Oracle® Cloud Adapter

User Guide for Oracle Cloud Adapter for Salesforce.com Oracle Fusion Middleware Release 12c (12.2.1.3.0)

June 2017

ORACLE

User Guide for Oracle Cloud Adapter for Salesforce.com, SOA 12.2.1.3.0

E83330-01

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Preface

- Audience
- Documentation Accessibility
- Related Documents
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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.

Documentation Accessibility

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

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http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing
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Related Documents

For more information, see the following documents in the Oracle Fusion Middleware 12c Release (12.2.1.2.0) 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

The following text conventions are used in this document:

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

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.

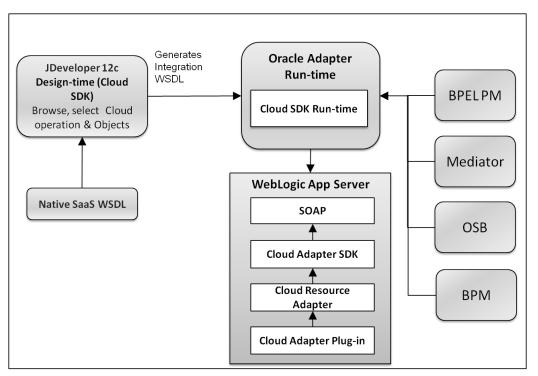
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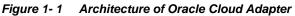
- Section 1.1, "Architecture"
- Section 1.2, "Lifecycle"

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.





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.

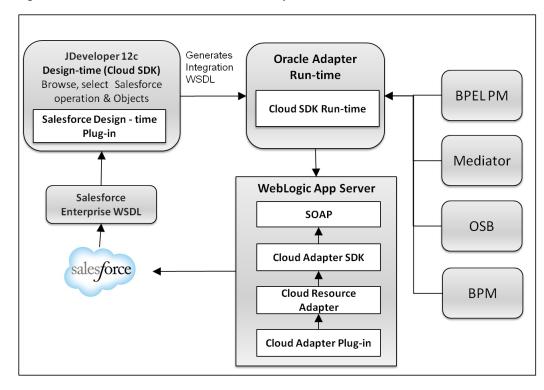
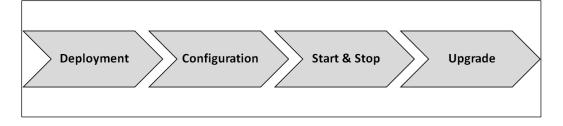


Figure 1-2 Architecture of Oracle Cloud Adapter for Salesforce.com

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 Processes 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.

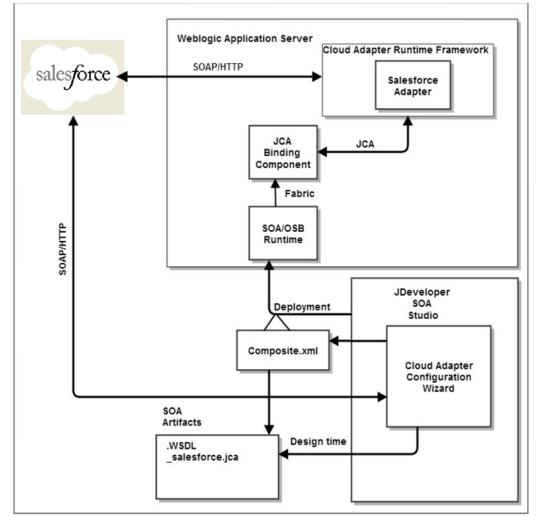


Figure 1-1 How the Oracle Cloud Adapter for Salesforce.com Works

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.

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.

Table 1-1 Adapter Configuration Wizard Generated SOA Composite Adapter Artifacts

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. For more information about the latest Salesforce.com versions supported by the adapter, refer the link Oracle Fusion Middleware Supported System Configurations.

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 and through Custom 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.

Custom WSDL – Enterprises can use the Custom WSDL feature to extend/enrich the built in functionalities of Salesforce.com. You can create a custom WSDL that includes custom Apex classes written on force.com and exposed as SOAP web services. This enables external applications to access your code and application.

For more information about custom WSDLs, see section "<u>A.2 Generating Custom</u> <u>WSDL</u>".

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 User Guide for Oracle Cloud Adapter for Salesforce.com for more details.
- 12c (12.2.1.2.0): 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 Cloud Adapter for Salesforce.com in Design-time and Run-Time"

2.1 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.

2.1.1 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*

2.1.2 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 SSSSSSSSS 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.

2.1.3 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).

From release 12.2.1.1.0 onwards, CSF Key and MAP will automatically create when we deploy the project, but for backward compatibility projects, we need to create CSF Map and Key. Refer Section A.2, "CSF Key in Enterprise Manager".

2.1.4 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".

2.2 IP Address Registration and Restrictions

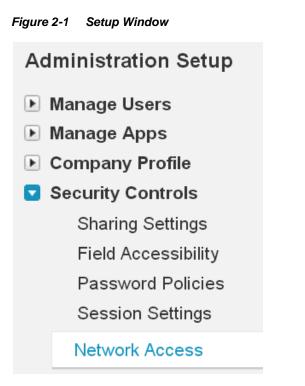
When a user tries to access Salesforce.com via a new IP address or machine, Salesforce.com requires a verification code to be entered for the user. This code is mailed to the user's registered e-mail address. To circumvent this login challenge, a list of IP address ranges can be set for all users from 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

Network Acces	SS	Help fo
The list below contains IP a Users logging in to salesfor to access salesforce.com	rce.com with a brows	er from trusted networks
Trusted IP Ranges	New	
Start IP Address 🛧		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 End IP Address 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.

2.3 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.

2.4 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.

2.4.1 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.

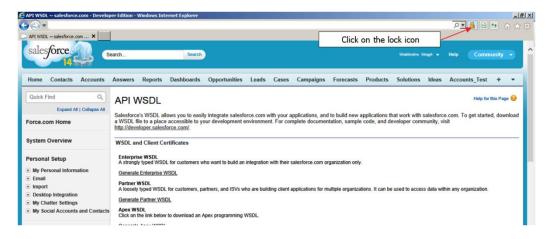


Figure 2-4 API WSDL Download Page

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
General Details Certification Path
VeriSign Ver
<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

Certific		
	Certificate	
	General Details Certification Path Show: <all></all>	
	Field	Value 🔺
C F Le	Version Serial number Signature algorithm Signature hash algorithm Signature hash algorithm Valid from Valid to Subject	V3 18 da d1 9e 26 7d e8 bb 4a 21 sha 1RSA sha 1 VeriSign Class 3 Public Primary 08 November 2006 05:30:00 17 July 2036 05:29:59 VeriSign Class 3 Public Primary
	E Learn more about <u>certificate details</u>	dit Properties Copy to File
► (► (■ [ОК

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)	
Bage-64 encoded X.509 (.CER)	
O Cryptographic Message Syntax Standard - PKCS #7 Certificates (.P7B)	
\square Include all certificates in the certification path if possible	
C Personal Information Exchange - PKCS #12 (.PFX) Include all certificates in the certification path if possible	
\square 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 > C	ancel

- 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	
General Details Cer	tification Path
Certificat	te Information
• Ensures the • Proves you • Protects e- • Ensures so	is intended for the following purpose(s): e identity of a remote computer r identity to a remote computer mail messages ftware came from software publisher ftware from alteration after publication e 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
Learn more about cer	Install Certificate Issuer Statement
	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.

