b>~</b>
O BPEL 2.0 Sp	ecification <ul> <li>BPEL 1.1 Specification</li> </ul>	
<u>N</u> ame:	BPELProcess1	
Namespace:	http://xmlns.oracle.com/Application7/QueryProject1/BPELProcess1	
Directory:	C:\JDeveloper\mywork\Application7\QueryProject1\SOA\BPEL	<b>Q</b>
Template:	Asynchronous BPEL Process	- 2
Ser <u>v</u> ice Name:	Asynchronous BPEL Process  Synchronous BPEL Process  One Way BPEL Process  Define Service Later Base on a WSDL Subscribe to Events  Output: http://xmlns.oracle.com/Application7/QueryProject1/BPELProcess1}processRespons	
Help	OK Ca	incel

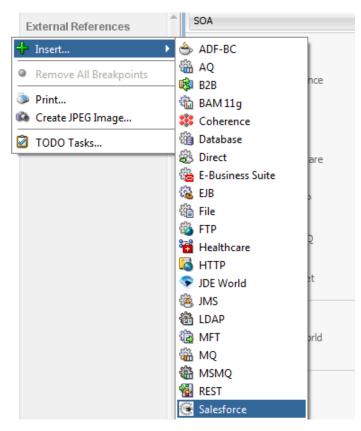
The composite.xml looks like Figure 11-48.

#### Figure 11 - 48 Composite.xml



4. In External References swim-lane of the composite.xml file, right-click and select Salesforce adapter, as shown in Figure 11-49.





**5.** The Salesforce Cloud Adapter Configuration Wizard -Welcome page is displayed, as shown in Figure 11-50.

## Figure 11 - 50 Welcome Page

Salesforce Cloud Adapter Configuration Wizard	d - Step 1 of 5	x							
Salesforce Cloud Adapter Reference	0101010101010101010101040	>							
Welcome to the Adapter Configuration Wizard									
This wizard helps you create a service using a Salesfor parameters and define an operation for the service.	rce Cloud Adapter. You will be asked to specify configura	tion							
Enter a Reference Name.									
Name: salesforceReference									
<u>H</u> elp < <u>B</u> ac	k Next > Einish Canc	el							

- 6. In the Welcome page, Enter a Reference Name in the Name field, as shown in Figure 11-51
- Figure 11 51 Name your Service

🕐 Salesforce Cloud Adapter Configuration Wizard - Step 1 of 5									
Salesforce Cloud Adapter Refe	rence	0101010101010	10103989393955	<b>K</b> ery					
Welcome to the Adapter Conf	Welcome to the Adapter Configuration Wizard								
This wizard helps you create a service using parameters and define an operation for the		ıd Adapter. You will b	e asked to specify co	nfiguration					
Enter a Reference Name.									
Name: salesforceReference_query									
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel					

- 7. Click Next.
- 8. The Salesforce Cloud Server Connection page is displayed. The WSDL Location and Authentication Key text boxes are already populated. It picks up these values from the cache. You can re-enter these values. If you want to use a different value, click the Find existing WSDLs icon, which is located to the right of the WSDL Location field, as shown in Figure 11-52.

Figure 11 - 52 Salesforce Cloud Server Connection Page

👔 Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5								
Salesforce Clou	id Server Conn	ection		0101010101010101010101	*			
A Salesforce Cloud Server connection is required to access the operations and business objects available.								
WSDL Location:			ion/BpmProje	ect/SOA/WSDLs/Ente	rprise_ <del></del> 🔞			
Offline Configurat			j <b>~ /</b>	~				
<u>O</u> lear Cache								
Test Connection								
<u>H</u> elp		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel			

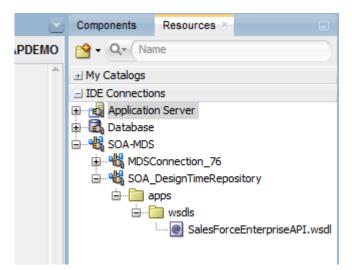
**9.** The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in Figure 11-53.

<b>WSDL Choose</b>	er	en lange	en Rad 1	lag ( 1471)			X
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL		
Location	: C:\WSDL					- 🗘 🗘 🔽	🔒 📰 🖿
Work	Enterprise.v	rsdl					
	<u>File Name</u> : Ente	rprise.wsdl					
Home	File <u>Typ</u> e: Web	Service Definition	on Files (*.wsdl)				•
Selection: file:/C:	/WSDL/Enterprise.	wsdl					
Help						ОК	Cancel

Figure 11 - 53 SOA Resource Browser

**Note:** Alternatively, you can store WSDL at an MDS location and access it, as shown in Figure 11-54.

Figure 11 - 54 SOA Resource Browser



### 10. Click OK.

- 11. Traverse to IDE Connections  $\rightarrow$  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**.
- The WSDL location should be of the form 'oramds:/apps/SOA/WSDLs/Integration/WSDLNAME.wsdl', as shown in Figure 11-55.

### Figure 11 - 55 WSDL location

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5						
Salesforce Cloud Server Connectio	'n			*		
A Salesforce Cloud Server connection is required	to access the o	perations and bus	ness objects availa	able.		
WSDL Location: oramds:/apps/Enterprise.w	sdl			1		
Authentication Key: SFDC_USER	•	+ / ×				
Offline Configuration						
<u>C</u> lear Cache						
Test Connection						
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel		

- 13. Click OK.
- 14. Click + button to create a new Authentication Key, as shown in Figure 11-56.

Figure 11 - 56	Create a New Authentication Key
----------------	---------------------------------

Salesforce Cloud	Adapter Configuration	Wizard - Step	2 of 5			X Acc
Salesforce Clou	d Server Connect	ion			<b>*</b> =	
A Salesforce Cloud S	erver connection is requir	ed to access the	operations and	business objects a	available.	
WSDL Location:	oramds:/apps/Enterprise	.wsdl				1
<u>A</u> uthentication Key:	SFDC_USER	•	- 🖊 🗶			
Offline Configura	tion		Add a ne	w authentication	credential to (	CSF key store
Clear Cache						
						roperti
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel	

**15.** The **Add Credential** page is displayed, as shown in Figure 11- 57. Provide a suitable name and the Salesforce.com credentials. The password should be a combination of Salesforce.com password and Salesforce.com Security Token.

Figure 11 - 57 Add Credential

	🕜 Add Cre	edential	x
	and the key	ew password credential by supplying a user name, password y alias. The new credential will be added to the n.security credential map.	d
0	<u>U</u> ser ID:		
	Password:		
	<u>C</u> SF Key:		
	<u>H</u> elp	OK Cancel	

**16.** Click **Test Connection** button to validate the Authentication Key, as shown in Figure 11-58 .

Figure 11 - 58 Test Connection

Salesforce Cloud	Adapter Configuratio	n Wizard - Ste	p 2 of 5		×
Salesforce Clou	ud Server Connec	tion			*
A Salesforce Cloud S	Gerver connection is requ	ired to access th	e operations and	business objects a	vailable.
WSDL Location:	oramds:/apps/Enterpris	e.wsdl			6
Authentication Key:	SFDC_USER		- 🕂 🥢 🗙		
Offline Configura	ition				
Clear Cache					
Test Connection					
Success!					
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

- 17. Click Next.
- 18. The Cloud Operation Configuration page is displayed, as shown in Figure 11-59.

Salesforce Cloud Adapter Configuration Wizard - Step 3 of 5	x
Cloud Operation Configuration	3
Select a Salesforce Cloud Operation and its primary business objects and specify a unique WSDL Operation	name.
Operation Category: CRUD  Api Version: 29.0	
SFDC Operation: create WSDL Operation: create	
	» «
Help < Back Next > Finish Ca	ncel

Figure 11 - 59 Cloud Operation Configuration Page

**19.** From the list of **Operation Category**, select **SOSL/SOQL**, as shown in the Figure 11-60.

Cloud Operation Configuration	
olouu operation configuration	

Select a Salesforce Cloud Ope	uration	name.
Operation Category: CRUD SFDC Operation: CORE CRUD Business Objects	<ul> <li>✓ Api <u>V</u>ersion: 29.0</li> <li>WSDL <u>Operation</u>: create</li> </ul>	
Account Account_Test_c AccountContactRole AdditionalNumber ApexClass ApexComponent ApexPage ApexTestQueueItem ApexTrigger		
Suppress Response	< Back Next > Einish Ca	ncel

х

20. Now, the query operation will automatically be selected. Provide the query string in the text box, as shown in the Figure 11-61.

1	👩 Salesforce Cloud Adapter Configuration Wizard - Step 3 of 5	×
	Cloud Operation Configuration	
	Select a Salesforce Cloud Operation and its primary business objects and specify a unique WSDL Operation name	
	Operation Category: SOSL/SOQL  Api Version: 29.0	
1	SFDC Operation: query WSDL Operation: query	
	Query Statement	
	<u>H</u> elp < <u>B</u> ack <u>N</u> ext > Einish Cancel	

Figure 11 - 61 Provide the query String

**21.** You can also test the query string after clicking on the **Query Test** button. As shown in Figure 11-62.

ſ	Salesforce Cloud Adapter Configuration Wizard - Step 3	3 of 5 QueryPro
	Cloud Operation Configuration	010101010101010101040406040
	Select a Salesforce Cloud Operation and its primary business of	bjects and specify a unique WSDL Operation name.
ľ		9.0
	SFDC Operation: query WSDL Operation: query Statement SELECT Id, Name FROM Account	Run Query Test tool
	Help < Back	Next > Einish Cancel

**22.** After clicking on query test button, a **Query Test** dialog appears, as shown in Figure 11-63.

Figure 11 - 63 Query Test

🕐 Query Test		×
Query <u>S</u> tatement:		
SELECT Id,Name FROM Account		
		<u>6</u>
Results from query:		
Object Count:		
<pre><result <="" td="" xmlns="urn:enterprise.soap.sforce.com" xmlns:xsi="http://www.w3.org/:&lt;/td&gt;&lt;td&gt;200 1/XMLSchema-instance"><td>xmln</td></result></pre>	xmln	
<sf:id>001900000shBZFAA2</sf:id> <sf:name>Test Account Demo</sf:name>		
 <records xsi:type="sf:Account"> <sf:id>001900000shBXSAA2</sf:id> <sf:name> www </sf:name></records>		
<records xs::type="sf:Account"> <sf:id>0019000000sgbCWAAY</sf:id> <sf:name></sf:name></records>		
 <records xsi:type="sf:Account"></records>		
<sf:id>0019000000s2XslAAE</sf:id>		-
Help	Save Dor	ne

- **23.** Click on **Save** button, if you have modified your query in the query test dialog, and wish to save the modified query, else, click on **Done** button, which would display the original query. Either of the buttons will take you back on the Cloud Operation Configuration page.
- **24.** Click on **Next**. The **Header and Properties** page is displayed. Provide the value of headers as per your business requirement, as shown in Figure 11-64.

Salesforce Cloud Adapter Configuration W	izard - Step 4 of 5		×
Header and Properties	01010101	0101010101010101010101	*
Select Header properties for selected Salesforce.	com Cloud Operation		
-Header Properties			
MruHeader:			
updateMru:			
PackageVersionHeader.packageVersions:			
majorNumber:			
minorNumber:			
namespace:			
QueryOptions:			
🗌 batchSize: 👔			
,			
Help <	Back <u>N</u> ext >	Einish	Cancel

Figure 11 - 64 Provide the Value of Headers

- 25. Click Next.
- **26.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation would operate and the headers selected for that operation, as shown in Figure 11-65.

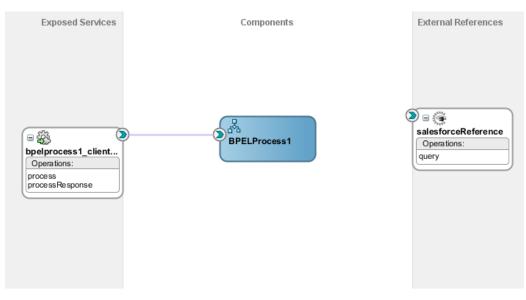
Figure	11 -	65	Finish	Page
--------	------	----	--------	------

O Salesforce	e Cloud Adapter Configuration Wizard - Step 5 of 5	x
Finish	01010101010101010101010	5
	e finished updating the Salesforce Cloud Adapter Reference : eReference_query	
	ck Finish, the wizard will update the er/mywork/Application7/QueryProject1/SOA/WSDLs/salesforceReference_query.wsdl file in your p ory.	project
Selected Obje	eration Name: query ect(s) Name: [Account] AP Header: {}	
<u>H</u> elp	< <u>B</u> ack <u>N</u> ext > <u>Finish</u> Cano	:el

27. Click the **Finish** button to complete adapter configuration.

**28.** After clicking on **Finish** button, the following screen appears, as shown in Figure 11-66.





# **Understanding query Response**

The response returned by query operation has the following structure:

1. done: It is a Boolean element that contains the following values:

- **True:** If all records are returned in a single invoke to query operation.
- **False:** If all records are not returned in a single invoke to query operation, i.e., there are more records to fetch.
- **2. queryLocator:** If the value of the element **done** is false, then query operation returns a queryLocator value that is used to make queryMore call to Salesforce.com.
- 3. Records: The set of records queried by the user.
- 4. Size: The number of records for that particular query.

Figure 11-67 shows all the above mentioned values.

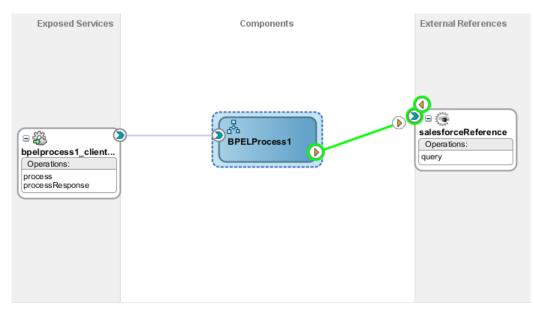
#### Figure 11 - 67 Query Operation Structure

## Integration with BPEL

Perform the following steps for integration with BPEL:

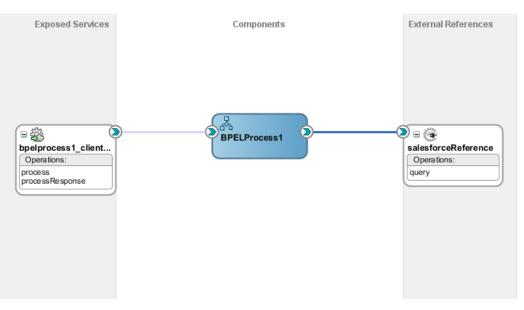
1. Connect BPELProcess1 and query via a wire, as shown in Figure 11-68.

Figure 11 - 68 Wiring BPELProcess1 and query



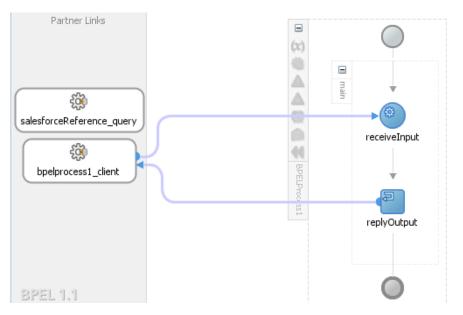
2. After wiring, your composite will look, as shown in Figure 11-69.

Figure 11 - 69 Wiring BPELProcess1 and query



**3.** Double-click and open **BPELProcess1**. The **query** adapter should be present as part of Partner Links, as shown in Figure 11-70.

Figure 11 - 70 Open BPELProcess1



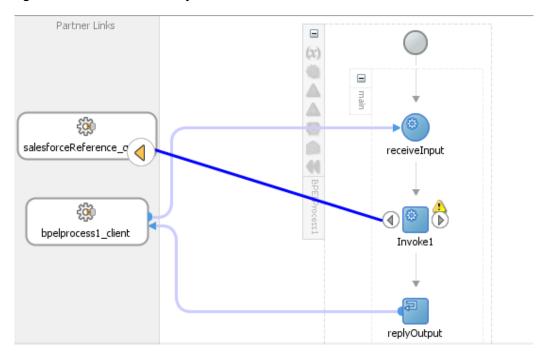
**4.** Create two variables **varDone** and **varQueryLoc** to track the values of "queryLocator" and "done" returned in query response from Salesforce.com, as shown in Figure 11-71.

Figure	11 -	71	Variables	Screen
--------	------	----	-----------	--------

ariab	oles:		+ / ×		
	Name	Туре	QName		
(x)	inputVariable	MessageType	client:BPELProcess 1RequestMess client:BPELProcess 1ResponseMes		
(x)	outputVariable	MessageType			
(x)	varDone	Simple Type	xsd:boolean		
(x)	varQueryLoc	Simple Type	xsd:string		
-	now Namespace URIs				

5. Add an invoke activity to invoke the query Partner Links, as shown in Figure 11-72.

Figure 11 - 72 Invoke activity



 Create an input variable to the partner link by clicking the '+' button adjacent to Input text box in the Variables section. The Create Variable dialog is displayed, as shown in Figure 11-73.

🕜 Edit Invol	ce and a second s	23							
Assertions General	Skip Condition         Headers         Sources         Targets           Correlations         Properties         Annotation	ons							
<u>N</u> ame: <u>C</u> onversat	Invoke1	]							
Create Variable									
Name:       Invoke 1_query_InputVariable         Iype:       {http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application7/QueryP         Image:									
Help	ОК С	Cancel							
Operat Variables <u>I</u> nput:		[							
Output	: •	0							
<u>H</u> elp	<u>A</u> pply OK C	Cancel							

Figure 11 - 73 Create Variable

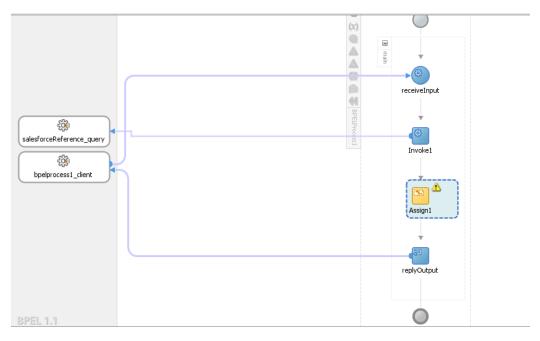
 Create an output variable from the partner link by clicking the '+' button adjacent to Output text box in the Variables section. The Create Variable dialog is displayed, as shown in Figure 11-74.

Tedit Invoke	22						
Assertions Skip Condition General Correlations	Headers Sources Targets s Properties Annotations						
Name: Invoke1							
Conversation ID:							
O Create Variable							
Name: Invoke1_query_Output	utVariable						
<u>Type:</u> {http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application7/Quer							
	) <u>L</u> ocal Variable						
Help	OK Cancel						
Operation: 🐚 query	▼						
Variables							
Input: Invoke1_query	y_InputVariable 🕂 🔩						
Output:	🕂 🔍						
Help	Apply OK Cancel						

Figure 11 - 74 Create Variable

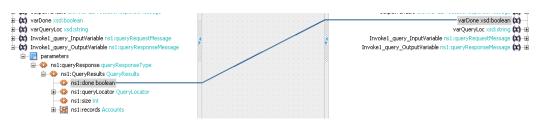
8. Introduce Assign activity right after the invoke activity, as shown in Figure 11-75.

#### Figure 11 - 75 Introduce Assign activity



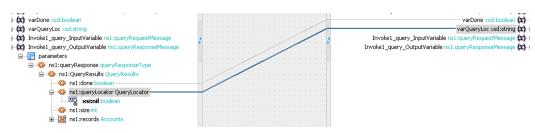
**9.** Inside the Assign activity, assign the value of "Invoke1\_query\_OutputVariable/done" variable to "varDone" variable, as shown in Figure 11-76.