2.4.2 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 AdminServer
Configuration Protocols Logging Debug Monitoring Control Deployment
General Cluster Services Keystores SSL Federation Services Deployme
Click the <i>Lock & Edit</i> button in the Change Center to modify the settings on 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
sales+orceca, 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.

2.5 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.

2.5.1 What is 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.

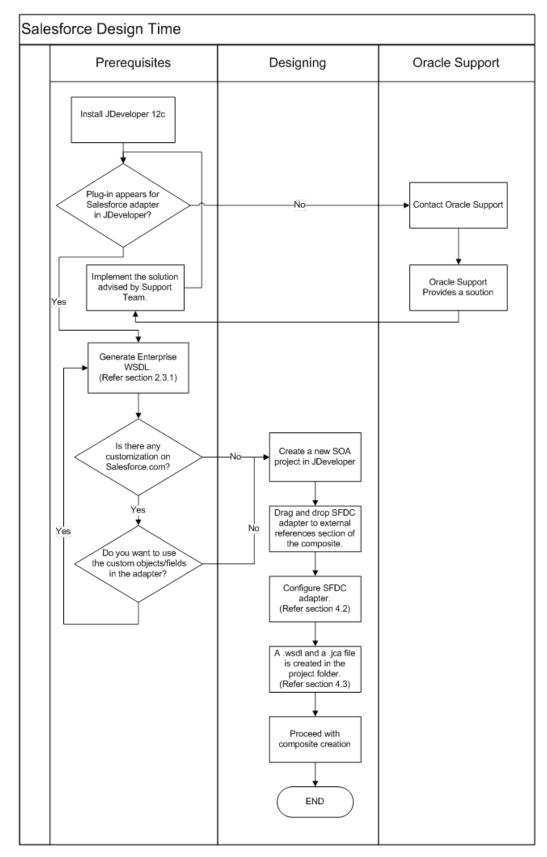


Figure2-12 Design-Time Lifecycle

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.

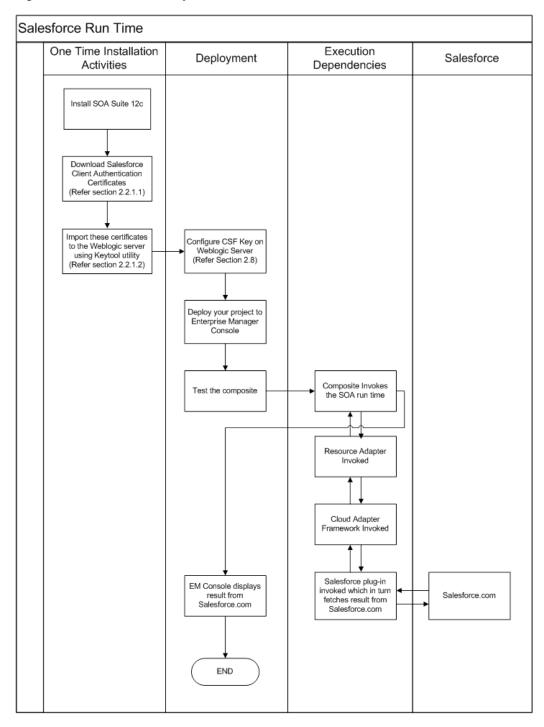


Figure2-13 Run-Time Lifecycle

2.5.2 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**.

	Components × Resources
Project1	Q+
External References	SOA
	Applications E-Business JDE World Suite
	Custom/Third Party
	Chird Party
	Cloud
	•

Figure 2-14 Salesforce Adapter Component

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

Figure 2-15 Salesforce Endpoint Configuration Wizard

O Configure Salesforce Endpoin	t - Step 1 of 6			X
Welcome to the Salesford	e Endpoint Configuration Wizard			5
Basic Info Connection Operations Custom Operations Headers Summary	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for the service. "What do you want to call your endpoint? SalesforceReference What does this endpoint do? Describe the endpoint's purpose and detail "Which Salesforce service would you like to design your integration with? (a) Standard applications delivered by Salesforce.com (b) Custom applications built using Apex Classes and hosted on force.com			
Help	< Back	Next >	Einish Canc	el

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. Select the relevant option to specify whether you want to select Standard applications delivered by Salesforce.com or if you want to use Custom Applications. By default, Standard applications delivered by Salesforce.com is selected.

Figure 2-16 Salesforce Cloud Server Connection Page

) C	onfigure Salesforce Endpoir	nt - Step 1 of 6	×
Ve	kome to the Salesfor	ce Endpoint Configuration Wizard	1
Ŷ	Basic Info	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for the service.	
÷	Connection	You will be asked to specify configuration parameters and define an operation for the service.	
5	Operations	*What do you want to call your endpoint?	
)	Custom Operations	SalesforceReference	
	Headers	What does this endpoint do?	
Ó	Summary	Describe the endpoint's purpose and detail	
		*Which Salesforce service would you like to design your integration with?	
		 Standard applications delivered by Salesforce.com 	
		Custom applications built using Apex Classes and hosted on force.com	
	Help	< <u>B</u> ack <u>Pext</u> Einish	Cancel

- 6. Click Next to continue.
- **7.** The **Salesforce Cloud Server Connection** page is displayed, as shown in Figure 2-17.

Figure 2-17 Salesforce Cloud Server Connection Page

Connection Operations Custom Operations Custom Operations "Enterprise WSDL L	onnection is required to access the ope	erations and business objects availa	ble.	
Headers Summary Security Policy: *Authentication Key Test Refresh MetaData of	ustrom v	2		

8. On the Salesforce Cloud Server Connection page, click the Find existing WSDLs icon, which is located to the right of the Enterprise WSDL Location field, as shown in Figure 2–18.

Configure Salesforce Endpoin		×
Salesforce Server Connect Basic Info Connection Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects availa Where can I find the Objects you need? "Enterprise WSDL Location: Pick the key to get in the door Security Policy: CUSTOM "Authentication Key: Test Refresh MetaData Cache:	
Help	< <u>B</u> ack	Next > Einish Cancel

Figure 2-18 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 2–19 shows the file system option.