Figure 11 - 76 Wire the Assign activity



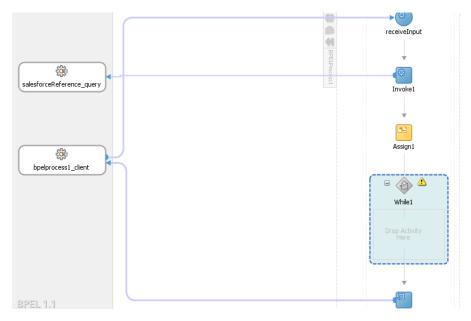
- **10.** Next, assign the value of "Invoke1\_query\_OutputVariable/queryLocator" variable to "varQueryLoc" variable in the same Assign activity, as shown in Figure 11-77.
- 11. Click on Apply and then OK.

Figure 11 - 77 Wire the Assign activity



**12.** Add a While activity after the Assign activity, as shown in Figure 11-78. While activity is used to introduce iterations in the BPEL flow.

Figure 11 - 78 Add a While activity



**13.** Double-click on the While Activity, a dialog box appears where you can specify condition for the while loop. Here, provide the condition, as shown in Figure 11-79.

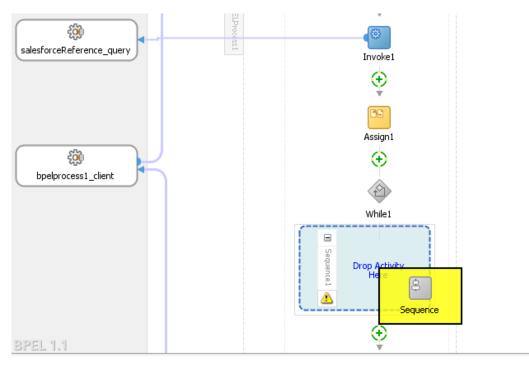
Figure 11 - 79 Edit While activity

Edit While				×
General Annotations	Skip Condition	Sources	Targets	
Name: While1				
Condition:				f <sub>x</sub>
\$varDone = false				
<u>H</u> elp	<u>A</u> pply		ж	Cancel

14. Click on Apply and then OK.

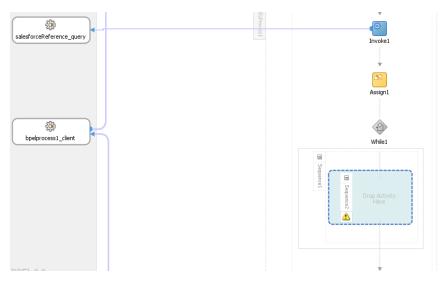
15. Drag and drop a Sequence Activity inside the While, as shown in Figure 11-80.

Figure 11 - 80 Add Sequence Activity



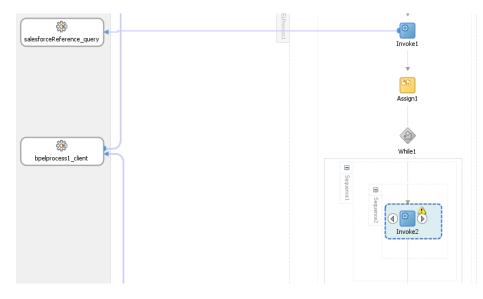
The While Activity will look like Figure 11-81.





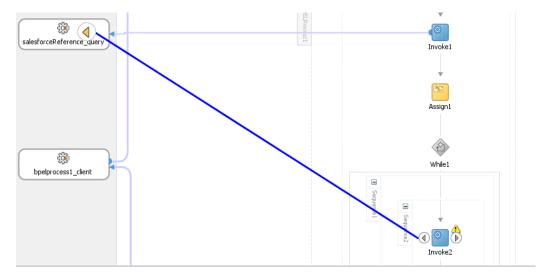
16. Drag and drop Invoke activity in the Sequence, as shown in Figure 11-82.

#### Figure 11 - 82 Add Invoke activity in the Sequence



 Wire this invoke activity to the partner link named "query", as shown in Figure 11-83.

Figure 11 - 83 Wire the invoke activity



**18.** An "Edit Invoke" dialog will appear. Create input and output variables for this invoke activity by clicking on "+" sign, as shown in Figure 11-84.

	p Condition Headers	Sources Targ	ets
General	Correlations	Properties	Annotations
lame:	Invoke2		
onversation ID:			<b>.</b>
etail Label:			
	Invoke as Detail		
<ul> <li><u>Interaction</u> T</li> </ul>	ype: 🔯 Partner Link 🔻	·] [	
Partner Role W	/eb Service Interface —		
Partner <u>L</u> ink:	salesforceReference_qu	ery	0
	"" I f D-f	Dent Trees	-
Port <u>Type</u> :	🖏 salesforceReference	e_queryPortType	
Port <u>Typ</u> e: O <u>p</u> eration:		e_queryPortType	<b>•</b>
		e_queryPorti ype	<b>•</b>
Operation:			- - -
Operation: Variables	n query	riable	- - - - - - - - - - - - - - - - - - -

Figure 11 - 84 Edit Invoke

**19.** Click on **Properties** tab in the same dialog. Search for the property named "jca.salesforce.queryLocator", as shown in Figure 11-85.

Assertions	Skip Condition	Headers	Sources	Targets	
General	Correlatio	ons	Properties		Annotations
Properties:					
Name		Va	ue	Туре	
jca.msmq.m	essage.BodyLeng	th			*
	essage.Delivery				
jca.msmq.m	essage.Id				
jca.msmq.m	essage.MaxTimeT	oRe			
jca.msmq.m	essage.Priority				
jca.msmq.m	essage.SentTime				
	essage.TimeToLiv				
jca.salesfor	ce.AllOrNoneHead	er.a			
-	ce.HttpTimeout				
	ce.LocaleOptions.	_			
-	ce.QueryOptions.	batc			
	ce.queryLocator				
-	ce.response.debu				
-	ce.response.limitI				
-	ce.response.limitI	nfo.li			
jca.socket.ł					
jca.socket.p	oort				-
Fit to Wi	dth				

Figure 11 - 85 Properties Tab

**20.** Browse for the variable by double-clicking on the button shown in Figure 11-86.

General Correlations	Propertie	es Anno	tations
Concidentia	Tropera		cordonio
Properties:			
Name	Value	Туре	
jca.msmq.message.BodyLength			
jca.msmq.message.Delivery			
jca.msmq.message.Id			
jca.msmq.message.MaxTimeToRe			
jca.msmq.message.Priority			
jca.msmq.message.SentTime			
jca.msmq.message.TimeToLive			
jca.salesforce.AllOrNoneHeader.a	i		
jca.salesforce.HttpTimeout			
jca.salesforce.LocaleOptions.lang			
jca.salesforce.QueryOptions.batc			0
jca.salesforce.queryLocator		i put	
jca.salesforce.response.debugLog	-		
jca.salesforce.response.limitInfo.			
jca.salesforce.response.limitInfo.l	i		
jca.socket.host			
jca.socket.port			
<ul> <li>Fit to Width</li> </ul>			

Figure 11 - 86 Browse for the variable

**21.** Adapter Property Value dialog box is displayed. Click on the Search, as shown in Figure 11-87.

ssertions Skip Condition He	aders	Sources	Targets	
General Correlations		Properties		Annotations
roperties:				
Name	Valu	e	Туре	
ica.msmq.message.BodyLength				
Adapter Property Value				×
				Q
				<b>⊲</b>
			ОК	Cancel
	_		ок	Cancel
ca.salesforce.queryLocator	_		ОК	Cancel
ca.salesforce.queryLocator ca.salesforce.response.debugLog			OK	Cancel
ca.salesforce.queryLocator			OK	Cancel
ca.salesforce.queryLocator ca.salesforce.response.debugLog ca.salesforce.response.limitInfo			OK	Cancel
ca.salesforce.queryLocator ca.salesforce.response.debugLog ca.salesforce.response.limitInfo ca.salesforce.response.limitInfo.li			OK	Cancel
ca.salesforce.queryLocator ca.salesforce.response.debugLog ca.salesforce.response.limitInfoi ca.salesforce.response.limitInfo.li ca.socket.host			OK	Cancel

Figure 11 - 87 Search Property Value

22. Select the variable varQueryLoc and click OK, as shown in Figure 11-88.

Assertions Skip Cor		ers Sources	Targets	
General C	Correlations	Properties	;	Annotations
Properties:				
Name		Value	Туре	
jca.msmq.message.Bo	odyLength			
👩 Adapter Proper	ty Value			×
	pression			
			ОК	Cancel
			ок	Cancel
varQueryLoc	ocator		OK input	Cancel
varQueryLoc jca.salesforce.queryL jca.salesforce.respon	ocator se.debugLog			Cancel
varQueryLoc jca.salesforce.queryL jca.salesforce.respon jca.salesforce.respon	.ocator ise.debugLog ise.limitInfo			Cancel
varQueryLoc ica.salesforce.queryL ica.salesforce.respon ica.salesforce.respon ica.salesforce.respon	.ocator ise.debugLog ise.limitInfo			Cancel
varQueryLoc jca.salesforce.queryL jca.salesforce.respon jca.salesforce.respon jca.salesforce.respon jca.socket.host	.ocator ise.debugLog ise.limitInfo			Cancel
varQueryLoc jca.salesforce.queryL jca.salesforce.respon jca.salesforce.respon jca.salesforce.respon	.ocator ise.debugLog ise.limitInfo			Cancel

Figure 11 - 88 Select the variable varQueryLoc

**23.** Click on **OK** and select the **Type** as **input**, as shown in Figure 11-89.

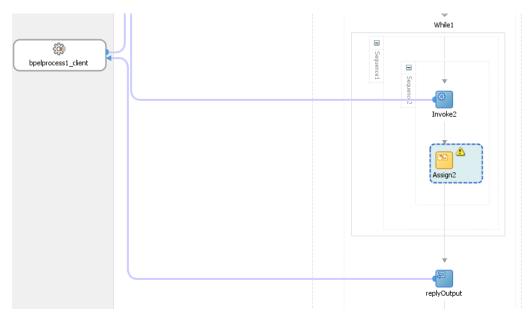
ssertions	Skip Condition	Headers	Sources	Targets	
General	Correlatio	ons	Properties	An	notations
Properties:					
Name		Va	lue	Туре	
jca.msmq.m	essage.BodyLeng	th			
jca.msmq.m	essage.Delivery				
jca.msmq.m	essage.Id				
jca.msmq.m	essage.MaxTimeT	oRe			
jca.msmq.m	essage.Priority				
jca.msmq.m	essage.SentTime				
jca.msmq.m	essage.TimeToLiv	e			
jca.salesfor	ce.AllOrNoneHead	er.a			
jca.salesfor	ce.HttpTimeout				
jca.salesfor	ce.LocaleOptions.	ang			
-	ce.QueryOptions.				0
	ce.queryLocator		QueryLoc//	input	-
-	ce.response.debu			input	
•	ce.response.limitIr			output	
•	ce.response.limitIr	nfo.li			
jca.socket.h					
jca.socket.p	port				-
Eit to Wie	dth				

Figure 11 - 89 Select the Type as input

24. Click on Apply and then OK.

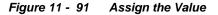
25. Drag and drop the Assign activity in the While Sequence, as shown in Figure 11-90.

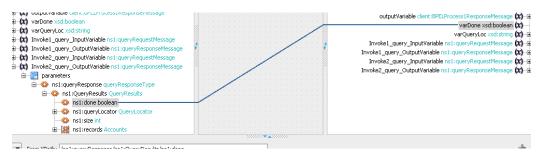
Figure 11 - 90 Drag and drop Assign activity



26. Double-click on Assign activity, and assign the value of

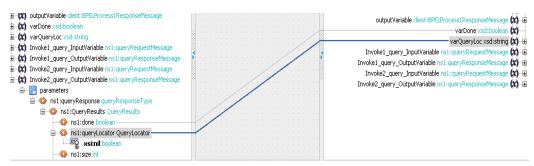
"Invoke2\_query\_OutputVariable/done" variable to "varDone" variable, as shown in Figure 11-91.





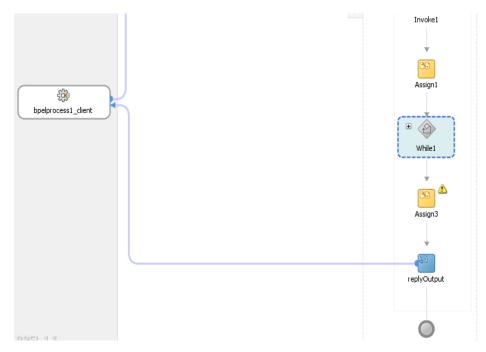
**27.** Assign the value of "Invoke2\_query\_OutputVariable/queryLocator" variable to "varQueryLoc" variable, as shown in Figure 11-92.

Figure 11 - 92 Assign the Value



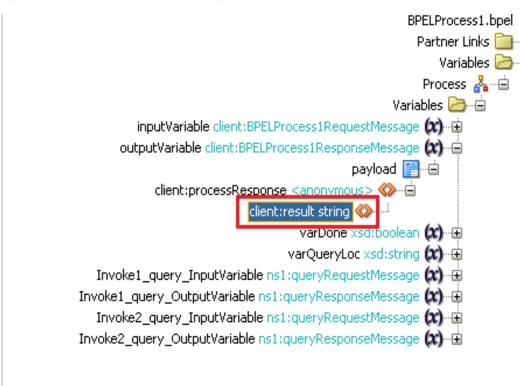
- **28.** Click on **Apply** and then **OK**.
- **29.** Drag and drop **Assign** activity right after the **While** activity, as shown in Figure 11-93.

Figure 11 - 93 Drag and drop Assign activity



**30.** Double click on **Assign** activity and look for the variable **processresponse/result**, as shown in Figure 11-94.

Figure 11 - 94 Double click on Assign activity



**31.** Drag and drop the Expression over to this variable, as shown in Figure 11-95.

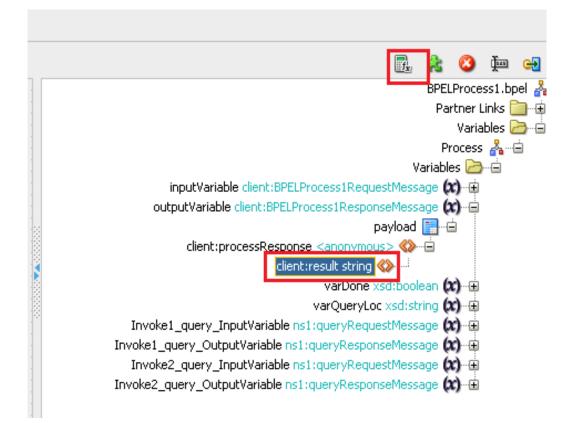


Figure 11 - 95 Drag and drop the Expression over to this variable

**32. Expression Builder** dialog box is displayed. Provide an expression value, as shown in Figure 11-96.

Figure 11 - 96 Expression Builder Dialog

Expression Builder  Build an expression by typing directly into the Expression field, using Ctrl+ fragment editors below the Expression field.  Expression:  Process Completed	Space for XPath assistance if available, and/or insert fragments from the
🔥 Insert In	to Expression
BPEL Variables	Functions
Variables  Variables  Variables  Variables  Variable client:BPELProcess1RequestMessage  VarDone xsd:boolean  VarDone xsd:boolean  VarQueryLoc xsd:string  Novoke1_query_InputVariable ns1:queryRequestMe  Novoke1_query_DutputVariable ns1:queryRespons  Novoke1_query_InputVariable ns1:queryRespons  Novoke1_queryRespons  Novoke1_query	String Functions
Content Preview: xp20:compare()	]
Description: Returns the lexicographical difference between inputString and cor both the strings. Returns -1 if inputString lexicographically precede compareString are equal. Returns 1 if inputString lexicographically f	s the compareString. Returns 0 if both inputString and

- 33. Click OK.
- 34. In the Assign activity, click on Apply and then OK.

# **Deploy the Composite**

Perform the following steps to deploy the composite.

1. In the Application Navigator pane, right-click Project1 and select Deploy -> **Project1**, as shown in Figure 11-97.

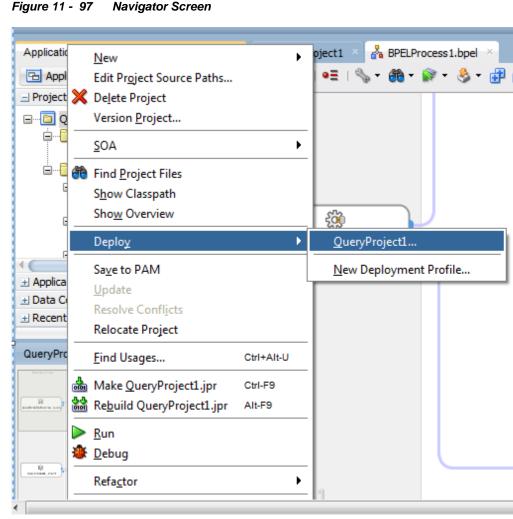


Figure 11 - 97 **Navigator Screen** 

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

## Test the Composite

Perform the following process to test the composite.

- 1. Login to Enterprise Manager Console for the server you deployed your project on.
- 2. Open QueryProject1
- 3. Click the **Test** button to test the Web service, as shown in Figure 11-98.

#### Figure 11 - 98 Test Tab

_	UERYPRO	o <b>ject1 [1</b> site 🕶	.0]									
		ire	Shut Down			Settings.	_	9				
Da	shboard	Composite	e Definition	Flow Instan	ices	Unit Tests	Policies	3				
	Compo											

Since we are not mapping the input variable anywhere, you can provide any random input here.

4. Click on **Test Web Service** button, as shown in Figure 11-99.

```
Figure 11 - 99 Test Web Service
```

```
      Test Web Service
      Test Web Service

      Use this page to test any WSDL or WADL, including WSDLs or WADLs that are not in the farm. To test a Web service, enter the WSDL or WADL and click Parse WSDL or WADL. When the page refreshes with the WSDL or WADL details, first select the Service, then select the Port/Method, and then select the Operation/Media type that you want to test. Specify any input parameters, and click Test Web Service.

      WSDL or WADL
      http://HOSMDM04.bcone.com:7003/soa-infra/services/default/QueryProject1/bpe/process1_clent_ep?WSD Q
      Parse WSDL or WADL
```

```
HTTP Basic Auth Option for WSDL or WADL Access
```

**5.** After successful execution the response contains the expression that you provided in the last assign activity, as shown in Figure 11-100.

Figure 11	- 100	Execution	Window
-----------	-------	-----------	--------

Li ce view 💽

A new composite instance was generated	Launch	Flow Trace
Name	Туре	Value
⊽ payload	payload	
result	string	Process Completed

**6.** Click the **Launch Flow Trace** button to view the **Audit Trail**, as shown in Figure 11-101.

Figure 11 - 101	Launch Flow Trace
-----------------	-------------------

low Trace ③ is page shows the flow of the message thro	ugh various composite and component i	nstances. 🔋	-	Data Refreshed
Faults (0)				
aults				
Select a fault to locate it in the trace view.				
Error Message			Recovery	Fault Time Fault Location C
≥ Sensors (0)				
race Click a component instance to see its detailer	d audit trail.			
ace Click a component instance to see its detailer show Instance IDs	d audit trail. Type	Usage	State	Time Composite Instance
race Click a component instance to see its detailer Show Instance IDs		Usage V Service	State ✔ Completed	
ace Lick a component instance to see its detailer show Instance IDs	Туре			Jan 7, 2014 2:43:25 PM QueryProject1 of 1150148
Tace Tace Tace Tace Tace Tace Tace Tace	Type Web Service		<ul> <li>Completed</li> </ul>	Jan 7, 2014 2:43:25 PM QueryProject1 of 1150148 Jan 7, 2014 2:43:39 PM QueryProject1 of 1150148
ace lick a component instance to see its detailed how Instance IDs □ Instance ♥ \$ bpelprocess1_client_ep ♥ \$ BPELProcess1	Type Web Service BPEL Component	Service	Completed Completed	Jan 7, 2014 2:43:25 PM QueryProject1 of 1150148 Jan 7, 2014 2:43:39 PM QueryProject1 of 1150148 Jan 7, 2014 2:43:36 PM QueryProject1 of 1150148
race Click a component instance to see its detailed show Instance IDs  Totance            Instance         Instance           Instance         Instance	Type Web Service BPEL Component JCA Adapter	Service	<ul> <li>Completed</li> <li>Completed</li> <li>Completed</li> </ul>	Time         Composite Instance           Jan 7, 2014 2:43:25 PM QueryProject1 of 1150148           Jan 7, 2014 2:43:39 PM QueryProject1 of 1150148

7. The Audit Trail will look like Figure 11-102.

## Figure 11 - 102 Audit Trail

Audit Trail Flow Sensor Valu	es Faults
Expand a payload node to view the details.	
▼ <process> ▼ <main (88)=""></main></process>	
⊽ 🕬 receiveInput	
▼ Jan 7, 2014 3:57:57 PM ▷ <payload></payload>	Received "process" call from partner "bpelprocess1_client"
🗸 🥠 Invoke1	
Jan 7, 2014 3:57:57 PM	Started invocation of operation "query" on partner "query".
✓ Jan 7, 2014 3:58:01 PM View XML Document	Invoked 2-way operation "query" on partner "query".
🗸 📑 Assign 1	
▼ Jan 7, 2014 3:58:01 PM ▷ <b><payload></payload></b>	Updated variable "varDone"
▼ Jan 7, 2014 3:58:01 PM ▷ <b><payload></payload></b>	Updated variable "varQueryLoc"
Jan 7, 2014 3:58:01 PM ▼ <while1 (109)=""></while1>	Completed assign
🗸 🛃 count loop	
Jan 7, 2014 3:58:01 PM ▼ <sequence1 (110)=""></sequence1>	Begin loop 1, condition "\$varDone = false" is evaluated to true
🗸 🥠 Invoke2	
Jan 7, 2014 3:58:01	PM Started invocation of operation "query" on partner "query".
Jan 7, 2014 3:58:01	PM Sending property "jca.salesforce.queryLocator", value is "01g90000002TdmMAAT-200"
✓ Jan 7, 2014 3:58:06 View XML Document	PM Invoked 2-way operation "query" on partner "query".
∇ Assign2	

**8.** Click on **Flow** tab, The Flow tab will look like Figure 11-103.

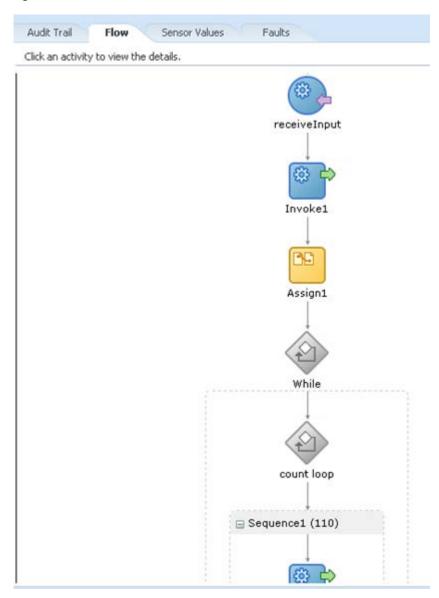


Figure 11 - 103 Flow Tab

**9.** Click on any invoke activity inside the While loop, here you can see how the value of queryLocator is being passed, as shown in Figure 11-104.

#### Figure 11 - 104 Invoke 2

#### 🐗 Invoke2

```
[2014/01/07 15:58:01]

Started invocation of operation "query" on partner "query".

[2014/01/07 15:58:01]

Sending property "jca.salesforce.queryLocator", value is "01g9000000ZTdmMAAT-200".

[2014/01/07 15:58:06]

Invoked 2-way operation "query" on partner "query".

<u>View xml document</u>
```

# 11.3. Creating Integration using Oracle Cloud Adapter for Salesforce.com without internet connection or when Salesforce.com is down.

## **Overview:**

The following scenario walks you through a simple integration wherein user creates a new Account on Salesforce.com using Oracle Cloud Adapter for Salesforce.com using the offline configuration capability of the Oracle Cloud Adapter for Salesforce.com. This method of adapter configuration can be used in case you do not have access to the internet while creating SOA composites or if Salesforce.com is down due to some reason. It can also be used to save unnecessary login calls to Salesforce.com while creating the composites.

## Configuring the Oracle Cloud Adapter for Salesforce.com in Offline Mode:

- Follow steps 10 to 20 of the section "Creating the BPEL Process" of <u>chapter 5-</u> <u>Integration with Different Service Components</u> of this guide".
- 2. Click on the Offline Configuration checkbox, as shown in Figure 11-105.

#### Figure 11 - 105Offline Configuration checkbox

Salesforce Cloud Adapter Configuration	ion Wizard - Step	2 of 5		X	
Salesforce Cloud Server Conne	ection			*	
A Salesforce Cloud Server connection is req	uired to access the	operations and	business objects a	vailable.	
WSDL Location:       eloper \mywork \BpmA;         Authentication Key:       SFDC_USER         Offline Configuration		:t_AccountMult	iple \SOA \WSDLs \Er	nterprise.wsdl  隆	
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel	

3. Click Yes to download the metadata to cache, as shown in Figure 11-106.

Figure 11 - 106 Metadata Dialog Box



**4.** Wait while the metadata is downloaded and stored in cache, as shown in Figure 11-107.

Figure 11 - 107 metadata is downloaded

👌 Salesfo	orce (	Cloud Adapter Configuration Wizard - Step 2 of 5	x
Salesfo	rce	Cloud Server Connection	3
A Salesfor	rce Cl	Cloud Server connection is required to access the operations and business objects available.	
WSDL Loc	ation	eloper\mywork\BpmApplication\BpmProject_AccountMultiple\SOA\WSDLs\Enterprise.ws	sdl 🔞
<u>A</u> uthentic	ation		
<mark> </mark>	e Con		
Clear (	Cachi	Cancel	
<u>T</u> est C	onne	ection	
Hel	р	< <u>B</u> ack <u>N</u> ext > Einish Car	ncel

**5.** Click **Next**. [Notice that the user is disconnected from the internet (marked by red box)], as shown in Figure 11-108.

Salesforce Cloud	Adapter Configuration Wizard	d - Step 2 of 5		×
Salesforce Clou	d Server Connection		0101010101010101010	*
A Salesforce Cloud S	erver connection is required to ac	cess the operations and	business objects ava	ilable.
WSDL Location:	eloper\mywork\BpmApplication\B	pmProject_AccountMulti	ple\SOA\WSDLs\Ente	erprise.wsdl 🔞
Authentication Key:	SFDC_USER	- + / 🗙		
✓ Offline Configura	tion			
Olear Cache				
Test Connection				
Help	< <u>B</u> ad	k <u>N</u> ext >	Einish	Cancel
		é 🔺		
		õ 🔺 🗧	8 😠 🖬 🗣 🏴	

Figure 11 - 108 User is disconnected from the internet

**6.** The adapter configuration wizard moves to Cloud Operation Configuration page, as shown in Figure 11-109.

Salesforce Cloud	Adapter Configuration Wizard - Step 2 of 5	23
Salesforce Clou	ud Server Connection	5
A Salesforce Cloud S	erver connection is required to access the operations and business objects available.	
WSDL Location:	C:\JDeveloper\mywork\Application2\Project1\SOA\WSDLs\####+_New_WSDL.wsdl	1
Authentication Key:	SFDC_USER 💌 🕂 🥢 🗙	
✓ Offline Configura	ition	
<u>C</u> lear Cache		
Test Connection		
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Can	icel
	🚔 🔺 😽 🏴 🚜 💾 🕪	

Figure 11 - 109 Cloud Operation Configuration page

7. Follow step 24 to 46 of the section "Creating the BPEL Process".

# 11.4. How to use MDS for importing WSDL into JDeveloper?

Oracle Metadata Services (MDS) provides a unified store for Metadata and ensures reliable access to metadata for fusion middleware artifacts like XSD, WSDL, etc. This Use Case intends to make you familiar with how Enterprise WSDL placed in MDS can be used in Oracle cloud adapter for Salesforce.com. It first provides a brief introduction about placing the Enterprise WSDL in MDS and then explains you how this file can be used in the Oracle Cloud Adapter for Salesforce.com.

#### Steps to Place Enterprise WSDL in MDS:

- 1. Create SOA Application.
- 2. Create an MDS connection.
- 3. Transfer artifacts to MDS.

### **Create SOA Application**

Follow the steps from 1-32 of section <u>11.1.1 Creating the BPEL Process</u> for the use case 11.1 How can I build integration in which the SOA client is not interested in the response?

#### Create an MDS connection.

Now you need to create a new MDS connection for you application.

1. For this, press Ctrl+N and search for SOA-MDS Connection option and select it, a new window will pop up asking for MDS connection details Popup window has been shown in Figure 11-110.

Figure 11 -	110	Create SOA-MDS Connection
Figure 11 -	110	Create SOA-MDS Connection

Create SOA-MD	S Connection	x
	or a Database-based connection in the Resource o a MetaData Service (MDS) Server.	h
Create connection in Co <u>n</u> nection Name: MDSConnection 1	• O Application Resources ( IDE Connections	
Connection Type:		
DB Based MDS		•
Connection: Conn	ection1 🔹 🕂 🥢	~
User Name:	SFDCFEB3_MDS	
Driver:	oracle.jdbc.OracleDriver	
Connect String	; jdbc:orade:thin:@//10.30.32.76:1521/soa76	
Select MDS partition:	:	
soa-infra		-
Test Connection		_
Status		
<u>H</u> elp	OK Cancel	

For this Use Case we will be using the connection type as DB Based MDS. To enter DB connection details, please click on "+". You will see the Create database connection pop-up as shown in Figure 11-111. Please enter the connection details as per your installation and DB configuration of the SOA SUITE.

👌 Create Database	e Connection	The Tenner of	×
Configure a new da	tabase connection and add it to the current applic	ation (Application)	ı). 🔂
Cre <u>a</u> te Connection I	In: 🛃 IDE Connections		
Connection Name:	Connection 1		
Connection Type:	Oracle (JDBC)		
<u>U</u> sername:		<u>R</u> ole:	-
Password:		✓ Save Pass	word
- Oracle (JDBC) Set	ttings		
Enter Custom <u>J</u>	DBC URL		JDBC Parameters
Driv <u>e</u> r:	thin	•	
Host Name:	localhost		JDBC Port: 1521
	XE		
○ Ser <u>v</u> ice Name:	XE		
_			
Test Connection			
Help		OK	Cancel

Figure 11-111 Create Database Connection

 Once the connection has been established with MDS, under the Resources tab, in IDE Connections, you will see the SOA-MDS connection as shown in the Figure 11-112.

Figure 11-112 Create Database Connection

Components	Resources ×			
😭 - 🔍 Nar	me			
± My Catalogs				
IDE Connectio	Ins			
🕀 📷 Applicatio	n Server			
🗄 🗟 Database				
🖮 📲 SOA-MDS				
🖨 📲 MDSC	Connection 1			
🕀 🛅 a	ipps			
🗄 🛅 soa				
🖮 🖏 SOA_	DesignTimeRepository			
· 🛅 a	apps			

## **Transfer Enterprise WSDL to MDS**

 In your project, Under WSDL's directory, right-click on the Enterprise WSDL and select the Share using SOA Design-Time MDS Repository as shown in the Figure <u>11-113</u>.

□.... Project1 🗄 💼 Resources Open 🖮 🫅 SOA ----- Adapters X Delete 🗄 📲 🛅 BPEL Exclude Project Content Events Validate XML 🗄 📲 Schemas SOA ٠ 🗄 📄 testsuite --- 🛅 Transfori Explore Dependencies 🖮 🦳 WSDLs @ BPEL 🔙 <u>R</u>eformat Alt+Shift-F Ø Sales Refactor ۲ 🔏 measurei 📲 Project1 Compare With ۲ Replace With ٠ 🔊 SAP Adapter Migration Tool Test Web Service Validate WSDL WS-I Analyze WSDL ... Application Resources ± Data Controls Generate Web Service Proxy... ± Recent Files Create Web Service... Regenerate Web Service from Source SalesForceEnterpriseAP Regenerate Web Service from WSDL 12 💏 Ctrl+Shift-C Copy Path Source Design Share using SOA Design-Time MDS Repository

Figure 11-113 SOA Design-Time MDS Repository

2. Now you will see a SOA-MDS Transfer Wizard as shown in the Figure 11-114.

## Figure 11-114 SOA-MDS Transfer Wizard

O SOA-MDS Transfer Wizard - Step 1 of 4		
Welcome		
Welcome	Welcome to the SOA-MDS Transfer Wizard	
Choose Target Dependencies References	This will transfer SalesForceEnterpriseAPI.wsdl to SOA-MDS design time repository. Design-time repository is defined in adf-config.xml. If no design-time repository is defined in adf-config.xml, then by default SOA_DesignTimeRepository connection will be used. The wizard will transfer the selected file and all the files, in the current project, that this file depends on. The relative path would be maintained while transferring dependent files. For e.g. if CustomerOrder.wsdl file is importing a XSD file as '/Schemas/Customer.xsd', then on transferring this WSDL file, relative path to the schema will be maintained in the target SOA-MDS repository. Remote references, (http, oramds etc. URLs) will not be modified. All files will be transferred under '/apps' or its sub-folders. Before proceeding please dose all the open editors.	
Help	< Back Next > Einish Cancel	

3. Click on the Next button and you will see 'apps' folder as shown in the Figure 11-115. You can also notice the Transfer Location.

Figure 11 - 115 SOA-MDS Transfer Wizard

O SOA-MDS Transfer Wiza	ard - Step 2 of 4	X
Choose Target		
Welcome         Choose Target         Dependencies         References	Transfer File:  SalesForceEnterpriseAPI.wsdl Select target SOA-MDS Folder:  Search SOA-MDS  /apps //apps Transfer Location: /apps/SalesForceEnterpriseAPI.wsdl	
Help	< <u>B</u> ack <u>N</u> ext > Einish	Cancel

4. Click Next, You will see what all files are being transferred and you can also note MDS URL of the WSDL File as shown in Figure 11-116.

Figure 11 - 116 SOA-MDS Transfer Wizard

O SOA-MDS Transfer Wizard - Step 3 of 4			
Dependencies			
O Welcome	Following files will be transferred to the ta	rget SOA-MDS connection.	
	File Name	Target URL	
Choose Target	@ SalesForceEnterpriseAPI.wsdl	oramds:/apps/SalesForceEnterpriseAPI.wsdl 🖋	
Dependencies			
<u>References</u>			
	Overwrite if document exists in the tai	get MDS repository	
Help	< <u>B</u> ack	Next > Einish Cancel	

5. Click Next, You can see what all files would be updated with the oramds URLs Figure 11-117.

Figure 11 - 117 SOA-MDS Transfer Wizard

O SOA-MDS Transfer Wiza	ord - Step 4 of 4				×
References					
Q Welcome	Following referenced fi Show references to:	iles will be update All	ed with the appropr	iate oramds URLs.	•
Choose Target     Dependencies		File Name		Target URL	
References					
Help		< <u>B</u> ack	Next >	<u>F</u> inish	Cancel

6. Click **Finish** to transfer the WSDL to SOA\_DesignTimeRepository. Please note that once the file is transferred then it is no more part of your SOA project. Check your resources palette now. Expand SOA-MDS connection to see the transferred file as shown in the Figure 11-118.

Figure 11 - 1118 After Transferring WSDL to SOA\_DesignTimeRepository

Applications · R	Page Anopect1	Components Reference - salesfor Resources		
Application1 • •	🗸 🕂 🖼 🗙 🖏 🖽 🕲 🕲 🖓	e a 9	Project1	9 - Q+ Name
Projects     Projects	Exposed Services	Components	External References *	If Yo Catalogs If Connectors If C

 Now to transfer WSDL File from SOA\_DesignTimeRepository to Target MDS Connection, Right-Click on the SOA\_DesignTimeRepository and select the Transfer option as shown in the Figure 11-119.

Figure 11 - 1129 Transfer from SOA\_DesignTimeRespository

Components	Resource	s ×	
🗳 - 🔍 Nan	ne		
+ My Catalogs			
- IDE Connection	ns		
Application     Application     Database     SOA-MDS	n Server		
🖶 📲 🖁 MDSC			
i⊒•₩ SOA_I			
🖻 🫅 ar		<u>F</u> ilter	
(e	Sale	Advanced Search	I
	62	<u>R</u> efresh	Ctrl-R
		Add to <u>C</u> atalog	
		Add to Application	I
		Export	
	×	<u>D</u> elete	Delete
	Q.	Pr <u>o</u> perties	
		Export to Jar	
		Import from Jar	
		Transfer	

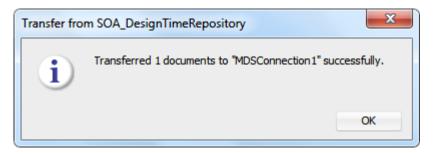
**8.** In the pop-window, select the Enterprise WSDL and click on **Transfer** as shown in the Figure 11-120.

Transfer from SOA_DesignTimeRepository		x	J
Select documents to transfer:			
		2	
SalesForceEnterpriseAPI.wsdl			
Preview: (1 documents selected)			
Target Connection: MDSConnection1	• 🕂	0	
<u>H</u> elp Transfer	Cancel		

Figure 11 - 120 Transfer from SOA\_DesignTimeRespository

**10.** You will get a confirmation message after file has been transferred to target MDS connection as shown in the Figure 11-121

Figure 11 - 121 Confirmation for Transfer of WSDL File to MDS Connection



# Using Enterprise WSDL placed at MDS in Oracle Cloud Adapter for Salesforce.com.

1. To make use of the WSDL file that is placed in MDS, Open the Adapter in Edit mode and navigate to the connection page as shown in Figure 11-122.

Figure 11 - 122	Connection Page	in Edit Mode
-----------------	-----------------	--------------

Salesforce Cloud Adapter Configuration	ation Wizard - Ste	p 2 of 5		X
Salesforce Cloud Server Conn	nection	01010101		*
A Salesforce Cloud Server connection is re	equired to access th	e operations ar	nd business objects a	vailable.
WSDL Location: C:\JDeveloper\myw	ork\Application1\Pro	ject1\SOA\WSI	DLs\SalesForceEnter	oriseAPI.wsdl  🔞
Authentication Key: SFDC_USER	•	- + 🧷 >	¢	
Offline Configuration				
Clear Cache				
Test Connection				
Help	< <u>B</u> ack	<u>N</u> ext >	<u> </u>	Cancel

2. Click on the WSDL Chooser button and select SOA-MDS tab as shown in Figure <u>11-123.</u>

Figure 11 - 123 Connection page in edit mode

<b>WSDL</b> Choose	er		and the set of				×
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL		
Q Search SOA	MDC						69
	50175						
Selection:							
Help						ОК	Cancel

**3.** Expand apps folder and select the **Enterprise WSDL** as shown in Figure 11-124. This is the WSDL that was transferred to MDS in the previous steps.

## WSDL Chooser X 5 0. Project UDDI Application File System SOA-MDS WSIL Libraries Server ලිව Q Search SOA-MDS 🖃 💼 apps SalesForceEnterpriseAPI.wsdl Selection: oramds:/apps/SalesForceEnterpriseAPI.wsdl OK Cancel Help

#### Figure 11 - 124 WSDL Chooser Page

- 4. Subsequent steps for configuration would remain the same as in section 11.1.1 <u>Creating the BPEL Process</u> for the Use Case 11.1 <u>How can I build integration in</u> <u>which the SOA client is not interested in the response?</u>
- 5. In your JCA file, you can notice that the targetWSDLURL property has been updated with MDS file location see as shown in Figure 11-125.