WSDL Chooser	File System Project Libraries SOA-MDS UDDI WSIL		
Location:		- 0 0 🛱	🔒 📰 🖽
🍎 i	BPELProcess1.wsdl dbReference.wsdl		
Work	SalesForceEnterprise.wsdl		
	salesforceReference_wsdl salesforceReference_2.wsdl		
Project			
Application			
	File Name: SalesForceEnterprise.wsdl		
Home	File Type: Web Service Definition Files (*.wsdl)		
			-
Selection: file:/C:/.	IDeveloper/mywork/Application12c/Project12c/SOA/WSDLs/SalesForceEnterprise.wsdl		
Help		OK	Cancel

Figure 2-19 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, "Test Functionality"
- Section 3.7, "Fault Handling"
- Section 3.8, "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.

Table 3-1Supported Operations

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

SOSL	search
------	--------

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

O Configure Salesforce Endpoint - S	tep 3 of 6			×
Configure the Operation to I	Perform in the Target Salesforce application.		01	*
Basic Info Connection Operations Custom Operations Headers Summary	Select the target operation and the business objects on which Select an Operation Type: Core Undelete "Select Business Objects (Salesforce AP) 36. JpetUpdated "Select Business Objects (Salesforce AP) 36. JpetUpdated Available: Available: Undelete Available: Upsert AdditionalNumber Announcement Asset Attachment Campaign Case CaseComment CollaborationGroupRecord	to perform th	Selected:	à ¥
Help			< <u>B</u> ack <u>N</u> ext > Einist	Cancel

3.2.1.1 convertLead

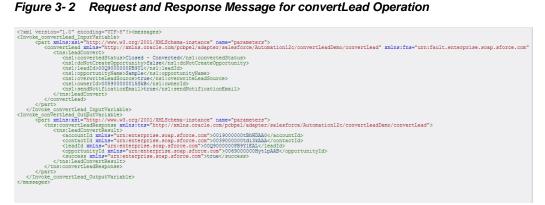
- This operation converts a Salesforce.com Lead into an Account, Contact, and optionally into an Opportunity.
- The permissions required for convertLead operation are 'Convert Leads' and 'Edit' on Lead, in addition to 'Create' and 'Edit' on Account, Contact and Opportunity objects.
- In a simple and 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="UIF-8"? <messages></messages>
<invoke1 getdeleted="" inputvariable=""></invoke1>
<pre><part name="parameters" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"></part></pre>
<getdeleted 2001="" http:="" name="parameters" www.w3.org="" xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getDeleted/getDeletedAc</th></tr><tr><th><tns:startDate>2014-03-18T18:04:16+05:30</tns:startDate></th></tr><tr><th><tns:endDate>2014-04-08T18:04:16.184+05:30</tns:endDate></th></tr><tr><th></getDeleted></th></tr><tr><th></part></th></tr><tr><th></Invoke1 getDeleted InputVariable></th></tr><tr><th><Invokel getDeleted OutputVariable></th></tr><tr><th><pre><pre><pre>xmlns:xsi=" xmlschema-instance"=""></getdeleted>
<tns:getdeletedresponse urn:enterprise.soap.sforce.com"="" xmlns:tns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getDele</th></tr><tr><th><pre><tns:GetDeletedResult></pre></th></tr><tr><th><pre><deletedRecords xmlns="></tns:getdeletedresponse>
<pre><deleteddate>2014-04-08T10:00:45.000Z</deleteddate></pre>
<id>001900000gbNkAAAU</id>
<pre><deletedrecords xmlns="urn:enterprise.soap.sforce.com"></deletedrecords></pre>
<pre><deleteddate>2014-04-08T10:00:45.000Z</deleteddate></pre>
<id>001900000gbXjbAAE</id>
<deletedrecords xmlns="urn:enterprise.soap.sforce.com"></deletedrecords>
<pre><deleteddate>2014-04-08710:00:45.000Z</deleteddate></pre>
<id>001900000shXiiAAE</id>
<pre><deletedrecords xmlns="urn:enterprise.soap.sforce.com"></deletedrecords></pre>
<pre><deleteddate>2014-04-08T10:00:45.000Z</deleteddate></pre>
<id>001900000gbNYiAAM</id>
<pre><deletedrecords xmlns="urn:enterprise.soap.sforce.com"></deletedrecords></pre>
<pre><deleteddate>2014-04-08T10:00:45.000Z</deleteddate></pre>
<id>001900000shNsgAAE</id>
<pre><deletedrecords xmlns="urn:enterprise.soap.sforce.com"></deletedrecords></pre>
<pre><deleteddate>2014-04-08T10:00:45.000Z</deleteddate></pre>
<id>001900000gbNxfAAE</id>
<deletedrecords xmlns="urn:enterprise.soap.sforce.com"></deletedrecords>
<pre><deleteddate>2014-04-08710:00:45.000Z</deleteddate></pre>
<id>001900000t77xNAAO</id>
<pre></pre>

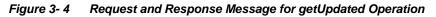
3.2.1.3 getUpdated

- 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.



xml version="1.0" encoding="UTF-8"? <messages></messages>
<invoke1 getupdated="" inputvariable=""></invoke1>
<pre><pre><pre><pre>xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" name="parameters"></pre></pre></pre></pre>
<getupdated td="" xm<="" xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getUpdated/getUpdatedDemo"></getupdated>
<tns:startdate>2014-03-18T17:57:14+05:30</tns:startdate>
<tps:enddate>2014-04-08T17:57:14.104+05:30</tps:enddate>
<pre><invoke1_getupdated_outputvariable></invoke1_getupdated_outputvariable></pre>
<pre><part name="parameters" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"></part></pre>
<tns:getupdatedresponse urn:enterprise.soap.sforce.com"="" xmlns:tns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/getUpdated/ge</td></tr><tr><td><tos:GetUpdatedResult></td></tr><tr><td><ids xmlns=">0019000003ZXslAAE<ids xmlns="urn:enterprise.soap.sforce.com">0019000003ZXslAAE</ids></tns:getupdatedresponse>
<ids xmlns="urn:encerprise.soap.sforce.com">00190000003xSnHaAE</ids>
<pre><ids xmlns="urn:enterprise.soap.sforce.com">0019000000sh8jyAAA//ids></ids></pre>
<pre><ids urn:enterprise.soap.sforce.com"="" xmlns="urn:enterprise.soap.sforce.com/>0019000000skK52AAE</ids></pre></td></tr><tr><td><pre><ids xmlns=">001900000tBdH0AAK</ids></pre>
<ids xmlns="urn:enterprise.soap.sforce.com">001900000tBdJQAA0</ids>
<ids xmlns="urn:enterprise.soap.sforce.com">0019000000tBdJZAAK</ids>
<latestdatecovered xmlns="urn:enterprise.soap.sforce.com">2014-04-08T11:14:00.000Z</latestdatecovered>

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.