#### Figure 11 - 125 Connection page in edit mode

6. Subsequent steps for deployment and testing would remain the same as mentioned in the use case 11.1 How can I build integration in which the SOA client is not interested in the response?.

# 11.5. How to use Debug Header (Response header)?

Perform the following steps to use debug header and response headers.

- 1. Create a New project in an existing application or in a new application.
- 2. Provide a suitable name to your project, as shown in Figure 11- 126.

👌 Create SOA Project - Ste	ep 1 of 2	3
Name your project	0101010101010101010101	
Project Name     Project SOA Settings	Project Name:       Project1         Directory:       C:\JDeveloper\mywork\Application12c\Project1       Browse	
	Project Features:	
	SOA Suite SOA Suite is a suite of tools to model SOA(Service Oriented Architecture) applications.	
<u>H</u> elp	< Back Next > Finish Cancel	

Figure 11 - 126 Name your project

**3.** Click **Next** and select **Composite with BPEL Process** from Standard Composite list, as shown in Figure 11- 127.

Figure 11 - 127 Configure SOA Setting

Create SOA Project - Step	o 2 of 2
Configure SOA setting	gs
Project Name	Composite Name: Project1 Start from:  Standard Composite  SOA Template Composite With Human Task Composite With BPEL Process Composite With Subprocess Composite With Business Rule Composite With Spring Composite With Mediator
Help	Customizable

- 4. Click Finish.
- 5. Select the Synchronous BPEL Process from Template drop-down and click OK, as shown in Figure 11- 128.

Figure 11 - 128	Create	BPEL	Process
-----------------	--------	------	---------

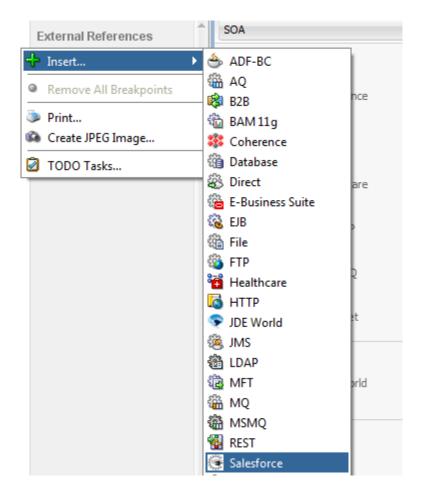
👩 Create BPE	L Process	< )
	<b>s</b> cess is a service orchestration, based on the BPEL specification, used to describe/execute a ocess (or large grained service), which is implemented as a stateful service.	
O BPEL 2.0 S	pecification <ul> <li>BPEL 1.1 Specification</li> </ul>	
<u>N</u> ame:	BPELProcess1	
Name <u>s</u> pace:	http://xmlns.oracle.com/Application12c/Project1/BPELProcess1	
Directory:	C:\JDeveloper\mywork\Application12c\Project1\SOA\BPEL	
Template:	😹 Asynchronous BPEL Process 🔹 🗸	
Service Name:	Asynchronous BPEL Process	
	One Way BPEL Process	
	Define Service Later	
	Base on a WSDL	
	Qutput: {http://xmlns.oracle.com/Application12c/Project1/BPELProcess1}processResponse	
Help	OK Cancel	

The composite.xml shown in Figure 11- 129. *Figure 11 - 129 Composite.xml* 

Exposed Services	Components	External References
bpelprocess1_client Operations:	BPELProcess1	
process processResponse		

6. In External References swim-lane of the composite.xml file, right-click and select Salesforce adapter, as shown in Figure 11- 130.

Figure 11 - 130 Salesforce adapter



7. The Salesforce Cloud Adapter Configuration Wizard - Welcome page is displayed, as shown in Figure 11- 131.



👔 Salesforce Cloud Adapter Configuration Wizard - Step 1 of 5					
Salesforce Cloud Adapter Reference	0101010101010101040404040555				
Welcome to the Adapter Configuration	Wizard				
This wizard helps you create a service using a Salesforce parameters and define an operation for the service.	Cloud Adapter. You will be asked to specify configuration				
Enter a Reference Name.					
Name: sfdc					
<u>H</u> elp < <u>B</u> ack	Next > Einish Cancel				

- 8. Click Next.
- **9.** The **Salesforce Cloud Server Connection** page is displayed. The **WSDL Location** and **Authentication Key** textboxes are already populated. It picks up these values from the cache. You can re-enter these values. If you want to use a different value, click the **Find existing WSDLs** icon, which is located to the right of the **WSDL Location** field, as shown in Figure 11- 132.

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					
Salesforce Cloud Server Connection	01010101010101010101010101010101010101				
A Salesforce Cloud Server connection is required to acc	ess the operations and business objects available.				
WSDL Location: file:/C:/JDeveloper/mywork/11g%	20for%2012c/DemoAppForMigration/S_E_B_01_002_0				
Authentication Key: SFDC_USER	🕞 🕂 🥒 🗙 👘 🕇				
Offline Configuration					
🗌 <u>Q</u> lear Cache					
Test Connection					
<u>H</u> elp < <u>B</u> ack	Next > Einish Cancel				

Figure 11 - 132 Salesforce Cloud Server Connection Page

**10.** The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in Figure 11- 133.

Figure 11 - 133 SOA Resource Browser

👌 WSDL Chooser	1		-				×
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL		
Location:	C:\WSDLs					- 🔾 🗘 😭	ŧΞ Ш
Homo	Eile Name: Ente File Iype: Web	Service Definition	on Files (*.wsdl)				
Help						ОК	Cancel

Note that as an alternative, you can store WSDL at an MDS location and access it, as shown in Figure 11-134.

Figure 11 - 134 SOA Resource Browser

🔊 WSDL Chooser	×
Application Server	
	নিয়
Q     Search SOA-MDS       Image: Constraint of the search source	
SalesForceEnterpriseAPI.wsdl	
Selection: oramds:/apps/SalesForceEnterpriseAPI.wsdl	
Help	OK Cancel

- **11.** Copy WSDL to Your Project Folder.
- 12. Traverse to IDE Connections  $\rightarrow$  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**.
- **13.** The WSDL location should be of the form 'oramds:/apps/SalesforceEnterpriseAPI.wsdl', as shown in Figure 11- 135.

👩 Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					
Salesforce Cloud	Server Connec	tion	010101010	10101010101010101010101010101010101010	*
A Salesforce Cloud Serv	er connection is requ	ired to access th	e operations and	l business objects av	vailable.
WSDL Location: C:	\JDeveloper \mywork	\Application 12c\P	Project1\SOA\WS	BDLs\Enterprise_WSI	DL_v29.wsdl 🔞
Authentication Key: SF	DC_USER	•	• + 🥖 🗙		
Offline Configuration	ı				
Clear Cache					
Test Connection					
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 11 - 135 WSDL location

- 14. Click OK.
- **15.** Click "+" button to create a new Authentication Key, as shown in Figure 11- 136.

👩 Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					
Salesforce Clou	Id Server Connection			*	
A Salesforce Cloud S	erver connection is required to ac	cess the operations an	d business objects av	vailable.	
WSDL Location:	C:\JDeveloper\mywork\Applicatio	on 12c\Project1\SOA\W	SDLs\Enterprise_WSI	DL_v29.wsdl 🔞	
Authentication Key:	SFDC_USER	<b></b> ×	:		
Offline Configura	tion	Add a new	authentication cre	dential to CSF key sto	
Olear Cache					
Test Connection					
Help	< <u>B</u> ad	< <u>N</u> ext >	Einish	Cancel	

Figure 11 - 136 Create a New Authentication Key

**16.** The **Add Credential** page is displayed, as shown in Figure 11- 137. Provide a suitable name and the Salesforce.com credentials. The password should be a combination of Salesforce.com password and Salesforce.com Security Token.

Figure 11 - 137 Add Credential

👩 Add Cre	edential 🗾	
and the ke	new password credential by supplying a user name, password ay alias. The new credential will be added to the m.security credential map.	
<u>U</u> ser ID:		
Password:		
<u>C</u> SF Key:		
Help	p OK Cancel	

**17.** Click **Test Connection** button to validate the Authentication Key, as shown in Figure 11- 138.

Salesforce Cloud A	dapter Configurat	ion Wizard - St	ep 2 of 5		×
Salesforce Cloud	Server Conne	ection	0101010		*
A Salesforce Cloud Serv	ver connection is rec	uired to access	the operations a	nd business objects a	available.
WSDL Location: C	:\JDeveloper \mywor	k\Application12d	\Project1\SOA\\	WSDLs\Enterprise_WS	SDL_v29.wsdl 🔞
Authentication Key: SF	FDC_USER		- 🕂 🥖 🎗	ĸ	
Offline Configuration	n				
Clear Cache					
Test Connection					
Success!					
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 11 - 138 Test Connection

18. Click Next.

**19.** Click **OK** in the next screen.

**20.** The **Cloud Operation Configuration** page is displayed, as shown in Figure 11- 139.

Salesforce Cloud Adapter Configura	ition Wizard - Step 3	3 of 5	×
Cloud Operation Configuration	n	01010101010101010191010	
Select a Salesforce Cloud Operation and	its primary business o	bjects and specify a uniqu	e WSDL Operation name.
Operation Category: CRUD 🔻	Api Version: 2	9.0	
SFDC Operation: create	WSDL Operation:	reate	
Business Objects  Available:  Account  AccountContactRole  AdditionalNumber  ApexClass  ApexComponent  ApexPage  ApexTestQueueItem  ApexTrigger  Approval  Approval  Suppress Response		Selected:	
Help	< <u>B</u> ack	Next > Eini:	sh Cancel

Figure 11 - 139 Cloud Operation Configuration Page

21. From the list of Operation Category, select CORE, as shown in the Figure 11- 140.

👌 Salesforce Cloud Adapter Configura	tion Wizard - Step	o 3 of 5	<b></b>
Cloud Operation Configuration	n	01	*
Select a Salesforce Cloud Operation and	its primary business	s objects and specify a unique	WSDL Operation name.
Operation Category: CORE	Api <u>V</u> ersion:	29.0	
SFDC Operation: convertLead ▼	WSDL Operation:	convertLead	]
Business Objects			
Available: Q+ filter		Selected:	~ ~
		E Lead	
	>		
	۷		
Suppress Response			
Help	< <u>B</u> ack	Next > Einish	Cancel

Figure 11 - 140 Select CORE

- **22.** For **SFDC Operation**, the **convertlead** operation will automatically be selected. Select **SFDC Operation** as **undelete**.
- 23. Select Lead from Available object, as shown in the Figure 11- 141.

Salesforce Cloud Adapter Configura	ation Wizard - Step 3 of 5	x
Cloud Operation Configuratio		
Select a Salesforce Cloud Operation and	d its primary business objects and specify a unique WSDL Operation nam	e.
Operation Category: CORE   SFDC Operation: undelete	Api <u>V</u> ersion: 29.0 WSDL <u>O</u> peration: undelete	
Business Objects         Available:         Qr         filter         Document         Event         Idea         IdeaComment         Lead         MailmergeTemplate         Note         Opportunity         Pricebook2         Broduct2         Suppress Response	Selected:	
<u>H</u> elp	< Back Next > Einish Cancel	

#### Figure 11 - 141 Select Lead object

**24.** After selecting **Lead** object, move it to the **Selected** object area, as shown in Figure 11-142.

3 Salesforce Cloud Adapter Configuration	tion Wizard - Step	3 of 5	×
Cloud Operation Configuratio	n	0101010101010101010	*
Select a Salesforce Cloud Operation and	its primary business o	objects and specify a unique	WSDL Operation name.
Operation Category: CORE	Api <u>V</u> ersion:	29.0	
SFDC Operation: undelete	WSDL Operation:	undelete	]
Business Objects         Available:       Q* filter         Document       Event         Idea       IdeaComment         MailmergeTemplate       Note         Opportunity       Pricebook2         Product2       Solution         Suppress Response		Selected:	
Help	< <u>B</u> ack	<u>N</u> ext > Einish	Cancel

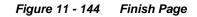
Figure 11 - 142 Select Lead object

- **25.** Click **Next**. The Headers and Properties page is displayed.
- **26.** On the Headers and Properties, enter the value of DebuggingHeader debugLevel as **DETAIL**. As shown in Figure 11- 143.

Salesforce Cloud Adap	ter Configuration Wiza	rd - Step 4 of 5		<b></b>
Header and Propert	ties	01010	1010101010101039393939393	*
Select Header properties fo	or selected Salesforce.co	m Cloud Operation		
Header Properties	<b>v</b>			
AllowFieldTruncationHeade				
DebuggingHeader:				
debugLevel:	DETAIL			
PackageVersionHeader.pa majorNumber: minorNumber: namespace:	ckageVersions:			
<u>H</u> elp	< <u>B</u> a	ack <u>N</u> ext >	Einish	Cancel

Figure 11 - 143 Header and Properties page, set value of DebuggingHeader

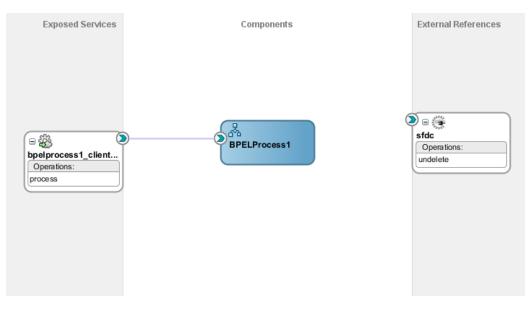
- 27. Click Next.
- **28.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation would operate and the headers selected for that operation, as shown in Figure 11- 144.



Salesforce Cloud Adapter Conf	figuration Wizard - Step 5 of 5	x
Finish	01010101010101010404045416	
salesforceReference When you click Finish, the wizard will	ng the Salesforce Cloud Adapter Reference : I create the 2c\Project1\SOA\WSDLs\salesforceReference.wsdl file in your project WSDL	.s
Selected Operation Name: undelete Selected Object(s) Name: [Lead] Selected SOAP Header: {Debuggingh	Header.debugLevel=DETAIL, AllOrNoneHeader.allOrNone=true}	
Help	< Back Next > Finish Cancel	

- **29.** Click the **Finish** button to complete adapter configuration.
- **30.** After clicking on **Finish** button, the following screen appears, as shown in Figure 11-145.

Figure 11 - 145 Composite Screen

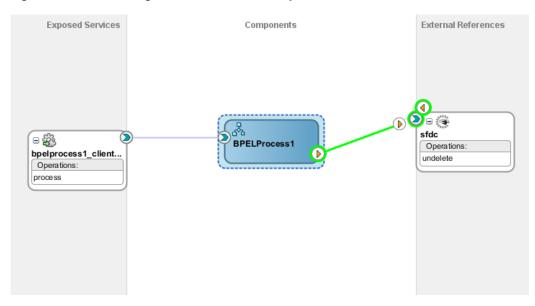


### Integration with BPEL

Perform the following steps for integration with BPEL:

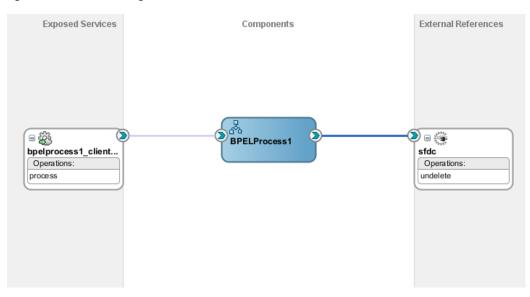
1. Connect **BPELProcess1** and **SFDC** via a wire, as shown in Figure 11-146.

Figure 11 - 146 Wiring BPELProcess1 and adapter



2. After wiring, your composite will look like Figure 11-147.

#### Figure 11 - 147 Wiring BPELProcess1 and undelete



**3.** Double-click and open **BPELProcess1**. The **sfdc** adapter should be present as part of the Partner Link, as shown in Figure 11- 148.

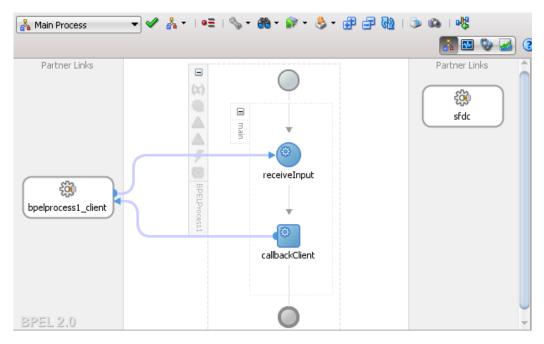


Figure 11 - 148 Open BPELProcess1

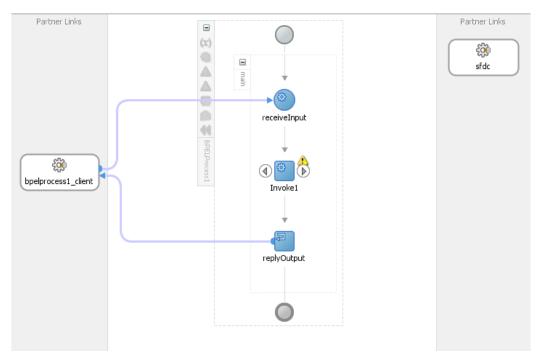
**4.** Create a variable **varDebugInfo** to track the debugLog returned in debuggingHeader from Salesforce.com, as shown in Figure 11- 149.

Figure 11 - 149 Variables Screen

🕜 Va	riables		<b>X</b>
<u>V</u> ariat	oles:		🖶 🖉 💥
	Name	Туре	QName
(x)	inputVariable	MessageType	client:BPELProcess1RequestMessage
(x)	outputVariable	MessageType	client:BPELProcess1ResponseMes
(x)	varDebugInfo	Simple Type	xsd:string
	now Namespace URIs		
			OK Cancel

5. Add an **invoke activity** to invoke the query Partner Link, as shown in Figure 11-150.

Figure 11 - 150 Invoke Activity



6. Edit Invoke dialog is displayed. Create an input variable to the partner link by clicking the '+' button adjacent to **Input** textbox in the **Variables** section. The **Create Variable** dialog is displayed, as shown in Figure 11-151.

👩 Edit Invo	ke		0				X
Assertion	_	o Condition Correlatio	Headers	Sources Properties	Targets	Annotatio	ons
<u>N</u> ame: <u>C</u> onversa	ition ID:	Invoke 1					
👌 Create V	ariable						×
<u>N</u> ame: <u>T</u> ype:	{http:/	1_undelete_ /xmlns.oracle pal Variable	e.com/pcbpe	l/adapter/sa	lesforce/A	pplication:	12c/Proje
Help					OK	0	ancel
Opera Variable <u>I</u> nput: Outpu	es	The undelete	2			- - - +	00 00
Help				<u>A</u> pply	ОК	C	ancel

Figure 11 - 151 Create Variable

 Create an output variable from the partner link by clicking the '+' button adjacent to Output textbox in the Variables section. The Create Variable dialog is displayed, as shown in Figure 11- 152.

Figure	11 -	152	Create	Variable
--------	------	-----	--------	----------

👌 Edit Invoke	0			X
Assertions Ski General	p Condition Heade Correlations	rs Sources Properties	Targets	Annotations
<u>N</u> ame: <u>C</u> onversation ID:	Invoke1			
👌 Create Variable				×
<u>T</u> ype: {http:	e1_undelete_OutputVa //xmlns.oracle.com/pcl bal Variable () Local V	opel/adapter/sal	esforce/Ap	plication 12c/Proje
Help			ОК	Cancel
Operation: Variables Input: Output:	Invoke1_undelete_In	putVariable		
Help		<u>A</u> pply	ОК	Cancel

**8.** Go the properties tab and locate jca.salesforce.response.debugLog and double click on the "..." button under values as shown in Figure 11- 153.

Assertions	Skip Condition	Headers	Sources	Targets	
General	Correlatio	ns	Properties		Annotations
Properties:					
Name			Value	Туре	
ica.msmo.m	essage.TimeToLive	•			
	ce.AllOrNoneHead				
,	ce.HttpTimeout				
-	ce.LocaleOptions.l	anguage			
	ce.QueryOptions.				
	ce.queryLocator				
jca.salesfor	ce.response.debu	gLog			
jca.salesfor	ce.response.limitIr	nfo.current			
jca.salesfor	ce.response.limitIr	nfo.limit			
jca.socket.ł	host				
jca.socket.p	port				-
jca.ums.bco	2				
jca.ums.cc					
jca.ums.com	nments				
jca.ums.dat					
jca.ums.fro	m				
jca.ums.in-r	reply-to				-
Fit to Wi	dth				

Figure 11 - 153 Properties Tab

**9.** In the AdapterPropertyValue dialog, click on search for the variable as shown in Figure 11- 154.

ssertions Skip Condition Headers		Targets	
General Correlations	Properties		Annotation
Properties:			
Name 🤝	Value	Тур	be
jca.salesforce.LocaleOptions.language			
Adapter Property Value			×
<u>Variable</u> <u>Expression</u>			Q
<u>Variable</u> <u>Expression</u>			Q
			•
<u>Variable</u> <u>Expression</u>	0	K	Cancel
	0	к	Cancel
jca.ums.date	0	К	Cancel
jca.ums.date jca.ums.from	0	ĸ	Cancel
jca.ums.date jca.ums.from jca.ums.in-reply-to	0	K	Cancel
jca.ums.date jca.ums.from jca.ums.in-reply-to jca.ums.keywords	0	ĸ	Cancel
jca.ums.date jca.ums.from jca.ums.in-reply-to jca.ums.keywords jca.ums.message-id	0	K	Cancel
jca.ums.date jca.ums.from jca.ums.in-reply-to jca.ums.keywords	0	κ	Cancel

Figure 11 - 154 Search Property Value

**10.** In the next dialog, click **varDebugInfo** variable and click **OK** as shown in Figure 11-155.

🕜 Variable XPath Builder	×
Variables  Variables  Variables  Variables  Variables  Variables  Variables  Variable client:BPELProcess1RequestMessage  VarDebugInfo xsd:string  VarDebugInfo xsd:string  Nrvoke1_undelete_InputVariable ns1:undeleteRequestMessage  Nrvoke1_undelete_OutputVariable ns1:undeleteResponseMessage  Nrvoke1_undelete_OutputVariable ns1:undeleteResponseMessage	
Show Detailed Node Information	
<u>X</u> Path:	
Help OK Ca	incel

Figure 11 - 155 Variable XPath Builder

**11.** After the variable is selected, click **OK** as shown in Figure 11-156.

Figure 11 - 1	56 Sele	ct variable
---------------	---------	-------------

Adapter Property Value		×
Variable      Expression		
varDebugInfo		<u> </u>
	OK	Cancel

12. Change the type to **Output** and click **OK**, as shown in Figure 11-157.

Figure	11 - 1	157	Select	Output
--------	--------	-----	--------	--------

ssertions	Skip Condition	Headers	Sources	Targe	ts	
General	Correlatio	ns	Properties		Annot	ations
roperties:						
Name 👻			Value	•	Туре	
ca.salesforce	.LocaleOptions.l	anguage				-
ca.salesforce	.QueryOptions.b	oatchSize				
ca.salesforce	.queryLocator					
ca.salesforce	.response.debug	gLog	varDebugI	info// 👔	nput	-
ca.salesforce	.response.limitIn	fo.current		ir	nput	
ca.salesforce	.response.limitIn	nfo.limit		a	utput	
ca.socket.hos	st					
ca.socket.por	rt					
ca.ums.bcc						
ca.ums.cc						
ca.ums.comm	ents					-
ca.ums.date						
ca.ums.from						
ca.ums.in-rep						
ca.ums.keyw						
ca.ums.messa	-					
ca.ums.metad	data.amount					-
Fit to Width	h					

13. Introduce Transform activity right before invoke activity, as show in Figure 11-158

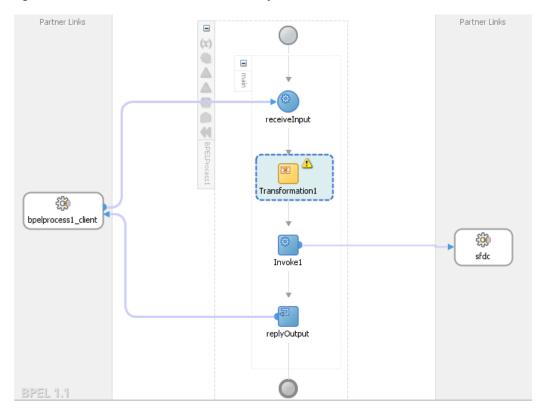


Figure 11 - 158 Introduce transform activity

**14.** Double-click on **Transform1** and add the source variable as inputVariable, as shown in Figure 11- 159.

Edit Transformation     S
Annotations Skip Condition Sources Targets
General Transformation
Source Variable
Source Variable:
(x) inputVariable
Source Part:
🖬 payload
Help OK Cancel
Mapper File: 1\SOA\Transformations\Transformation_1.xsl
Help Apply OK Cancel

Figure 11 - 159 Transformation Tab

**15.** Add the target variable "Invoke1\_undelete\_InputVariable" as shown in Figure 11-160, and click **OK**.

Edit Transformation	X
Annotations Skip Condition So General	urces Targets Transformation
Source:	👍 🥒 🗶 🕆 🐥
Variable	Part
inputVariable	payload
Target Variable:	T <u>a</u> rget Part:
(x) inputVariable	
(x) outputVariable	
<ul> <li>(x) varDebugInfo</li> <li>(x) Invoke 1_undelete_InputVariable</li> </ul>	
(x) Invoke1_undelete_OutputVariab	
Help	Apply OK Cancel

Figure 11 - 160 Add target variable

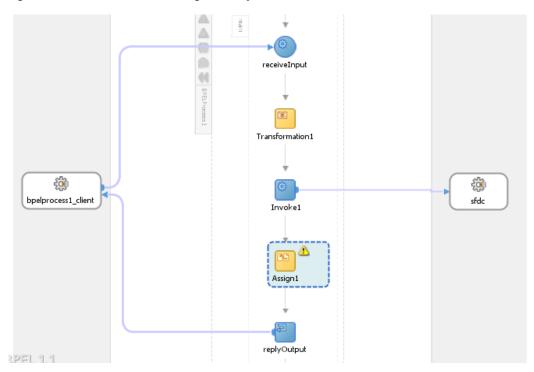
**16.** Map the input to the source variable in the mapper file, as shown in Figure 11- 161.

Figure 11 - 161 Map the input

<pre>Sources&gt;</pre>													-[	xsl:stylesheet
🗄 🚸 ns0:process							:						- 11	xsl:template(match=/)
		<u>.</u>	<u> </u>		· ·								- 11	tns:undelete 🚸 🗔
Variables										-	 	 	4	tns:ids 🔇
—	I												- 11	
													- 11	
	I			• •		• •		• •	• •					
													- 11	
	I													
													- 11	

- 17. Save all and move back to BPELProcess1.
- **18.** Introduce **Assign** activity right after the invoke activity, as shown in Figure 11- 162.

Figure 11 - 162 Introduce Assign activity



19. Inside the Assign activity, assign the value of

"OutputVariable/payload//client:processResponse/client:debugInfo" variable to "varDebugInfo" variable, as shown in Figure 11- 163.

Figure 11 - 163 Wire the Assign activity

Insert New Rule After		D. 🚖 😮 🖮 🔿
<ul> <li>BPEthrocess Lipel</li> <li>         Partner Links     </li> <li>         Watables     </li> <li>         Or your base     </li> <li>         Or your base</li></ul>	Drag objects here	BBELProcess 1. bed Partner Units Variables outputVariable dent: BFELProcess 1 Response/Hossign outputVariable dent: BFELProcess 1 Response/Hossign outputVariable dent: BFELProcess 1 Response/Hossign paylod dent: gbrocessResponse (answer) wardbeugtiffo such string Invole Lundelete _ UnputVariable ns1 undeleteResponse/Hossign () @
Copy V	<u>T</u> o XPath: //dient:proce	ssResponse/clent:debugInfo 🛛 💠 🗶 🌚 👌
a varDebugInfo//		yload//dient:processResponse/dient:debugInfo

20. In the Assign activity, click on Apply and then OK.

#### **Deploy the Composite**

Perform the following steps to deploy the composite.

1. In the **Application Navigator** pane, right-click **Project1** and select **Deploy** -> **Project1**, as shown in Figure 11- 164.

Projec	+1		
	<u>New</u>	Ctrl-N	1
🗄 🗠 🛅 Tes	Edit Project Source Paths		
>	🕻 De <u>l</u> ete Project		
	Version Project		k
đ	Find Project Files		
	Show Overview		
, O	Ma <u>k</u> e Project1.jpr	Ctrl-F9	
	Rebuild Project1.jpr	Alt-F9	
	Deplo <u>y</u>	•	Project1
Ę	Re <u>f</u> ormat	Ctrl+Alt-L	
	Organ <u>i</u> ze Imports	Ctrl+Alt-O	
	Compare Wit <u>h</u>	•	Middleware\jdev
	Replace <u>W</u> ith	•	
Application	Restore from Local History		ng composite "C:'
Data Cor	Refresh ADF Library Dependencies in	Project1 inr	BPELC option 'cl.
Recently	Keresit Agr ensity Dependencies in	rojeccijn	
Q	Project Properties		

Figure 11 - 164 Navigator Screen

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

#### **Test the Composite**

Perform the following steps to test the composite.

- 1. Login to Enterprise Manager Console for the server on which you deployed your project.
- 2. Open Project1.
- 3. Click the Test button to test the Web service, as shown in Figure 11-165.

Figure 11 - 165 Test Tab

Project1		
Active Reti	re   Shut Down Composite Definition	Settings  Vinit Tests Policies
Composition	nents	
Name	ocess1	

4. Enter the ID of the objects you wish to undelete, as shown in Figure 11-166.

Figure 11 - 166 Enter ID

Tree View	-	lu i
Name	Туре	Value
⊽ * payload	payload	
⊽ *ids	stringArray Size - [] 💽	
* ids	string	00Q900000MoOtw

5. Click on Test Web Service button, as shown in Figure 11-167.

Logged in as <b>weblogic</b>   Host TDCVM13509 Page Refreshed Jan 7, 2014 2:37:46 PM IST 🔇
Test Web Service DL and click Parse WSDL. When the page refreshes it to test. Specify any input parameters, and click Test
5DL 🔍 Parse WSDL

**6.** After successful execution, the response contains the expression that you provided in the last assign activity, as shown in Figure 11-168.

Figure 11 - 168 Execution Window

Request Resp	onse	
Test Status R Response Time (ms) 1 Tree View 🔹	equest successfully re 6650	eceived.
A new composite instanc	e was generated.	aunch Flow Trace
Name	Туре	Value
	payload	
debugInfo	string	29.0 APEX_CODE,FINER;APEX_PROFILING,FINE;CALLOUT,INFO;DB,INFO;SYSTEM

**7.** Click the **Launch Flow Trace** button to view the **Audit Trail**, as shown in Figure 11-169.

#### Figure 11 - 169 Launch Flow Trace

Flow Trace <sup>(3)</sup> This page shows the flow of the message throu	gh various composite and component i	instances. 🧿		ECI Starte	<ul> <li>8df865ddacda59ff:4ba23abe:14358190</li> <li>d Jan 10, 2014 4:27:19 PM</li> </ul>	849b:-8000-0000000000003119
Faults (0)						-
Faults						
Select a fault to locate it in the trace view.						
Error Message No faults found				Recovery	Fault Time Fault Location	Composite Instance
Sensors (0) Trace Click a component instance to see its detailed Show Instance IDs	audit trail.					
Instance	Type	Usage	State		Time Composite Instance	
V Spelprocess1_client_ep	Web Service	💖 Service	<ul> <li>Completed</li> </ul>		27:19 PM ExtractDebugInfo of 260070	
V 🖧 BPELProcess 1	BPEL Component		<ul> <li>Completed</li> </ul>		27:24 PM ExtractDebugInfo of 260070	
😪 undelete	JCA Adapter	🖏 Reference	<ul> <li>Completed</li> </ul>	Jan 10, 2014 4	27:24 PM ExtractDebugInfo of 260070	
						_

**8.** The Audit Trail will look like Figure 11-170.

#### Figure 11 - 170 Audit Trail

pand a payload node to view the details.	Highlight Faults Current Audit Level: development 🖲 View Raw
<process> 7 <main (67)=""></main></process>	
♥ Jan 10, 2014 4:27:20 PM ▷ <payload></payload>	Received "process" call from partner "bodgmocess 1, client"
V Transform1	
	Lipdated variable "Invoket Indekte_undekte_from Wariable"
Jan 10, 2014 4:27:20 PM	Completed assign
⊽ ⇔@ InvokeUndelete	
Jan 10, 2014 4:27:20 PM	Started invocation of operation "undelete" on partner "undelete".
▼ Ten 10, 2014 4:27:24 PM ▷ <payload></payload>	Lipidated variable "variable uginfo"
Jan 10, 2014 4:27:24 PM	Received property "jca.salesforce.response.debugluog", value is "39.0 APEL_CODE,FINER, APEL_PROFILING,FINE;CALLOUT, JUPO(38, JAPO);SYSTEM, FINEST 02:54-57.243](DUMUATTIVE_JROFILING_BEGIN 02:54-57.243)
▼ Jan 10, 2014 4:27:24 PM > spayload>	Inicided Zeiray operation "undeleta" on partner "undeleta".
V 🕅 Assign1	
♥ Jan 10, 2014 4:27:24 PM ▷ <payload></payload>	Lpdated variable "butbut/Variable"
Jan 10, 2014 4:27:24 PM	Completed assign
V =@ replyOutput	
▼ Jan 10, 2014 4:27:24 PM > <pavload></pavload>	Reply to pertner "boebrocess1_clent".

9. Click on Flow tab, the Flow tab will look like Figure 11-171.

Audit Trail	Flow	Sensor Values	Faults
lick an activity	to view the d	details.	
			$\bigcirc$
			$\bigcirc$
			receiveInput
			$\downarrow$
			Transform1
			InvokeUndelete
			BB
			Assign1
			replyOutput

**10.** Click on invoke activity, here you can see how the value of "debugLog" property being returned, as shown in Figure 11-172.

Figure 11 - 172 Invoke Received Property

[2014/01/10 16:27:24]
Received property "(ca.salesforce.response.debugLog", value is "29.0 APEX_CODE,FINER;APEX_PROFILING,FINE;CALLOUT,INFO;DB,INFO;SYSTEM,FINEST 02:54:57.243 CUMULATIVE_PROFILING_BEGIN
02:54:57.243 CUMULATIVE_PROFILING No profiling information for SOQL operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for SOSL operations
02:54:57.243 CUMULATIVE_PROFILING No profiling information for DML operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for method invocations
02:54:57.243/CUMULATIVE_PROFILING_END ".

**11.** You can also see how the value of "debugLog" property is written to varDebugInfo value, as shown in Figure 11-173.

#### Figure 11 - 173 Invoke updated variable

<pre>[2014/01/10 16:27:24] Updated variable "varDebugInfo"</pre>	tring">
<pre><vardebuginfo xmlns="" xmlns:ns="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="ns 29.0 APEX_CODE,FINER;APEX_PROFILING,FINE;CALLOUT,INF0;DB,INF0;SYSTEM,FINEST 02:54:57.243 CUMULATIVE_PROFILING[No profiling information for SQL operations 02:54:57.243 CUMULATIVE_PROFILING[No profiling information for SQL operations 02:54:57.243 CUMULATIVE_PROFILING[No profiling information for DML operations 02:54:57.243 CUMULATIVE_PROFILING[No profiling information for method invocations&lt;/pre&gt;&lt;/th&gt;&lt;th&gt;tring"></vardebuginfo></pre>	
29.0 APEX_CODE,FINER;APEX_PROFILING,FINE;CALLOUT,INF0;DB,INF0;SYSTEM,FINEST 02:54:57.243 CUMULATIVE_PROFILING_BEGIN 02:54:57.243 CUMULATIVE_PROFILING No profiling information for SOQL operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for SOSL operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for DML operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for method invocations	tring">
02:54:57.243[CUMULATIVE_PROFILING[No profiling information for SOQL operations 02:54:57.243[CUMULATIVE_PROFILING[No profiling information for SOSL operations 02:54:57.243[CUMULATIVE_PROFILING[No profiling information for DML operations 02:54:57.243]CUMULATIVE_PROFILING[No profiling information for method invocations	
02:54:57.243 CUMULATIVE_PROFILING No profiling information for SOSL operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for DML operations 02:54:57.243 CUMULATIVE_PROFILING No profiling information for method invocations	
02:54:57.243 CUMULATIVE_PROFILING No profiling information for method invocations	
02:54:57.243 CUMULATIVE PROFILING END	
Copy details to clipboard	

# Part II

# **BPM Use Cases**

This section is intended to walk you through use cases specific to integrating to Salesforce via Oracle BPM. The examples provided in this chapter would be beneficial to a developer creating BPM processes to integrate to salesforce. This chapter is subdivided into the sections:

- Section 11.6, "Define Composite for BPM"
- Section 11.7, "Configure Oracle Cloud Adapter for Salesforce.com"
- Section 11.8, "Integration with BPM"
- Section 11.9, "Deploy the Composite"
- Section 11.10, "Test the Composite"

## 11.6. Define Composite for BPM

Perform the following steps to define a composite for BPM.

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

0	Oracle JD	evelop	er 12c Deve	elopme	ent Build	l - Te	sting	g.jws : S_E_E	B_13_00	1_02.jp	or : C:\JDev
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>A</u> pplicatio	on Re	fa <u>c</u> tor	<u>S</u> ear	ch	<u>N</u> avigate	<u>B</u> uild	<u>R</u> un	Tea <u>m</u> ]
	<u>N</u> ew				•	93	<u>A</u> p	olication			
	<u>O</u> pen			Ctrl-O			<u>Pro</u>	ject			
	<u>R</u> eopen				•	8	BPF	L <u>2</u> .0 Subpi	rocess		
	Check C	ode Co	mpliance					L Process			
			1			-	_	iness <u>R</u> ules			
	<u>C</u> lose			Ctrl-F4				mposite Te			
~	Clos <u>e</u> Al	I		Ctrl+Sł	nift-⊢4			ss Re <u>f</u> erenc			
	<u>D</u> elete						<u>D</u> or	main Value	Map(D\	/M)	
-	Save			Ctrl-S		4	<u>E</u> ve	nt Definitio	n		
	S <u>a</u> ve As.					2	<u>H</u> u	man Task			
_	Save As	HTML				a	Ma	ve <u>n</u> POM fo	or Projec	:t	
	Save A <u>I</u> I					-	<u>M</u> e	diator			
	Rena <u>m</u> e					<u></u>	Spr	ing Context	t		
	Import					@	<u>W</u> S	DL Docume	ent		
	Export						ΧМ	L <u>S</u> chema			
	Compar	o With				8		uery File <u>v</u> e			
	Replace	_			,			uery <u>L</u> ibrary	/ ver 1.0.		
						ж	<u>X</u> SL	Map			
	Page Set	tup				4	Fro	m <u>G</u> allery			Ctrl-N
4	Print			Ctrl-P			_				
	Print Pre										
	Prin <u>t</u> Are	ea			•	- 11					
	E <u>x</u> it			Alt-F4		1					

#### Figure 11 - 1 Navigation Window

2. The **New Gallery** page is displayed. Select **BPM Application** from the **Items** list, as shown in the screenshot below.