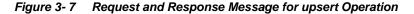
3.2.1.6 upsert

- 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

Configure Salesforce Endpoi Configure the Operation	nt - Step 3 of 6 n to Perform in the Target Salesforce application.	-		10.001m104060101	*
Basic Info <u>Connection</u>	Select the target operation and the business objects on which to perform the	ope <mark>ration in the Sales</mark>	force application.		
Operations Custom Operations Headers	3 Select an Operation Type: CRUD Greate Greate Greate				
U Summary	ActionLinkGroupTemplate	Selected:			& V
	AdditionalNumber Announcement	32			
Help		< <u>B</u> ack	Next >	Einish	Cancel

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



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
- AllowFieldTrunactionHeader
- AssignmentRuleHeader
- DebuggingHeader
- 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

xml version="1.0" encoding="UTF-8"? <messages> <invoke_updateaccount_update_inputvariable> <part name="parameters" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"></part></invoke_updateaccount_update_inputvariable></messages>
<pre><update urn:enterprise.soap.sforce.com"="" xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Automation12c/updateDemo/updateA</td></tr><tr><td><pre><ens:Id>001900000tBeKH</ens:Id> <ens:Name>/ens:Name></pre></td></tr><tr><td><t</td></tr><tr><td></update></td></tr><tr><td></part></td></tr><tr><td></Invoke_Updateaccount_update_InputVariable></td></tr><tr><td><pre><Invoke_Updateaccount update OutputVariable></td></tr><tr><td><pre><pre><pre><pre><pre><pre><pre><pre></td></tr><tr><td><tra:SaveResult></td></tr><tr><td><id xmlns=">0019000000tBeKHAA0</update></pre>
<pre><success xmlns="urn:enterprise.soap.sforce.com">true</success> </pre>

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
- AllowFieldTruncationHeader
- DebuggingHeader
- 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.

Configure Salesforce Endpoint	int - Step 3 of 6	×
Configure the Operation	n to Perform in the Target Salesforce application.	
Basic Info Connection Operations	Select the target operation and the business objects on which to perform the operati	on in the Salesforce application.
Custom Operations Headers Summary	Select an Operation Type: Misc getUserInfo getUserInfo process Business Objects: No objects available	
Help		< Back Next > Einish Cancel

Figure 3-13 Options Available for MISC Category

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

	'encoding="UTF-8"?> <messages></messages>
<pre><invoke1_getuserin;< pre=""></invoke1_getuserin;<></pre>	
	<pre>si="http://www.w3.org/2001/XMLSchema-instance" name="parameters"></pre>
	<pre>ifo xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application7/getuserinfo/salesforceReference"/></pre>
	<pre>rInfo_InputVariable></pre>
<invoke1_getuserin< td=""><td>o_OutputVariable></td></invoke1_getuserin<>	o_OutputVariable>
<part p="" xmlns::<=""></part>	si="http://www.w3.org/2001/XMLSchema-instance" name="parameters">
	erInfoResponse xmlns:ns1="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application7/getuserinfo/salesforceRef
	tUserInfoResult>
	essibilityMode xmlms="urn:enterprise.soap.sforce.com">false
	rencySymbol xmlns="urn:enterprise.soap.sforce.com" xsi:nil="true"/>
	AttachmentFileSizeLimit xmlns="urn:enterprise.soap.sforce.com">5242880
	pefaultCurrencyIsoCode xmlns="urn:enterprise.soap.sforce.com" xsi:nil="true"/>
	DisallowHtmlAttachments xmlns="urn:enterprise.soap.sforce.com">false
	HasPersonAccounts xmlns="urn:enterprise.soap.sforce.com">false
	anizationId x mlns="urn:enterprise.soap.sforce.com">0D99000000hIQnEAM<∕organizationId> ianizationMultiCurrency xmlns="urn:enterprise.soap.sforce.com">rune
	anizationMultiCufrency XMINS- Unienterprise.soap.sforce.com >true
	anizationwame xmins-urn:enterprise.soap.srore.com/20.0000001274tAAX/profileId>
	nited xmins="un:enterprise.soap.sforce.com" xsinit="true"/>
	sionSecondsValid xmlns="urn:enterprise.soap.sforce.com">43200
	sionsecondevaid anina- differenzia sop.store.com >3200/secondsvaid > deva socos socos > deva soc
	riberalicalismis-interprise, sono, sfore, com ³ state and state a
	FullName xmlns="urn:enterprise.soap.sforce.com">the com
	rId xmls="un:enterprise.soap.sforce.com">00590000015SkBAAJ
	rrLanguage xmlns="urn:enterprise.soap.sforce.com">en US
	ricalgage xmins="un:enterprise.soap.sforce.com">en IN
	rName xmins="urn:enterprise.soap.sforce.com">+++.+++++++++++++++++++++++++++++++++
	rTimeZone xmlns="urn:enterprise.soap.sforce.com">**** *****
	rTvpe xmlns="urn:enterprise.soap.sforce.com">Standard
	rUiSkin xmlns="urn:enterprise.soap.sforce.com">Theme3
	etUserInfoResult>
<td>JserInfoResponse></td>	JserInfoResponse>
	rInfo OutputVariable>

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

- AllowFieldTruncationHeader
- DebuggingHeader
- 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.

O Configure Salesforce Endpoint	- Step 3 of 6		X
Configure the Operation t	o Perform in the Target Salesforce application.		
Basic Info <u>Connection</u>	Select the target operation and the business objects on which to perform the operation i	in the Salesforce application.	
Operations Custom Operations Headers Summary	Select an Operation Type: Misc process		
C Jaining y	*Select Business Objects (Salesforce API 36.0): Available: AccountRelation AccountFeed AccountFietory AccountPartner Acc	lected:	& ⊗
	Process mode: O ProcessSubmitRequest ProcessWorkitemRequest	uest	
Help		< Back Next > Einis	Cancel

Figure 3-15 Radio Button under process Operation

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.

<pre>- <messages> - <invoke_proesssubmitid_process_inputvariable> - <invoke_proesssubmitid_process_inputvariable> - <part:xmlns:xsi="http: adapter="" pcbpel="" processcampaignsubmitid"="" salesforce="" sfdc12c_masterprocess="" sfdc_complex="" xmlns.oracle.com=""> - <pre>comments xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/SFDC_Complex/SFDC12c_MasterProcessCampaignSubmitId"> - <pre>comments xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/SFDC_Complex/SFDC12c_MasterProcessCampaignSubmitId"> - <pre>comments xmlns="http://xmlns.oracle.com/pcbpel/adapter/salesforce/SFDC_Complex/SFDC12c_MasterProcessCampaignSubmitId"> - <pre>comments xmlns="un:enterprise.soap.sforce.com"/> </pre> comments xmlns="un:enterprise.soap.sforce.com"/> <pre>comments xmlns="un:enterprise.soap.sforce.com"/> <pre>comments xmlns="un:enterprise.soap.sforce.com"/></pre></pre></pre></pre></pre></part:xmlns:xsi="http:></invoke_proesssubmitid_process_inputvariable></invoke_proesssubmitid_process_inputvariable></messages></pre>
<pre><shipentrycriteria xmlns="universe;soap.sforce.com">true <skipentrycriteria xmlns="universe;soap.sforce.com">true</skipentrycriteria> <re pre="" ue<=""></re></shipentrycriteria></pre>
 - - - - - - - - - - - - - - - - - - - - - <
- <pat man="parameters" xmins:xsi="mtp;//www.ws.org/zour/Articstenia-instance"> - <nsi:processresponse xmis:nsi="http://xmis.oracle.com/pcbpel/adapter/salesforce/SFDC_Complex/SFDC12c_MasterProcess/ProcessCampaignSubmitId">></nsi:processresponse></pat>
<isi_processeeult></isi_processeeult>
<pre>- \not recessure <actorids xmins="urn:enterprise.soap.sforce.com">005900000155kBAAU</actorids></pre>
<pre>centityId xmlns="urrienterprise.soap.sforce.com" >031000000ThTVAAK</pre>
<instancilla milis-="" soap.sforce.com="" uni-enprise=""> 0429000007V/FtAnc/instanceid></instancilla>
<pre><instanced xmms="urn:enterprise.soap.storce.com">eggroups/vir.uae>/mstanced/> <instancestatus xmlns="urn:enterprise.soap.sforce.com">endine</instancestatus></instanced></pre>
<pre><instancestatus xnms="unrienterprise.soap.storce.com"> etaige</instancestatus></pre> /instancestatus> <newworktemids xmms="unrienterprise.soap.sforce.com"> etaige@etailus> <newworktemids xmms="unrienterprise.soap.sforce.com"> etaige@etailus> <newworktemids< pre=""></newworktemids<></newworktemids></newworktemids>
<pre></pre>
<success xinits="uni:enterprise.soap.siorce.com"> true</success>
Tony details to sliphoard

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.

Figure 3- 17 Request and Response Message for ProcessWorkItemRequest Operation



3.2.4 SOQL Operation

SOQL allows you to query your organization's Salesforce.com data for specific information. Following are the operations falling under this category:

- query
- queryAll
- queryMore (supported internally)

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

Figure 3-18 Option Available under SOQL Category

Configure Salesforce Endpoir	to Perform in the Target Salesforce application.	X
Basic Info Connection Custom Operations Headers Summary	Select the target operation and the business objects on which to perform the operation in the Salesforce application. Select an Operation Type: SOQL Query "Enter a Salesforce Object Query Language (SOQL) Statement: SELECT a name, a.id, a.accountNumber, c.name from Contact c., c.Account a WHERE a.name = 'United OI & Gas, UK' Refresh Image: Binding Parameters: No Parameters Test My Query	
Help	No Result	

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.





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 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 3-21 shows how you can set the value of 'queryLocator' at the design-time.

Figure 3-21 Set Value of 'queryLocator' at Design-Time

Assertions	Skip Conditio	n Heade	rs Sources	s Targe	ts
General	Corre	lations	Propert	ies	Annotations
Properties:					
Name		Value		Туре	
jca.msmq.mes	-				
jca.msmq.mes	_				
jca.msmq.mes	sage.Pri				
jca.msmq.mes	sage.Se				
jca.msmq.mes	sage.Ti				
jca.salesforce	.AllOrNo				
jca.salesforce		varQueryLoo	://	input	
jca.salesforce					
jca.salesforce	.respons				

Figure 3-22 shows how the value of 'queryLocator' is passed at the run-time.

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

🐗 Invoke2

```
[2014/01/01 01:38:17]
Started invocation of operation "query" on partner "query".
[2014/01/01 01:38:17]
Sending property "jca.salesforce.queryLocator", value is "01g9000000ZQW8bAAH-200".
[2014/01/01 01:38:18]
Invoked 2-way operation "query" on partner "query".
_View xml document
```

3.2.8 SOSL Operation

SOSL allows you to search your organization's Salesforce.com data for specific information. It can search multiple objects at a time. Following are the operations falling under this category:

search

The below figure shows the list of operations falling under SOSL category.

Figure 3-23 Option Available under SOSL Category

Configure the Operation	to Perform in the Target Salesforce application.		0101010101	aratara 1969 ana 1969 ana	*
Basic Info Connection Custom Operations Headers Summary	Select the target operation and the business objects on which to perform the oper Select an Operation Type: SOSL Search Language (SOSL) Statement: "Enter a Salesforce Object Search Language (SOSL) Statement: FIND (OI Gas) IN ALL FIELDS RETURNING Account(Name, AccountNumber), Opportunity(Name, Id), Contact(Name, email) LIMIT 20 Refresh Binding Parameters: No Parameters Test My Query No Result	ation in the Salesf	orce application.		
Help	.0	< <u>B</u> ack	Next >	Einish	Cancel

3.2.9 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 3-24 shows a sample request and response message for search operation on Salesforce.com.





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).

Table 3-2 Salesforce.com SOAP Headers

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	
Operations	getDeleted						Y			
	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	
CRUD	create	Y	Y	Y	Y	Y	Y	Y	Y	
Operations	retrieve						Y	Y	Y	Y
	update	Y	Y	Y	Y	Y	Y	Y	Y	
	delete	Y	Y		Y	Y	Y		Y	
MISC	getUserInfo						Y			
Operations	process		Y		Y		Y		Y	
SOSL and	query						Y	Y	Y	Y
SOQL	queryAll						Y			Y

Operations	queryMore			Y		Y
	search			Y	Y	

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	True : 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.
		False : 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	True : 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.
		False : 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()

rielus.		
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	True: The default (active) assignment rule is used.False: The default (active) assignment rule is not applied.

Fields:

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(), merge()

Element Name	Туре	Description
triggerAutoResponseEmail	Boolean	True: It triggers auto-response rules for leads and cases.
		False: Auto-response rules for leads and cases are not triggered.
triggerOtherEmail	Boolean	True : The email is triggered outside the organization.
		False : The email is not triggered outside the organization.
triggerUserEmail	boolean	True : 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.

Fields:

False: 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(), update(), delete(), process()
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:

Element Name	Туре	Description
updateMru	Boolean	True: 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(), queryAll()

Fields:

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.

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 String		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

Fields:					
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.			
Type String Limit information type specified in the header		Limit information type specified in the header			
		API REQUESTS—contains limit information about			

	API calls for the organization.

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.

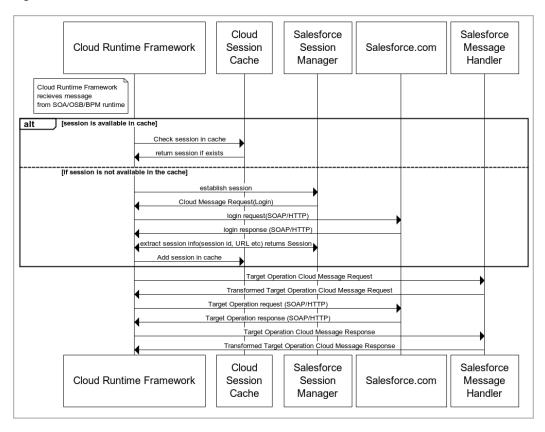
3.4.2 Execution Phase

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 3-25 shows Execution Phase.