Figure 11 - 2 Create BPM Application

👌 New Gallery	Companying Conception	23
Q		
Categories:	Items: Show All Des	criptions
Applications     Connections     Opeloyment Descriptors     Deployment Profiles     Diagrams     Java     Maven     Projects     UML     XML     BPM Tier     Activity Guide     Business Components     Case Management     Simulation	Image: Second system       Image: Second system         Image: Second	
Business Tier     ADF Business Components     Business Rules     Contexts and Dependency Injecti     Data Controls	Image: Service Bus Application         Image: Service Bus Application         Image: Service Bus Application with Service Bus Project	
Help	OK Ca	ncel

3. Provide a suitable name to your application, as shown in screenshot below.

Figure 11 - 3 Name your application

Create BPM Application	- Step 1 of 3		<b>X</b>
Name your applicatio	n		F
Application Name     Project Name     Project SOA Settings	Application Name: BpmApplication Directory: C:\JDeveloper\mywork\BpmApplication Application Package Prefix:		Browse
Help	< <u>B</u> ack	Next > Einish	Cancel

**4.** Click **Next** and provide a suitable name to your project, as shown in screenshot below.

Create BPM Application	- Step 2 of 3	Compared to Compar	×
Name your project		01010101010101010101010101	B
Application Name     Project Name	Project Name: Dir <u>e</u> ctory:	BpmProject C:\JDeveloper\mywork\BpmApplication\BpmProject	Bro <u>w</u> se
Project SOA Settings	Project Featur BPM BPM Technolo SOA Suite SOA Suite is a		applications.
Help		< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

Figure 11 - 4 Name your project

- 5. Click Next.
- 6. Select Composite with BPMN Process from Standard Composite list, as shown in screenshot below.

Figure 11 - 5 Configure BPM Setting

Create BPM Application	- Step 3 of 3		X
Configure SOA settin	gs	01	F
Application Name Project Name Project SOA Settings	Composite Name: BpmProject Start from:  Standard Composite Empty Composite Composite With Mediator Composite With Human Task Composite With BPEL Process Composite With BPMN Process Composite With Case Management Composite With Subprocess Composite With Subprocess Composite With Spring Composite With Business Rule	) SOA <u>T</u> emplate	
Help	Customizable < <u>B</u> ack	Next > Einish	Cancel

- 7. Click Finish.
- 8. Select the Synchronous Service from Type section and click Finish, as shown in screenshot below.

Figure 11 - 6 Configure BPM Setting

🕜 В	👌 BPMN 2.0 Process Wizard						
BPI	BPMN 2.0 Process Wizard						
•	Definition	Name: P	Process	) 🐵			
	Arguments Initial Implementation Advanced	Description:		٢			
Directory: C:\JDeveloper\mywork\BpmApplication\BpmProject\SOA\processes Type: Synchronous Service Creates a process with a synchronous interface definition							
			Start End				
		Manual P	rocess	_			
	<u>H</u> elp		< <u>B</u> ack <u>N</u> ext > <u>F</u> inish Canc	el			

9. The Composite.xml looks like the one displayed in the screenshot below

Figure 11 - 7 Composite.xml

(P) 🌌 💥 端   🚺 🧿	🖉   🔁 🛱 🍓 🔞	BpmProje
Exposed Services	Components	External References
Process.service Operations: start	Process	

10. Next we would create the schema for our process. In the Application Navigator, under your project folder, right-click on the schema folder and select New →From Gallery as shown in screenshot below.

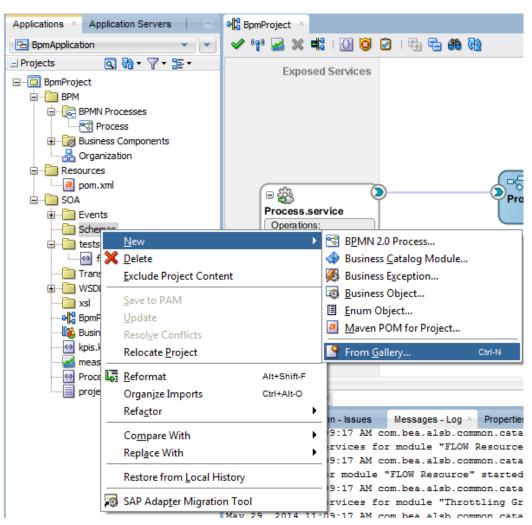


Figure 11 - 8 Application Navigator

11. The New Gallery page is displayed. Select XML Schema from the Items list, and click OK as shown in screenshot below.

Figure 11 - 9 Create XML Schema

New Gallery	×	
٩		
<u>C</u> ategories:	Items: Show All Descriptions	
📮 General	🕌 NXSD Schema	
Ant Applications	☑ XML Document	
Connections	ML Document from XML Schema	
·····Deployment Descriptors ·····Deployment Profiles	M XML Localization File (XLIFF)	
·····Diagrams	📇 XML Schema	
Java	Opens the Create XML Schema dialog, in which you define a directory and	
Maven	filename for a new XML schema (.xsd ) file. To enable this option, you must select	
Projects UML	a project or a file within a project in the Application Navigator.	
XML	📇 XML Schema from XML Document	
⊡…BPM Tier	🐻 XQuery File	
Activity Guide		
Business Components	XQuery File ver 1.0	
Case Management	XQuery Library ver 1.0	
	XSL Map	
ADF Business Components Business Rules	XSL Map From XSL Stylesheet	
Business Rules	🐼 XSL Style Sheet	
Help	OK Cancel	

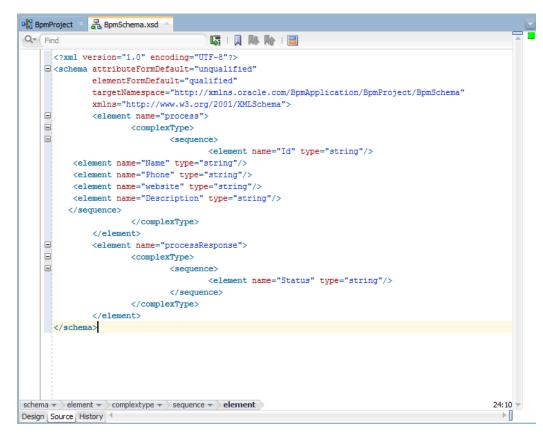
**12.** The **Create XML Schema** page is displayed, provide a suitable name to the schema and click **OK**, as shown in screenshot below.

Figure 11 - 10 Name Your Schema

Create XML Schema
Enter the details of your new file.
Eile Name:
BpmSchema xsd
Directory:
C:\JDeveloper\mywork\BpmApplication\BpmProject\SOA\Schemas Browse
Target Namespace:
http://www.example.org
Prefix:
Help OK Cancel

**13.** Edit the schema file as per the business requirement. It is the responsibility of the frontend application to impose the data validations and to ensure that the input sent to SFDC via SOA is correct. The structure of the schema used in this use case is shown in the screenshot below.



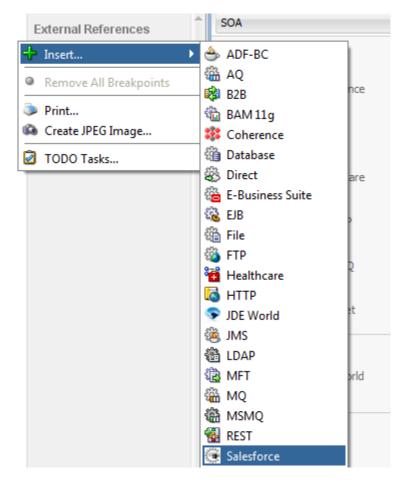


# 11.7. Configure Oracle Cloud Adapter for Salesforce.com

Perform the following steps to configure a new Oracle Cloud Adapter for Salesforce.com:

**23.** In **External References** swim-lane of the composite.xml file, right-click and select **Salesforce** adapter, as shown in the screenshot below.

Figure 11 - 12 Salesforce Adapter



**24.** The Salesforce Cloud Adapter Configuration Wizard - Welcome page is displayed, as shown in the screenshot below.

#### Figure 11 - 13 Welcome Page

Salesforce Cloud Adapter Configuration	Wizard - Step 1 of	5	
Salesforce Cloud Adapter Referen	nce	01	*
Welcome to the Adapter Config	uration Wizard		
This wizard helps you create a service using a s parameters and define an operation for the se		ter. You will be asked to s	specify configuration
Enter a Reference Name.			
Name: salesforceReference			
Help	< <u>B</u> ack Ne	ext > Einish	Cancel

- 25. Click Next.
- 26. The Salesforce Cloud Server Connection page is displayed. The WSDL Location and Authentication Key text boxes are auto-filled. It picks up these values from the cache. You can re-enter these values. If you want to use a different value, click the Find existing WSDLs icon, which is located to the right of the WSDL Location field, as shown in the screenshot below.

👩 Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					
Salesforce Cloud Server Connection	01010101010101010401010454				
A Salesforce Cloud Server connection is required to access the	operations and business objects available.				
WSDL Location: file:/C:/JDeveloper/mywork/Automation/S	ample_Create/SOA/WSDLs/SalesforceEnterprise 🔞				
Authentication Key: SFDC_USER	+ / ×				
Qlear Cache					
Test Connection					
Help < Back	Next > Einish Cancel				

Figure 11 - 14 Salesforce Cloud Server Connection Page

**27.** The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in the screenshot below.

Figure 11 - 15 SOA Resource Browser

👌 WSDL Choose	er	-	-	and and				×
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL			
Location	n: 🛅 C: \offical					- 🗘 🔘 [	õ 🖆	<u>ا ا</u>
Work Project Application	SalesforceE	nterprise.wsd						
	File Name: Sales	sforceEnterprise	.wsdl					
Home	File <u>Type</u> : Web		on Files (*.wsdl)					-
Selection: file:/C:	/offical/Salesforce	Enterprise.wsdl						
Help						OK		Cancel

28. Click OK. The following screen appears as shown in the screenshot below.

Figure 11 - 16	Localize Files Dialog
----------------	-----------------------

file:/C:/offical/SalesforceEnterprise.wsdl is external to the current project. In order to make this file available to your project at runtime, JDeveloper can now make a local copy of this file and any dependent files that it imports or includes.	
Copy Options:  Maintain original directory structure for imported files The following files will be created in directory	
C:\JDeveloper\mywork\Application1\Project1\SOA:	
WSDLs/SalesforceEnterprise.wsdl	
Help OK Cancel	

29. Click OK. It will be returned to the Salesforce Cloud Server Connection page.

Figure 11 - 17 Salesforce Cloud Server Connection Page

Salesforce Cloud Adapter Configuration Wizard - Step 2 of 5					
Salesforce Cloud Server Connection	0101010101010101010404040				
A Salesforce Cloud Server connection is required to acces	is the operations and business objects available.				
<u>W</u> SDL Location: C:\JDeveloper\mywork\Application J <u>A</u> uthentication Key: SFDC_USER	\Project1\SOA\WSDLs\SalesforceEnterprise.wsdl				
<u>C</u> lear Cache					
Test Connection					
<u>H</u> elp < <u>B</u> ack	Next > Einish Cancel				

Note that as an alternative, you can store WSDL at an MDS location and access it, as shown in the screenshot below.

Figure 11 - 18 SOA Resource Browser

Components	Resources ×	-					
🗳 - 🔍 Nar	red - Q- (Name						
IDE Connectio	ns						
	n Server						
🗄 🗟 Database							
🛓 📲 SOA-MDS							
🖨 📲 MDSC	Connection_76						
🗄 🖳 💼 s							
🖮 🖏 SOA_	DesignTimeRepository						
🖮 📄 apps							
i≟i wsdls							
SalesForceEnterpriseAPI.wsdl							

- 30. Proceed 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.
- **31.** The WSDL location should be of the form: 'oramds:/apps/SOA/WSDLs/Integration/SalesforceReference.wsdl', as shown in the screenshot below.

Figure 11 - 19 WSDL location

Salesforce Cloud	Adapter Configuration Wiza	rd - Step 2 of 5		×
Salesforce Clou	d Server Connection	0101		*
A Salesforce Cloud Se	erver connection is required to a	ccess the operation	s and business objects a	vailable.
WSDL Location: Authentication Key: Offline Configurat Clear Cache		gration/salesforceR		
Help	< <u>B</u> a	ck <u>N</u> ext >	Einish	Cancel

- 32. Click OK.
- **33.** Click "+" button to create a new Authentication Key, as shown in the screenshot below.

Salesforce Cloud	Adapter Configurat	tion Wizard - Step	2 of 5		x
Salesforce Clou	ud Server Conne	ection	0101010101010		*
A Salesforce Cloud S	erver connection is re	quired to access the	operations and bu	siness objects ava	ilable.
WSDL Location:	C:\JDeveloper\mywo	rk\Application1\Proj	ect1\SOA\WSDLs\S	alesforceEnterpris	e.wsdl 📔
Authentication Key:	SFDC_USER	-	🕂 🥖 🗙		
Offline Configura	tion		Add a new au	thentication crea	dential to CSF key st
Olear Cache					
Test Connection					
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 11 - 20 Create a New Authentication Key

**34.** The **Add Credential** dialog box is displayed, as shown in the screenshot below. Provide a suitable name and the Salesforce.com credentials and click **OK**.

**Note:** The password should be a combination of Salesforce.com password and Salesforce.com Security Token.

Figure 11 - 21 Add Credential

👩 Add Crede	ential	×
and the key a	password credential by supplying a user name, passwo lias. The new credential will be added to the ecurity credential map.	ord
User ID:		
Password:		
CSF Key:		
Help	OK Cano	el

**35.** Click **Test Connection** button to validate the Authentication Key, as shown in the screenshot below.

Figure 11 - 22 Test Connection

👌 Salesforce Cloud Adapter Configurat	tion Wizard - Ste	p 2 of 5		Σ	3
Salesforce Cloud Server Conne	ection		10	*	
A Salesforce Cloud Server connection is rea	quired to access th	e operations and t	ousiness objects av	ailable.	
WSDL Location: C:\JDeveloper\mywo	rk\Application1\Pro	oject1\SOA\WSDLs	\SalesforceEnterpr	ise.wsdl 🛛 🔞	<u>»</u>
Authentication Key: SFDC_USER		- 🕂 🥢 🗙			
Offline Configuration					
<u>C</u> lear Cache					
Test Connection					
Help	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel	

- 36. Click Next.
- **37.** The **Cloud Operation Configuration** page is displayed, as shown in the screenshot below.

👌 Salesforce Cloud Adapter Configura	tion Wizard - Step 3	3 of 5	<b></b>
Cloud Operation Configuration	n	01	*
Select a Salesforce Cloud Operation and	its primary business o	objects and specify a unique	WSDL Operation name.
Operation Category: CRUD	Api Version: 3	0.0	
SFDC Operation: create	WSDL Operation:	reate	]
Available:       Qr       filter         Account       Account_Test_c         AccountContactRole       AdditionalNumber         AdditionalNumber       Announcement         ApexClass       ApexComponent         ApexTestQueueItem       Accourtem		Selected:	
Suppress Response			
Help	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish	Cancel

Figure 11 - 23 Cloud Operation Page

38. Since the scenario is to update an Account on Salesforce.com, select Operation Category as CRUD and SFDC Operation as Update. Move Account from the list of Available objects to the list of the Selected objects. The WSDL Operation by default is create (same as SFDC Operation). You can edit the same by providing an operation name suitable to your business requirement, as shown in the screenshot below.

Figure 11 - 24	Cloud Operation Page
----------------	----------------------

Salesforce Cloud Adapter Configuration	tion Wizard - Step 3	3 of 5	×
Cloud Operation Configuration	n	010101010101010101000000000000000000000	*
Select a Salesforce Cloud Operation and	its primary business o	objects and specify a unique V	NSDL Operation name.
Operation Category: CRUD 🔻	Api Version: 3	0.0	
SFDC Operation: update  Business Objects	WSDL Operation:	pdate	
<u>A</u> vailable: Q* filter		Selected:	~ ~
Account_Test_c AccountContactRole AdditionalNumber Announcement ApexClass ApexComponent ApexPage ApexTestQueueItem ApexTrigger Asessual Suppress Response		Account	
Help	< <u>B</u> ack	Next > Einish	Cancel

**39.** Click **Next**. The **Header and Properties** page is displayed, as shown in the screenshot below.

Salesforce Cloud Adapter Co	nfiguration Wizard - Step 4 of 5	x
Header and Properties	0101010101010101010104040	
Select Header properties for selec	cted Salesforce.com Cloud Operation	
- Header Properties		
AllOrNoneHeader:		
allOrNone:		
AllowFieldTruncationHeader:		
allowFieldTruncation:		
AssignmentRuleHeader:		
assignmentRuleId:		
useDefaultRule:		
DebuggingHeader:		
debugLevel:		
EmailHeader:		-
Help	< <u>B</u> ack <u>N</u> ext > Einish Cancel	

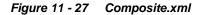
Figure 11 - 25 Header and Properties

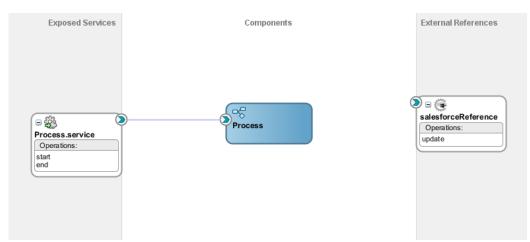
- **40.** Select the appropriate header according to your requirement. Headers displayed in this page depend on the operation selected in the previous page.
- 41. Click Next.
- **42.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation would operate and the headers selected for that operation, as shown in the screenshot below.



👌 Salesforce Cloud Adapter Configura	ation Wizard - Step 5 o	of 5		x
Finish			14949454.0	
You have finished defining t salesforceReference When you dick Finish, the wizard will crea C:\JDeveloper\mywork\BpmApplication\Bp	te the			oject WSDLs
directory. Selected Operation Name: update Selected Object(s) Name: [Account] Selected SOAP Header: {AllOrNoneHeade				
Help	< <u>B</u> ack	Next >	Einish	Cancel

- 43. Click the Finish button to complete the Adapter Configuration Wizard.
- **44.** After clicking on **Finish** button, the following screen appears, as shown in the screenshot below.





## 11.8. Integration with BPM

Perform the following steps for integration with BPM:

1. In the composite.xml file of your project, double-click the object named **Process**. Process.bpm page opens, as shown in the screenshot below.

#### Figure 11 - 28 Open Process

BpmF	Project ×	S Process	×							
	<u>a</u> -	- <u>-</u>		<b>○ ·</b> + ·			Q Search			
Activity	Interactive	Notification	Catch	Throw Gateway	y Artifacts					
Process		Start				- Find				
🔺 Highlig	aht Level: Wa	rnings					•	100% 🔻	· 🔍	
Designer	Scripting	Collaboration	History							

2. Double-click on the Start activity. **Properties-Start** page opens as shown in the screenshot below.

**Note:** The Model starts and ends with two circular icons. The Left Circle is a **Start Activity** and the circle which is on the right side is the **End Activity**. These two activities are joined with the help of a line that represents the flow of activities through the process known as Sequence Flow.

Properties	- Start		x
Basic Impl	ementation		
Name:	Start	۲	1 -
Description:			۲
Is Draft:			-
Help		ОКС	ancel

Figure 11 - 29 Properties – Start

**3.** Left-click on the **Implementation** tab. Now, in the **Argument Definition**, click on the '+' sign to create the input argument/s.

Properties - Start	23
Basic Implementation	
Implementation Type: 💿 Message	•
Message Exchange	
Type: 😡 Define Interface	•
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>	
Define Interface	
Arguments Definition	/ 🗶 🛛
Name 🕜 Edit Argument	
Name: argument1	
Type: abc string	
Operatio	
Help OK Cancel	
Data Associations Correlations	
Message Headers Ervice Properties	
Неір ОК	Cancel

Figure 11 - 30 Edit Argument for Start

4. In the **Edit Argument** page, provide a name to the argument in the **Name** section and in the **Type** section, scroll down and select the **Browse** option.