Figure 3- 25 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 3-26 shows how only a single sObject was manipulated during the design-time.

Figure 3-26 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 3-27.

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 🚷 🕀 Image: Sector State Asset ns2:Account_Test_c 🚸 🕀 🗄 🛞 ns1:updateCase ns2:Opportunity 🚷 🕀 Is1:UpdateCampaign - ns2:Lead 🚷 🕀 Is1:UpdateContract ns2:Contact 🚷 🕀 IsicreateAccount Image: Second and S B 1:ConvertLead Ising the second sec 🗄 🕅 🔛 ns1:createLead Is1:createAccountTestCust

Figure 3- 27 Transformation Create Account

3.6 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.3 CSF Key in Enterprise Manager".

3.7 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.

3.7.1 Design-Time Test Functionality

Design-time test functionalities include the following test functionalities:

1. Test Salesforce.com Cloud Connection: There is a Test 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 button 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".

3.8 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 3-28 shows the payload structure containing exception details.

Figure 3-28 Payload Structure Containing Exception Details

```
xsd:complexType name="Error">
        <xsd:sequence>
            <xsd:element name="fields" type="xsd:string" nillable="true"
            minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element name="message" type="xsd:string"/>
            <xsd:element name="statusCode" type="tns:StatusCode"/>
            </xsd:sequence>
        <//xsd:complexType>
```

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

3.9 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 3-29.

Configure Salesforce Endpoi	nt - Step 3 of 6		
onfigure the Operation	to Perform in the Target Salesforce application.		
Basic Info	Select the target operation and the business objects on which to	perform the operation in the Salesforce ap	plication.
Operations Custom Operations Headers	③ Select an Operation Type: Core ▼ merge ▼		
Summary	"Select Business Objects (Salesforce API 36.0): Available: Q Account	Selected:	۵
	Contact	> >>>	
Help	1.	< <u>B</u> ack N	ext > Enish Cance

Figure 3-29 Available Business Options in CORE Operation Category

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 3-30.

Figure 3- 30 Create Operation in Cloud Operation Configuration Wizard

		n. 01010101010101010101010101010101010101	
Basic Info Connection Operations	Select the target operation and the business objects on	which to perform the operation in the Salesforce application.	
Custom Operations Headers Summary	Select an Operation Type:	Selected: Lead ActonulniGroupTemplate AdditionaNumber	• •

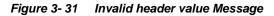
Table 3-33 shows an insight into the maximum number of objects you can select for a specific operation.

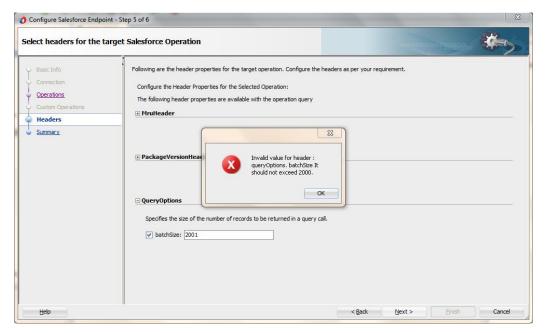
#	Operation Name	Max Objects
1	Create	10
2	retrieve	1
3	update	10
4	delete	Unbounded
5	upsert	1
6	undelete	Unbounded
7	convertLead	1
8	process	1
9	merge	1
10	getDeleted	1
11	getUpdated	1
12	getUserInfo	0

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 3-31.





3.10 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 3-32.

Basic Info	Select the target operation and the business objects on which to perform the operation in the Sales	force application.
Operations Custom Operations	③ Select an Operation Type: SOQL ▼ query ▼	
Headers Summary	*Enter a Salesforce Object Query Language (SOQL) Statement:	
	WHERE a.name. = 'United OI & Gas, UK'	
	Refresh 3 Binding Parameters:	
	No Parameters	
	Test My Query	
	No Result	

Figure 3- 32 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 3-33.

Figure 3-33 Run Query Test

nfigure the Operation	n to Perform in the Target Salesforce application.			
Basic Info Connection Operations Custom Operations Headers Summary	Select the target operation and the business objects on which to perform the oper Select an Operation Type: SOQL User Usery Users "Enter a Salesforce Object Query Language (SOQL) Statement: Select id, Name from Account where name="Batring"	ation in the Sales	force application.	
	Refresh Image: Control of the second seco			
	Test My Query No Result			
	I TO READE			

5. As shown in Figure 3-34, the **Run Query Test tool** prompts you to provide a value for the bind parameter, '**vid**' in this case.

🕜 Configure Salesforce Endp	oint - Step 3 of 6	-	-		×
Configure the Operation	on to Perform in the Target Salesforce application.				*
Basic Info Connection	Select the target operation and the business objects on which to perform the oper	ation in the Salest	orce application.		î
Operations Custom Operations Headers Summary	Select an Operation Type: SOQL query Tenter a Salesforce Object Query Language (SOQL) Statement: Select id, Name from Account where name='@string'				
	Refresh Image: State Stat				
	string: Jatin Sharma Test My Query				
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 3- 34 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 3-35.

Figure 3- 35 Result of the Query

onfigure the Operation	to Perform in the Target Salesforce application.		-
Basic Info <u>Connection</u> Operations	Select the target operation and the business objects on which to perform the opera Select an Operation Type: SOQL query	tion in the Salesforce application.	
Custom Operations Headers Summary	"Enter a Salesforce Object Query Language (SOQL) Statement: Select Id, Name from Account where name="&string" Refresh @ Binding Parameters: string: Jatin Sharma		

7. The WSDL generated for this particular adapter contains the bind parameter as part of input schema, as shown in Figure 3-36.

Figure 3-36 Input Schema

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

<u>4</u>

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.

Oracle Cloud Adapter for Salesforce comes preinstalled with Oracle SOA Suite 12c (12.2.1.2.0) and is available under the Cloud subsection of Component Palette in JDeveloper.

The Oracle Cloud Adapter for Salesforce.com can be used for both inbound as well as outbound processes. This chapter explains configuration for both of these processes in detail.

It contains the following topics:

- Section 4.1, "Oracle Cloud Adapter for Salesforce.com-Outbound"
- Section 4.2, "Oracle Cloud Adapter for Salesforce.com-Inbound"

4.1 Oracle Cloud Adapter for Salesforce.com-Outbound

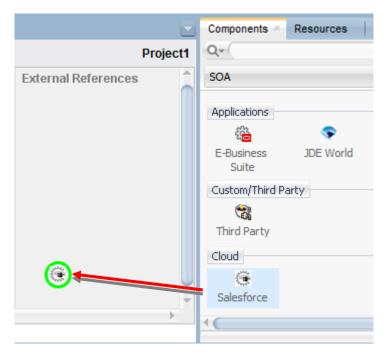
This section describes the configuration process for Oracle cloud Adapter for Salesforce.com when used for the outbound connection.