🕐 Properties - Start	X
Basic Implementation	
Implementation Type: 🐵 Message	
Message Exchange	
Type: 😡 Define Interface	<b></b>
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>	
Define Interface	
Arguments Definition	🕂 / 💥
Name 👌 Edit Argument	<b>X</b>
Name: argument_update_Input	
Type: abc string	
Operatic C> duration	
Help 1181 base64Binary 199E float	
ata Associations 999 byte	
Message Headers 999 short	
🖄 date	
i ime	
Browse	¥
Browse	
Help	OK Cancel

Figure 11 - 31 Edit-Argument Page

5. Next, a new **Browse Type** page opens, click on the **Business Object** button to create one.

👌 Prop	erties - Start	X
Basic	Implementation	
Implem	entation Type: Message	
Mess	👌 Browse Types	
Туре	Find:	
Conv	abc string	Business Object
De	999 int	
Are		
	99E double	
N	a decimal	
	ateTime	
	999 long	
	←→ duration	
Ор	base64Binary 1995 float	
	999 byte	
8≈8 <u>D</u> a	999 short	
* 🗆 <u>M</u> e		
	🔯 time	
	🥦 InvalidFieldFault	-
_	Help	OK Cancel
Help		Concel

Figure 11 - 32 Browse Type for Argument

6. In the **Create Business Object** page, provide a **Name** and click on the **Magnifying** icon in front of the **Destination Module** to browse for a module in which the business object exists.

1	Prop	erties - Start	X
E	Basic	Implementation	
	Implem	entation Type: Message	· · · · · · · · · · · · · · · · · · ·
	Mess	Browse Types	
	Туре	Find:	
	Conv	abc string	
	Det	999 int	
	Creat	te Business Object	
	Busi	iness Object	
	Na	ame:	BusinessObject_Input
	De	estination Module:	
		Based on External Schema	Browse
	•	Help	OK Cancel
1		🖄 time	
		MalidFieldFault	-
		Help	OK Cancel
	Help		

Figure 11 - 33 Business Object

7. In the **Browse Module** page, create a new module by clicking on the Module button as shown in the screenshot below.

👌 Properties - St	X		
Basic Implement	Basic Implementation		
Implementation T Mess: O Brow Type Find: Conv Del 999 int Create Busines Business Obje Name: Destination I Based or Help Help	🕐 Browse Modules 📃		
Help	Help OK Cancel	Cancel	

Figure 11 - 34 Create Module

8. In the create module page give a suitable **Name** to the module and click on **OK** button. Select the module you just created in the Browse module page and click **OK** as shown in the subsequent figures.

Figure 11 - 35 Name the Module

Create Module	23
Module: Module_Input	
Help	OK Cancel

👌 Browse Modules		x
Search:		
Search Results:		
Business Catalog		
Errors		
Events		
HumanTasks		
References		
Rules		
🗄 👍 Services		
🗄 🛶 🙀 Types		
Module_Input		
Help	ОКС	ancel

Figure 11 - 36 Selecting Module

9. In the **Create Business Object** page, click on the checkbox **Based on External Schema** and browse to the respective schema file and select the input element (**Process** in this case) from the Schema and click on **OK**.

👌 Type Chooser	×
	<b>4</b> 2
Type Explorer	
Project Schema Files	
process	
processResponse	
Type: {http://xmlns.oracle.com/BpmApplication/BpmProject/BpmSchema}proc	cess
Show Detailed Node Information	
Help	Cancel

Figure 11 - 37 Select Schema for Business Object

**10.** The **Create Business Object** page is displayed, as shown in the screenshot below. Click **OK**.

Figure 11 - 38 Create Business Object

Create Business Object			
Business Object			
Name:	BusinessObject_Input		
Destination Module:	Module_Input		
Based on External Schema	acle.com/BpmApplication/BpmProject/BpmSchema}process		
Help	OK Cancel		

**11.** Now a Business Object is created. Select the Business Object that you have created for the input and click **OK** as shown in the screenshot below.

	Browse Types	x
	ind:	3
	999 short	-
l	🖄 date	
ł	🖄 time	
l	🔏 InvalidFieldFault	
l	🔏 InvalidIdFault	
l	🔏 InvalidSObjectFault	
l	A UnexpectedErrorFault	
l	🐉 BusinessObject_Input	
l	🚜 Update	
l	2 UpdateResponse	
l	nvalidFieldFault	
	R InvalidIdFault	
l	R InvalidSObjectFault	
l	ChexpectedErrorFault	Ŧ
	1odule_Input.BusinessObject_Input	
	Help OK Ca	ancel

Figure 11 - 39 Selecting Business Object For Argument

12. Properties-Start page is displayed. It contain an argument for the input.

Properties - Start			
Basic Implementation			
Implementation Type: 💿 Message 🗸 🗸			
Message Exchange			
Type: 😡 Define Interface	<b>•</b>		
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>			
Define Interface			
Arguments Definition	+ / ×		
Name	Туре		
argument_input	BusinessObject_Input		
Operation Name: start			
Data Associations De Correlations	Log Handlers		
Message Headers Ervice Prop	erties		
Help	OK Cancel		

Figure 11 - 40 Properties – Start

Follow the same steps to create Business object for output in the End activity of your process. Choose the respective schema file and select the Output element (processResponse in this case) from the Schema in Create Business Object page.

Figure 11 - 41	Properties – End
----------------	------------------

🕜 Properties - End 📃 💌				
Basic Implementation				
Implementation Type: 🔘 Message				
Force commit after execution				
Message Exchange				
Type: 😡 Define Interface				
Conversation: <ul> <li>Default</li> <li>Advance</li> </ul>	d			
Define Interface				
Arguments Definition	+ / ×			
Name	Туре			
argument_Output	BusinessObject_output			
Asynchronous      Synchronous				
Reply To:	Start 🔹 🎸			
Throw Error	Q 🌽			
🗱 Data Associations 🛛 🔊 🖸	Correlations			
Message Headers	Service Properties			
Help	OK Cancel			

 Again proceed to the Start activity and click on the Implementation tab. Click on Data Association as shown in the screenshot below.

Properties - Start			
Basic Implementation			
Implementation Type: 🙆 Message 🔹			
Message Exchange			
Type: 😡 Define Interface	<b>•</b>		
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>			
Define Interface			
Arguments Definition	+ / ×		
Name	Туре		
argument_input	BusinessObject_Input		
Operation Name: start			
Data Associations Do Correlations	Log Handlers		
Message Headers	<u>erties</u>		
Help	OK Cancel		

Figure 11 - 42 Data Associations for Start Activity

- **15.** New Data Association page opens. In the data objects under Process, create Data Objects for Input, Output and Response.
- 16. Right-Click on the data object and click New as shown in the screenshot below.

Figure 11 - 43 Data Association

👌 Data Associations	4 - 2 -	X
Output		
Image: Start         Image: Start	Drag objects here	Predefined New SOA SOA
		1 × 4 1
From	То	8 40 U V
From	10	
L		
Validate target after assigning output data as	sociations	
Help		OK Cancel

**17.** Provide a suitable **Name** for the data object (Input in this case). In the **Type** section, scroll down and select the **Browse** option.

Figure 11 - 44	Creating dataObject
----------------	---------------------

🕜 Cre	ate Data Object
Name:	dataObject_Input
Type:	abc string 👻
	<>> duration ▲
	📓 base64Binary
Help	199E float
	999 byte
_	999 short
	🖄 date
	🖄 time
	Srowse
	Browse To

**18. Browse Type** page opens. Select the business object that you have created and click **OK** button as shown in the screenshot below.

O Browse Types	×
Find:	
🖄 date	<b>A</b>
20 time	
🥦 InvalidFieldFault	
A InvalidIdFault	
A InvalidSObjectFault	
MunexpectedErrorFault	
👼 BusinessObject_Input	
BusinessObject_output	
P Update	
P UpdateResponse	
RealidFieldFault	
InvalidIdFault	
InvalidSObjectFault	
	Ŧ
Module_Input.BusinessObject_Input	
Help	OK Cancel

Figure 11 - 45 Selecting BusinessObject for dataObject

- **19.** Click **OK** on **Create Data Object** page.
- **20.** Data object is created for Input which can be seen under **Data Objects** of **Process** as shown in the screenshot below.

Figure 11 - 46	Data Associations	for Start Activity
----------------	-------------------	--------------------

Data Associations     Output	Drag objects here	Process S Data Objects
		<b>+</b> × ☆ 寻
From	То	
Validate target after assigning output	data associations	OK Cancel

**21.** Follow the same steps for creating the **Data Objects** for Output and Response (**updateResponse** in this case).

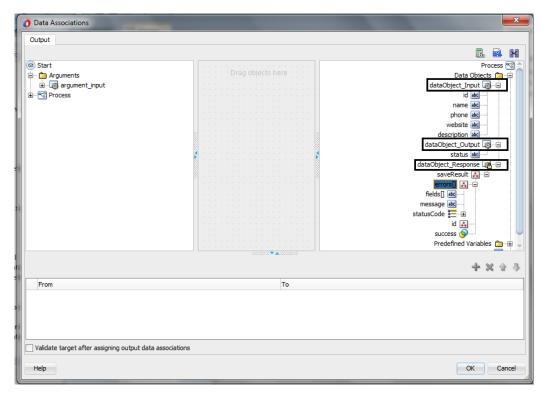


Figure 11 - 47 Data Associations For Start Activity

**22.** Map the **argument\_input** under **Start** to **dataObject\_Input** and click on **OK** button as shown in the screenshot below.

1 Data Associations		X
Output		
Image: Start         Image: Start	Drag objects here	Process S Data Objects
Copy  From: argument_input	To: dataObject_Input	
From	То	
argument_input	🐯 dataObject_Input	
Validate target after assigning output data association	ns	
Help		OK Cancel

Figure 11 - 48 Mapping Source To Target

- Drag the Service activity from the Activity tab and place it in between Start and End Activity.
- 15. A new page **Properties ServiceTask** opens, as shown in the screenshot below.

rigule 11 49 Service Iask	Figure	11 - 49	Service	Task
---------------------------	--------	---------	---------	------

👌 Properties - Servi	ceTask	* Z *	-	×
Basic Implementat	ion			
<u>يت</u>	Name:	ServiceTask	۲	
	Description:			
	Is Draft:			- I
		Point		
1				
Help			ОК Са	ancel

16. Click on Implementation tab and select Service call in Type Section.

Properties - ServiceTask	×
Basic Implementation	
Implementation Type: 🔯 Service task	•
Force commit after execution	
Message Exchange	
Type: If the service Call	-
Conversation: Not Implemented	
Service Call	
Service: SalesforceRefe <u>rence</u>	
Operation: update	<b>-</b>
🗱 Data Associations 🔊 🕑 Correlations	dlers
Message Headers	
	Canad
Help	OK Cancel

Figure 11 - 50 Selecting Type for Service – Task

**17.** In the **Service** section, click on **Magnifier** button and select your service for Salesforce as shown in the screenshot below.

Properties - Se	erviceTask	E E
Basic Implement	Itation	
Implementation Ty	ype: 👩 Service task	<b></b>
Force commit a	after execution	
Message Exchar	👩 Service 📃	
Type:	Search:	
Conversation:	Search Results:	_
-Service Call -	Search Results.	
Service: S		
Operation: U	1	
ata Associa		<u>B</u>
Message Hea		
Help		Cancel
Varnings	Help OK Cancel	100%
Collaboration Histo		

Figure 11 -51 Selecting Service for Service - Task

**18.** Click **Data Association** and a new **Data Association** page opens as shown in the screenshot below.

Figure 11 - 52 Data Association

👌 Data Associations	_	<b>— X</b>
Input Output		
Process  Data Objects  dataObject_Input  dataObject_Output  dataObject_Response  Predefined Variables  SOA	Drag objects here	ServiceTask (∰ Arguments () update (∰) ⊕
		+ × ☆ ∛
From	То	
		G Snipping Tool
Validate target after assigning input data as	sociations	Drag the cursor around the area
Help		OK Cancel

**19.** Click on the **Transformation** button and drag it to **update** under Arguments in **ServiceTask**.

⑦ Data Associations		×
Input Output		
		<b>B. M</b>
😪 Process		ServiceTask 👜
Constraint of the second	Drag objects here	Arguments () (upd) (€ (2) - ⊕ account () - ⊕
		1 × 4 3
	-	T 00 U V
From	То	
Validate target after assigning input data as	sociations	
Help		OK Cancel

Figure 11 - 53 Adding Transformation

**20.** Create Transformation page opens. Now move dataObject\_Input from the list of **Source** side to the list of **Selected** and click **OK** as shown in the screenshot below.

Figure 11 - 54	Create Transformation
----------------	-----------------------

Oreate Transformation	×
Sources Sources:	Selected:
Target	
Transformation Oreate	✓ update ✓ dataObject_Input_parameters
Use Existing	OK Cancel

21. Click on the Output tab and map the updateResponse from the serviceTask to the dataObject\_Response in process and click OK button as shown in the screenshot below.

🗿 Data Associations						x
Input Output						
				<b>f</b> <sub>x</sub>	<b>M</b>	R
ServiceTask	Drag ob	)ject:	ts here Da dataObject dataObject_ dataObject_Re Predefine	ita Obje _Input Output sponse d Variab	Proces ects	s 😵
	0000000	00000				
Copy - From: updateResponse		To:	dataObject_Response	+ >	۵	4
From		То	0			
🗐 🌠 updateResponse		3	a dataObject_Response			
Validate target after assigning output data associations						
Help			C	к	Can	cel

Figure 11 - 55 Data - Association

- 22. Now Perform the mapping from Source side to the Target side:
  - Map Account\_Id with Id.

- Map Name with Name.
- Map Phone with Phone.
- Map website with Website.
- Map Description with Description as shown in figure

Figure 11 - 56 Mapping From Source to Target

	💫 🔂 📓 🔚 🛛	Q Search XSLT	Map XSLT
(sources>	<u>[</u> [	tns:Account 🚸	·ė (*
> ns0:process		ens:fieldsToNull 🎇…🚊	
s0:Account_Id		ens:Id 🚸 🕀	
Anso:Name	+ <u>,</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ens:AccountContactRoles 🐼 🕁	
s0:Phone	+0, : : : : : : : : : : :	ens:AccountNumber 🐼 🕁	
s0:website	+1),::::::::::::!	ens:AccountPartnersFrom 🐼	
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	+	ens:AccountPartnersTo 🐼 🕁	
) Variables		ens:AccountSource 🐼 🖽	
		ens:Account_Ext_Idc 🐼 🕀	
	{	ens:Account_Test_Lookupc 🐼 🖽	
		ens:Account_Test_Lookup_r 🐼 🕀	
		ens:ActivityHistories 🐼 🖽	
		ens:AnnualRevenue 🐼 🖽	
		ens:Assets 🐼 🖽	
		ens:AttachedContentDocuments	
	[] {} <i>i</i> {} <i>i</i> {} <i>i</i> {} · · · · · · · · []	ens:Attachments 🐼	
		ens:BillingAddress 🐼 🕁	
		ens:BillingCity	
	-{-{},{},{},{},{},{},{},{},{},{},{},{},{},{	ens:BillingCountry	
	1 :::::::::::::::::::::::::::::::::::::	ens:BillingLatitude 🐼 🕀	
		ens:BillingLonaitude 🐼	
	• } } } ` ` ` ` ` ` `	ens:BillingPostalCode 🚱	
	: [; [; ]; ];	ens:BillingState 🔕	
		ens:BillingStreet 🔕	
	: : : : : : : :	ens:CaseLookup c 🔕	
	: .   .	ens:CaseLookup_r	
	: :  :  : : : :	ens:Cases	
	H : ::::::::::::::::::::::::::::::::::	ens:ChildAccounts	
	: : : : [ { : : { : : ]   }	ens:CombinedAttachments	
	: :); { <u>}</u> : : <u>}</u> : : :	ens:ConnectionReceived	
Search by local name	• •  •  •  • • •  • • • •		

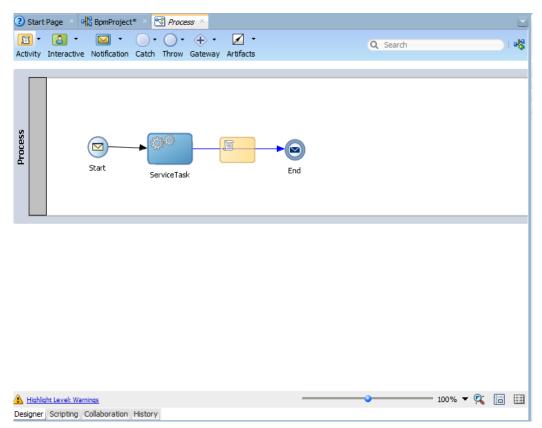
**23.** From the **Activity** Tab, click and drag the **Script** Activity in between **ServiceTask** and **End** Activity, as shown in the following screenshots.

Figure 11 - 57 Using Script Activity

Image: Subprocess Image: Subprocess     Image: Subproce Subprocess   <	Ostart Page	× 📲 Bpmf	Project* 🛛 🗺 P	rocess ×	
Activity Manual Service Constraints Service Const				Q Search	
Activity Manual Service	Activity Intera		_	ow Gateway Artifacts	
Send Receive Business Rule	Activity				
Script Call Event Subp	<b>S</b>	<b>2</b>	\$\$ <del>\$</del>		
Script Call Event Subp		Receive	(1110)		
		Call			
Subprocess Update End					
	Subprocess	Update		Task End	

🛕 <u>Hiqhliq</u>	ht Level: Wa	arnings		 - 🔍	
Designer	Scripting	Collaboration	History		

#### Figure 11 - 58 Process



24. The **Properties-ScriptTask** page opens. Click on **Implementation** tab and then click on **Data Association** as shown in the screenshot below.

Properties - ScriptTask		x
Basic Implementation		
Implementation Type: 🛐 Script task		-
Force commit after execution		
🞇 Data Associations	Log Handlers	
Help	OK Can	ncel

Figure 11 - 59 Properties - ScriptTask

25. A new **Data Association** page opens, click and drag the transformation icon to **dataObject\_Output** under **DataObjects** of **Process** as shown in the screenshot below.

Figure 11 - 60 Adding Transformation

Dutput		R. 📾 🕅
ScriptTask - 📩 Arguments - 😚 Process	Drag objects here:	Process Data Objects dataObject_Input dataObject_Queput status dataObject_Response Predefined Variables SOA SA
		+ × 4 3
From	То	
	lata associations	

**26.** The **Create Transformation** page opens. Move **dataObject\_Response** from the list of **Source** side to the list of **Selected** and click **OK** button as shown in the screenshot below.

O Create Transformation	<b>X</b>
Sources:	Selected:   Selected:   Selected:   AtaObject_Response   AtaObject_Response
Target	ataObject_Output
Transformation     O Create     Use Existing	dataObject_Response_dataObject_Output dataObject_Input_parameters
Help	OK Cancel

Figure 11 - 61 Create Transformation

**27.** Perform the mapping from Source side to the Target side.

SLT map 🔹 🚽 🕹 💀 📓	Q Search XSLT	Map XSLT
<sources></sources>		xsl:stylesheet 👸
ns0:updateResponse	xsl:ter	mplate(match=/) 🛄 🤖
ns0:SaveResult		essResponse 🚸 🚊
🗄 📲 ns2:errors		s:Status 🏈 🛄
⊕ 🐝 ns2:id	 01	3.310103 🌾
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>		
Variables		
- · · ·		
Search by local name		

Figure 11 - 62 Mapping from Source to Target

**28.** Double-click the **End** activity and click on **Implementation**  $\rightarrow$  **Data Association**, as shown in the screenshot below.

Figure	11 -	· 63	Properties - End
--------	------	------	------------------

Properties - End	×		
Basic Implementation			
Implementation Type: 🔘 Messag	ge 🗸		
Force commit after execution			
Message Exchange			
Type: 😡 Define Interface 🔹			
Conversation: <ul> <li>Default</li> <li>Advanced</li> </ul>			
Define Interface			
Arguments Definition 🕂 🖉 🗶			
Name	Туре		
argument_Output	BusinessObject_output		
Asynchronous     Synchronous			
Reply To:	🐵 Start 🔻 🎸		
Throw Error			
Stata Associations	Correlations		
Carteria Message Headers	Service Properties		
Help	OK Cancel		

**29.** A new **Data Association** page opens. Map the **dataObject\_Output** of **Process** to the **argument\_Output** of **End** and click **OK** as shown in the screenshot below.

O Data Associations		<b>×</b>	
Input			
Image: Solution of the second state of the second stat	Drag objects here	End (@) Arguments ( argument_Output () (@)-@	
Copy   From: dataObject_Output	To: argument_Output	🖳 🕂 🗙 🕁 🔍	
From			
ataObject_Output	🥵 argument_Output		
Validate target after assigning input data associations			
Help		OK Cancel	

Figure 11 - 64 Data – Association Mapping

**30.** This completes the project creation. The composite.xml looks as shown in the screenshot below.

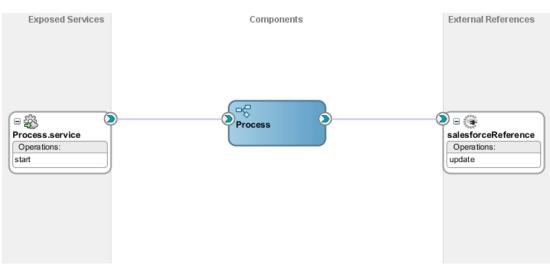


Figure 11 - 65 Composite.xml

# 11.9. Deploy the Composite

Perform the following steps to deploy the composite

1. In the Application Navigator pane, right-click BpmProject and select Deploy → BpmProject, as shown in the screenshot below.

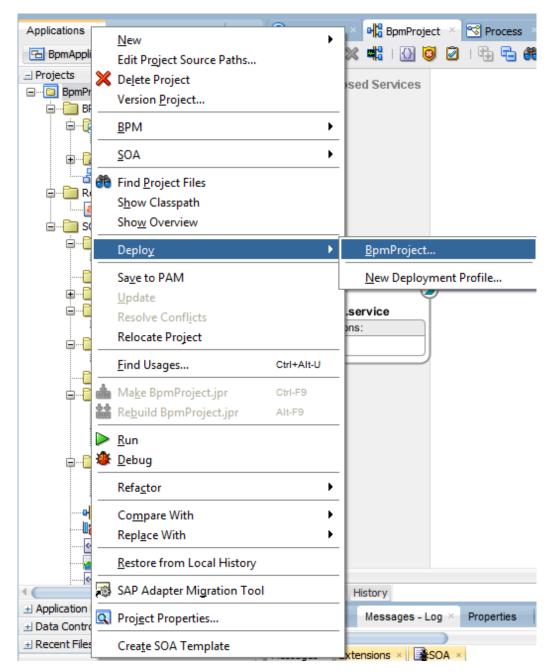


Figure 11 - 66 Deploy the Composite

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.

### 11.10. Test the Composite

You can run and test the instances of deployed BPM composite applications from Oracle Enterprise Manager Grid Control Console. This enables you to manage a composite application, initiate and track an instance of a composite and to view detailed component instance audit trails. Perform the following process to test the composite.

#### 11.10.1. Test the Outbound Process

Perform the following steps to test the Outbound process:

- **1.** Login to Enterprise Manager Console for the server on which you have deployed the project.
- 2. Open BpmProject under the Default partition.
- 3. Click the **Test** button to test the Web service, as shown in the screenshot below.

Figure 11 - 67 Test the Web Service

SOA Composite 👻		
ctive Retire   Shut Down Test   Settings		
✓ Components		
Name		
Process		
Services and References		
Name	Туре	Usage
Process.service	Web Service	Service

**4.** Provide the input payload and click the **Test Web Service** button, as shown in the screenshot below.

Figure 11 - 68 Test Web Service



Web service, enter the WSDL or WADL and click

5. After successful execution, the response contains **Status** as true for Account update, as shown in the screenshot below.

#### Figure 11 - 69 Test Status

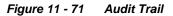
Request Response			
Test Status Request successfully received. Response Time (ms) 10802 Tree View  A new flow instance was generated. Launch Flow Trace			
Name	Туре	Value	
⊿ parameters	parameters		
⊿ processResponse	processResponse		
Status	string	true	

6. Click the Launch Flow Trace button to view the Audit Trail, as shown in the screenshot below.

#### Figure 11 - 70 Launch Flow Trace

Recover - View -				Flow Instance
Error Message	Fault Owner			Fault Time Recovery
o faults found.				
olumns Hidden 8				
Actions  View  Show Instance IDs				
Instance	Type	Usage	State	Time Composite
Process.service	Service	🤩 Service	Completed	May 30, 2014 6:17:41 PM BpmProject [1.0]
	BPMN		Completed	May 30, 2014 6:17:41 PM BpmProject [1.0]
A Process		Reference	Completed	May 30, 2014 6:17:41 PM BpmProject [1.0]

7. Click the List view and select Tree view to see the Audit trail in detail, as shown in the screenshot below.



# Instance of Process Instance details. Audit Trail List View Human Activities; Service Activitive Ust View Status Start End Location Graphical View Activity completed May 30, 2014 6:17:41 PM May 30, 2014 6:17:51 PM /Process

8. The Audit Trail looks like as shown in the screenshot below.

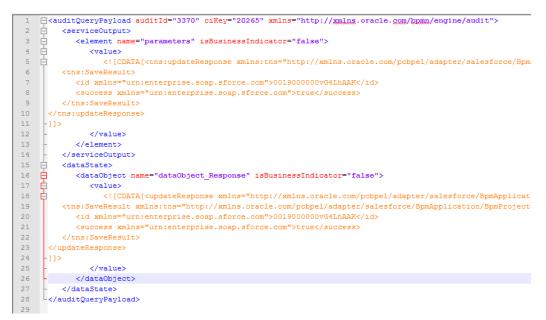
#### Figure 11 - 72 Audit Trail

-

it Trail		
ree View   Human Activitie	es; Service Activiti 💌	
Process	Thread 0	Instance created May 30, 2014 6:17:41 PM
Start		Activity completed May 30, 2014 6:17:41 PM
Start	Thread 0	Instance entered the activity May 30, 2014 6:17:41 PM
Start	Thread 0	Instance left the activity May 30, 2014 6:17:41 PM
ServiceTask	Thread 0	Activity completed May 30, 2014 6:17:41 PM
ServiceTask	Thread 0	Instance entered the activity May 30, 2014 6:17:41 PM
ServiceTask	Thread 0	Instance left the activity May 30, 2014 6:17:51 PM
ScriptTask	Thread 0	Activity completed May 30, 2014 6:17:51 PM
ScriptTask	Thread 0	Instance entered the activity May 30, 2014 6:17:51 PM
ScriptTask	Thread 0	Instance left the activity May 30, 2014 6:17:51 PM
🖻 End	Thread 0	Activity completed May 30, 2014 6:17:51 PM
🖻 End	Thread 0	Instance entered the activity May 30, 2014 6:17:51 PM
🖾 End	Thread 0	Instance left the activity May 30, 2014 6:17:51 PM

9. The Service Task of the process is shown in the screenshot below.

#### Figure 11 - 73 Service Task



**10.** This completes the Update Account scenario. The success of the task can be verified on Salesforce.com using the ID given by you for updating Account, as shown in the screenshot below.

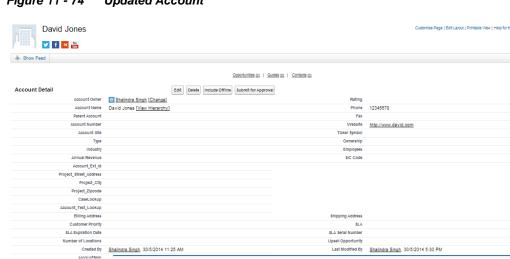


Figure 11 - 74 Updated Account

## A Appendix

This appendix outlines the steps for generating enterprise WSDL for your Salesforce.com organization and how to configure the Credential Store Key in your Enterprise Manager. These steps are pre-requisites for proper adapter functioning and need to be performed only once, provided you do not make any object level changes in your organization. These sections have been referenced several times in the document and need to be followed exactly as described.

This appendix contains the following topics:

- Section A.1, "Generating the Enterprise WSDL"
- Section A.2, "CSF Key in Enterprise Manager"

#### A.1 Generating the Enterprise WSDL

To download the Web Services Description Language (WSDL) file, required by the adapter to integrate different applications with Salesforce.com, you must have "Modify All Data" permission. (The System Administrator profile has this permission.)

The generated WSDL defines all of the API calls, objects (including standard and custom objects), and fields that are available for API access for the organization.

Perform the following steps to generate the WSDL file for the organization:

1. Log in to your Enterprise, Unlimited, or Developer Edition Salesforce.com account. Open the Web browser and enter the following URL: www.salesforce.com

The login window is displayed, as shown in Figure A-1.



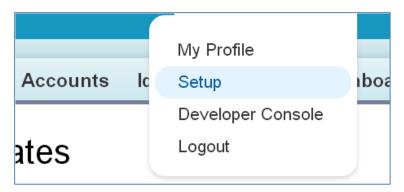
salesforce* User Name Password	GREAT CUST	_	
Log in to Salesforce Remember User Name Forgot your password?   Sign up for free.	Learn more about Social Enterprise Learn more )	Chatter is now free for your whole company Learn more	NEW Chatter app for iPhone Get it now

2. Log in to the **Salesforce.com** using a valid user name and password.

Note that you must login as an administrator or as a user who has the **Modify All Data** permission. Logins are checked to ensure they are from a known IP address.

3. Click on User menu for user name, and select Setup, as shown in Figure A-2.

Figure A-2 Setup Window



**4.** Under **App Setup**, Expend **Develop** and click on **API** to display the WSDL download page, as shown in Figure A–3.

Quick Find Q Expand All   Collapse All Force.com Home	API WSDL Salesforce's WSDL allows you to easily integrate salesforce to a place accessible to your development environment. Fo
System Overview	WSDL and Client Certificates
<ul> <li>Personal Setup</li> <li>My Personal Information</li> <li>Email</li> <li>Import</li> <li>Desktop Integration</li> <li>My Chatter Settings</li> <li>My Social Accounts and Contacts</li> </ul> App Setup <ul> <li>Customize</li> <li>Create</li> <li>Develop</li> <li>Apex Classes</li> <li>Apex Test Execution</li> </ul> API <ul> <li>Components</li> <li>Custom Settings</li> <li>Email Services</li> </ul>	Enterprise WSDL A strongly typed WSDL for customers who want to build an inte Generate Enterprise WSDL Partner WSDL A loosely typed WSDL for customers, partners, and ISVs who : Generate Partner WSDL Apex WSDL Click on the link below to download an Apex programming WS Generate Apex WSDL Click on the link below to download a Metadata WSDL file. Generate Metadata WSDL Click on the link below to download a Metadata WSDL file. Generate Metadata WSDL Click on the link below to download a Tooling WSDL file. Generate Tooling WSDL Click on the link below to download a Tooling WSDL file. Generate Tooling WSDL Click on the link below to generate and download a Delegated Download Delegated Authentication WSDL Click on the link below to generate and download a Delegated Download Delegated Authentication WSDL

Figure A-3 WSDL Download Page

5. If the organization has managed packages installed in the organization, click **Generate Enterprise WSDL**, Salesforce.com will prompt you to select the version of each installed package to include in the generated WSDL.

#### OR

Right-click on Generate Enterprise WSDL and save it to a local directory.

Note that in the Right-click menu, Internet Explorer users can choose **Save Target As**, while Mozilla Firefox users can choose **Save Link As** to save it to the local directory.

6. The Save dialog is displayed, as shown in Figure A - 4.

Figure A-4 Save Dialog Box

😨 Save As		x
C C C C C C C C C C C C C C C C C C C	► ► ► Search Libraries	٩
Organize 🔻		?
Favorites E Desktop Downloads Google Drive C OneDrive Recent Places C OneDrive for Bus	Libraries Open a library to see your files and arrange them by folder, date, and other properties Documents Library Music Library	A
Libraries Documents Subversion	Pictures Library Subversion	-
File <u>n</u> ame: Enter Save as <u>t</u> ype: All File	orise.WSDL 25	•
Hide Folders	<u>S</u> ave Cancel	

- **7.** Provide a name for the WSDL file and a location to save the WSDL file on your file system.
- 8. Click Save.

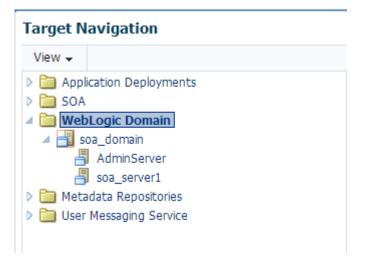
#### A.2 CSF Key in Enterprise Manager

The Oracle Cloud Adapter for Salesforce.com provides enhanced security through the Credential Store Framework (CSF) Key. This key needs to be presented on the WebLogic server where the adapter is being deployed, and has to be configured in the Enterprise Manager for the Cloud Adapter for Salesforce.com to be successfully able to retrieve the salesforce.com login credentials.

Follow the steps below to configure the CSF key in the Enterprise Manager:

1. Login to Enterprise Manager and navigate to WebLogic Domain, as shown in Figure A-5.

Figure A-5 Enterprise Manager



2. Right-click the managed server you are using for deployment and navigate to **Credentials** under **Security**, as shown in Figure A-6.

Figure A-6 WebLogic Domain in Enterprise Manager

Target Navigati	on	<u>/</u> S	ummary	
View 🗸		Ger	neral	
Application Dep SOA WebLogic Dom Admin! Soa_dom Admin! Soa_se Metadata Rep User Messagii		+ + +	Administration Server Adm Administration Server Host HOS dministration Server Listen Port 900 Support Workbench Problems ols To configure and manage this WebLo over Administration Console.	5М[ 1 3
	Logs	- + 1	ervers	
	Deployments SOA Deployment JDBC Data Sources Messaging	+	100% Users and Groups	
	Cross Component Wiring Web Services		Credentials	
	Other Services		Security Provider Configuration	
	Environment Administration	Þ	Application Policies Application Roles	H
	Refresh WebLogic Domain	,	Keystore	н
	Routing Topology		System Policies	
	Security	÷	Audit Policy	-
1	System MBean Browser WebLogic Server Administration Console			
	Target Information			

3. The Credentials page is displayed. Click on Create Map, as shown in Figure A-7.

Figure A-7 Create Map Screen

soa_domain () WebLogic Domain +		
/Domain_soa_domain/soa_domain > Credentials		
Credentials		
A credential store is the repository of security da Credential Store, a single, consolidated service p		
Credential Store Provider		and manage ch
Manu County Man all County Kou	A ruta	Se Dalata
View 🗸 🛟 Create Map 🛟 Create Key	Edit	>>> Delete
Create a new map	Туре	
> 🗀 SOA		

4. Create a map with the name SOA and click OK, as shown in Figure A-8.

Figure A-8 Map Name

Create Map			,
the map name correspon credentials with the same	dentified by a map name and a key nds with the name of an application he map name define a logical group used by the application. All map nan	and all of crede	entials,
* Map Name	s0a		
		OK	Cancel

**5.** The created SOA map is displayed in the **Credential** list, Select **SOA** map from credential list and click on **Create Key**, as shown in Figure A-9.

Figure	A- 9	Create	Key
--------	------	--------	-----

#### soa\_domain 🕕

📲 WebLogic Domain 👻

/Domain\_soa\_domain/soa\_domain > Credentials

#### Credentials

A credential store is the repository of security data that certifies the authority c Credential Store, a single, consolidated service provider to store and manage th

#### Credential Store Provider

View 👻	🕂 Create Map	🕂 Create Key	🖉 Edit	💥 Delete
Credent		Create a	new credential l	key

6. Enter a unique CSF key to be associated with a user account, as shown in Figure A-10.

Note that this key will have to be configured in exact same form and characters in the JDeveloper Adapter configuration wizard.

#### Figure A- 10 Create Key Screen

Create Key	×
Select Map	SOA 🔻
* Key	
Туре	Password 🔻
* User Name	
* Password	
* Confirm Password	
Description	
	OK Cancel

7. Keep the **Type** of key as **Password** and enter the remaining credentials, the optional description and click **OK**, as shown in Figure A-11.

Figure A- 11 Enter Credentials

Create Key		×
Select Map	SOA 🔻	
* Key	SFDC_USER	)
Туре	Password 🔻	You can enter a different
* User Name		]
* Password		
* Confirm Password		
Description		
		OK Cancel

**8.** The added CSF key is displayed under the SOA map, as shown in Figure A-12.

Figure A- 12 Credentials Store Provider

soa_domain ⓐ				
<pre>/Domain_soa_domain/soa_domain &gt; Credentials Credentials A credential store is the repository of security data that certifies the authority o Credential Store, a single, consolidated service provider to store and manage th</pre>				
View 🗸 🛛 🕂 Create M	ap 👎 Create Key 🖉 Edit 💥 Delete			
Credential	Туре			
🛛 🗀 SOA				
SFDC_USER	Password			

### Glossary

#### Adapter

An adapter is a software that an application client or an application server uses to connect to a specific Enterprise Information System (EIS).

#### **Business Service**

Also known as a Web service. A Web service is a self-contained, modularized function that can be published and accessed across a network using open standards. It is the implementation of an interface by a component and is an executable entity.

#### Integration WSDL

The non-polymorphic WSDL generated by the Oracle Cloud Adapter for Salesforce.com during design-time; contains the request and response structures for the selected operation and objects.

#### **Enterprise WSDL**

The enterprise WSDL file is a strongly typed representation of your organization's data. It provides information about your schema, data types, and fields to your development environment, allowing for a tighter integration between it and the Force.com Web service. This WSDL changes if custom fields or custom objects are added to, renamed, or removed from, your

organization's Salesforce.com configuration directly from Salesforce.com

- http://www.salesforce.com/us/developer/docs/api/Content/sforce\_api\_quickstart\_intro.htm

#### MDS

An application server and Oracle relational database that keep metadata in these areas: a file-based repository data, dictionary tables (accessed by built-in functions) and a metadata registry. One of the primary uses of MDS is to store customizations and persisted personalization for Oracle applications.

#### CSF

Credential Store Framework (CSF) stores the login information of the user matched to a unique key called the CSF Key.

#### **CSF Key**

Credential Store Framework Key; used to externalize the login credentials of the user from design-time and run-time of the Oracle Cloud Adapter for Salesforce.com. The Oracle Cloud Adapter for Salesforce.com uses this key to retrieve the login information of the Salesforce.com user from the Credential Store.

#### OPatch

OPatch is the Oracle database's Interim (one-off) Patch Installer. If OPatch is not installed into your Oracle Home (\$ORACLE\_HOME/OPatch), you may need to download it from Metalink and install it yourself. All patches that are installed with Oracle's OPatch Utility can be listed by invoking the **opatch** command with the **lsinventory** option.

#### **Cloud SDK**

Cloud Software Development Kit is a set of development tools that allows for the creation of the design-time and run-time of cloud adapters for Oracle SOA Suite.

- **CSF-** Credential Store Framework
- **DT** Design-time
- **OSB** Oracle Service Bus
- $\boldsymbol{RT}-Run\text{-}time$
- SFDC-Sales force.com
- SOA -Service-Oriented Architectures
- ${\color{black}{\textbf{SOSL}}}-{\color{black}{\textbf{Salesforce Object Search Language}}}$
- SOQL Salesforce Object Query Language
- WSDL -Web Services Description Language

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