4.1.1 Oracle Cloud Adapter for Salesforce.com Walkthrough - Enterprise

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.

Figure 4-1 Salesforce Adapter



The Salesforce Cloud Adapter Configuration Wizard dialog is displayed.

4.1.2.1 Basic Info Page

The first page of Salesforce Cloud Adapter Configuration Wizard is – Basic Info 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 Basic Info Page

Velcome to the Salesfo	rce Endpoint Configuration Wizard				4=5
Basic Info Connection Operations Custom Operations Headers Summary	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for the servic "What do you want to call your endpoint? SalesforceReference What does this endpoint do? Describe the endpoint's purpose and detail "Which Salesforce service would you like to design your integration with? ③ Standard applications delivered by Salesforce.com ③ Custom applications built using Apex Classes and hosted on force.com	ce.			
Help		lack	Next >	Finish	Cancel

4.1.2.2 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.

Figure 4- 3	Salesforce Cloud Server Connection Page	

Basic Info A Salesforce Server connection is required to access the operations and busic Connection Image:		88510101030	Notore Contraction	*
Connection Operations Q Where can I find the Objects you need? Custom Operations "Enterprise WSDL Location: Headers Summary Q Pick the key to get in the door				
Security Policy: CUSTOM *Authentication Key: Test				
Refresh MetaData Cache:	< Back	Next >	Enish	Cancel

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

- Enterprise WSDL Location
- Security Policy

- Authentication Key
- Test Connection

Enterprise 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

Interprise WSDL Location:	
---------------------------	--

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



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.

Figure 4-6 Add Credential Page

*CSF Key Name:		
*Username:		
*Password:		
*Re-Enter Password:		

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

Test Connection Functionality

You can use **Test** button to test the connection after creating or selecting the CSF Key. By clicking on **Test** button, you will see the message as shown in Figure 4-7.

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

Figure 4-7 Test Connection Option

Test Connection was established successfully.

Click Next to continue or Cancel to exit the wizard.

4.1.2.3 Salesforce.com Cloud Operation Configuration Page

The next page of Salesforce Cloud Adapter Configuration Wizard is – **Cloud Operation Configuration**, as shown in Figure 4-8.

Figure 4-8 Cloud Operation Configuration page

Configure Salesforce Endpoi	nt - Step 3 of 6	
Basic Info <u>Connection</u>	. Select the target operation and the business objects on which to perfor	n the operation in the Salesforce application.
Operations Custom Operations Headers Summary	Select an Operation Type: CRUD create create delete	
	"Select Business Objects (Salesforce API 36 / Perieve update Available: Account AccountContactRole ActionLinKGroupTemplate ActionLinKGroupTemplate AdditionalNumber Announcement ApexClass ApexComponent ApexEmailNotification	Selected:
Help		< Back Next > Finish Cancel

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:

- Select an Operation Type
- SFDC Operation
- API Version
- WSDL Operation
- Business Objects

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".

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".

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.

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 drop-down, following options are available.

- All: Combination of both standard as well as custom objects
- Custom: Objects created or customized by the user
- Standard: Objects provided by Salesforce in standard environment

SOQL Page

If you select SOQL operation category, a query editor will open. Type the SOQL statement depending on the operation selected, as shown in Figure 4-9.

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 "<u>SOQL</u> <u>Operations</u>" 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 4-9 Query Statement in SOQL Option

Configure Salesforce Endpoin	t - Step 3 of 6 to Perform in the Target Salesforce application.			0101010194069335	*-5
Basic Info Connection Custom Operations Headers Summary	Select the target operation and the business objects on which to perform the operation Select an Operation Type: SOQL @uery @ *Enter a Salesforce Object Query Language (SOQL) Statement: SELECT a name, a id, a account tumber, cname from Contact c, c.Account a WHERE a name = United OI & Gas, UK Refresh @ Binding Parameters: No Parameters Test My Query No Result	tion in the Sales			
Help		< Back	Next >	Finish	Cancel

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 show results of the 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 4-10.

Test My Query: Test My Query button is used to execute the query.

Figure 4- 10 Query Test

Configure Salesforce Endpoint	t - Step 3 of 6		-	-	X
Configure the Operation	to Perform in the Target Salesforce application.		en angenan		-
Basic Info <u>Connection</u> Operations <u>Headers</u> Summary	Select the target operation and the business objects on which to perform the o ② Select an Operation Type: SQL "Enter a Salesforce Object Query Language (SOQL) Statement: Select id, Name from Account where name="&string" Refresh ③ Binding Parameters: string: Jatin Sharma Test My Query	peration in the Sales	orce application.		
	xmmsonae "regr/priving acoustic acousti	Î			
Help	1	< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

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'

Figure 4- 11 Query Test

Configure the Operation	to Perform in the Target Salesforce application.	anananananan an hawayayayayay	*
Basic Info Connection Operations Custom Operations Headers Summary	Select the target operation and the business objects on which to perform the oper Select an Operation Type: SOQL query "Enter a Salesforce Object Query Language (SOQL) Statement: Select id, Name from Account where name="&string" Refresh String: Test My Query		
Help	No Result	<back next=""> Enish</back>	2

SOSL Page

If you select the SOSL operation category, a search box will open. Type the search data. SOSL enables you to search your organization's Salesforce.com data for specific information.

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.

Figure 4-12 Search Statement in SOSL Option

Configure Salesforce Endpoint	- Step 3 of 5	23
Configure the Operation t	to Perform in the Target Salesforce application.	* =>
Basic Info Connection Operations Headers Summary	Select the target operation and the business objects on which to perform the operation in the Salesforce application. Select an Operation Type: DSL Search Comparison of the operation in the Salesforce oppication. "Inter a Salesforce Object Search Language (SOSL) Statement: The Old Gas) B1 ALL FIELDS REFERENCE Account(Name, Account/Name, Account/Name, 10), Contact(Name, email) LMIT 20 Refresh @ Binding Parameters:	
	No Parameters Test My Query No Result	
Help	<back mext=""></back>	Cancel

Run Search Test Tool:

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

The SOSL Test dialogue contains the following area:

SOSL 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 <u>4-13</u>.

Test My Query: Test My Query button is used to execute the query.

Figure 4-	13	Query Te	est for SOSL

O Configure Salesforce Endpoint	- Step 3 of 5	×
Configure the Operation t	o Perform in the Target Salesforce application.	
Basic Info <u>Connection</u> Operations	Select the target operation and the business objects on which to perform the op Select an Operation Type: SOSL search	peration in the Salesforce application.
i Headers Summary	*Enter a Salesforce Object Search Language (SOSL) Statement: Find (&String) In ALL Fields Returning Account Refresh ③ Binding Parameters: String:	
	Test My Query <pre></pre>	
Help		< Back Next > Einish Cancel

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 SOSL statement. The screenshot below illustrates the usage of 'Bind Parameters'

Figure 4- 14 Query Test for SOSL

Configure Salesforce Endp Configure the Operati	on to Perform in the Target Salesforce application.	
Basic Info <u>Connection</u> Operations	Select the target operation and the business objects on which to perform the operation in t	he Salesforce application.
Headers Summary	"Enter a Salesforce Object Search Language (SOSL) Statement: Find (&String) In ALL Fields Returning Account	
	Refresh Image: Image	
	Test My Query	
Help		ack Next > Einish Cancel

4.1.2.4 Headers Page

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

The **Headers** 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".

Oconfigure Salesforce Endpoint - :	Step 5 of 6				23
Select headers for the targe	t Salesforce Operation		0101010101		*
Basic Info Connection Querations Custom Operations Headers Summary	Following are the header properties for the target operation. Configure the header Configure the Header Properties for the Selected Operation: The following header properties are available with the operation create AllorHoneHeader Specifies whether a call rolls back all changes unless all records are process Image: allorHone AllowFieldTruncationHeader AssignmentRuleHeader DebuggingHeader EmailHeader MrutHeader PackageVersionHeader.packageVersions		uirement.		
Help		< <u>B</u> ack	Next >	Einish	Cancel

Figure 4-15 Header and Properties Page (for create operation)

4.1.2.5 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.

Figure 4-16 Finish Page

Configure Salesforce Endpoint - Step 6 of 6 Ilesforce Endpoint Configuration Summary		terene and the second
Basic Info	Salesforce endpoint configuration was successful.	
Operations Custom Operations Headers	Selected Operation Name: retrieve Selected Object(s) Name: ActionLinkGroupTemplate	
Summary	Selected Header Properties: No Header Selected	
Help		< Back Next > Finish Can

4.1.2 Oracle Cloud Adapter for Salesforce.com Walkthrough - Custom WSDL

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. For more details, refer <u>Section</u> 4.1.1.

4.1.3.1 Basic Info Page

The first page of Salesforce Cloud Adapter Configuration Wizard is – Basic Info page. For more details, refer Section 4.1.2.1

4.1.3.2 Salesforce Cloud Server Connection Page

The next page of the adapter configuration wizard is – Salesforce Cloud Server Connection. For more details, refer Section 4.1.2.2.

4.1.3.3 Custom WSDL

The next page is the Custom Operations page. You can upload the Custom WSDL by clicking

on the upload ^[12] icon as shown in the figure below:

Figure 4- 17 Custom WSDL Page

Configure the Operation	to Perform in the Target Salesforce application.	
Basic Info Connection Operations Custom Operations Headers Summary	Browse the Salesforce custom WSDL and select the target operation to perfi	form in the Salesforce application.

To upload a new WSDL click **Select the Custom WSDL**. This will replace the previously uploaded WSDL.

Follow the steps below to download the Custom WSDL from Salesforce.com.

- 1. Open the Salesforce application.
- 2. In setup, search for Apex in quick search and click App Setup →Develop → Apex Classes.
- 3. Click New to create new Apex class.

- 4. Write the Apex code based on the logic you want to build. Click Save.
- 5. After you have saved the code, you can see the button Generate WSDL. Click this button as shown in the figure below.
- 6. You will see the WSDL on the web page. Download this WSDL in your local machine.

Figure 4-18 Account New

Apex Class AccountNew					Help for this Page 💡
« Back to List: Apex Classes					
Apex Class Detail	(Edit Delete Generate WSDL	Download Security Show Dependence	cies	
Name	AccountNew		Status	Active	
Namespace Prefix	HelloWorldPkg		Code Coverage	0% (0/39)	
Created By	Priyanka Gupta, 2/14/20	14 1:14 AM	Last Modified By	Priyanka Gupta, 3/26/2014 3:04 AM	
		_			
Class Body Class Summary	Version Settings Trace	Flags			

4.1.3.4 **Headers Page**

The next page in Salesforce Cloud Adapter Configuration Wizard is - Headers page.

The **Headers** 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".

Figure 4- 19 Headers Page

O Configure Salesforce Endpoi	nt - Step 5 of 6		×
Select headers for the ta	rget Salesforce Operation		*
Basic Info Connection Operations Euston Operations Headers Summary	Following are the header properties for the target operation. Configure the head Configure the Header Properties for the Selected Operation: The following header properties are available with the operation createAccount	ers as per your requirement.	
Help		< Back Next > Einish	Cancel

4.1.3.5 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.

To finish adapter configuration, Click Finish

Figure 4- 20 Summary Page

O Configure Salesforce Endpoint	- Step 6 of 6		×
Salesforce Endpoint Config	guration Summary	LOFDIGITUTE LOSS LOTATATURE	*
Basic Info Connection Operations Custom Operations Headers Summary	Salesforce endpoint configuration was successful. Selected Operation Name: createAccount Selected Header Properties: DebuggingHeader.debugLevel : DETAIL, AllowFieldTruncationHeader.allowFieldTruncation : true		
Help	< <u>B</u> ack	Next > Finish	Cancel

4.1.3 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.

4.1.3.6 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.

Figure 4-21 Sample JCA File contents for Create operation

<adapter-config <="" th="" xsdtargetnamespace="http://xmlns.oracle.com/cloud/adapter/salesforce/SalesforceReference_2/types"><th></th></adapter-config>	
<pre>xmlns="http://platform.integration.oracle/blocks/adapter/fw/metadata"></pre>	
<connection-factory location="cloud/CloudAdapter"></connection-factory>	
<non-managed-connection managedconnectionfactoryclassname="oracle.cloud.connector.salesforce.SalesforceConnectionFac</td><td>tory"></non-managed-connection>	
<property name="targetWSDLURL" value="/WSDLs/enterpriseWSDL33.wsdl"></property>	
<property name="csfkey" value="SFDC_USER"></property>	
<property name="csfMap" value="oracle.wsm.security"></property>	
<property name="applicationVersion" value="33.0"></property>	
<pre><endpoint-interaction operation="create" porttype="SalesforceReference_2PortType"></endpoint-interaction></pre>	
<pre><interaction-spec classname="oracle.tip.adapter.cloud.CloudInteractionSpec"></interaction-spec></pre>	
<property name="targetOperation" value="create"></property>	
<property name="operationPath" value=""></property>	
<property <="" name="oracle.cloud.rt.sfdcAdapterNamespace" pre=""></property>	
<pre>value="http://xmlns.oracle.com/cloud/adapter/salesforce/SalesforceReference_2#new"/></pre>	
<property name="selectedObjects" value="Account"></property>	

4.1.3.7 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 4-22 Integration WSDL part showing delete operation request and response schema



Figure 4-23 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:deleteReguestMessage"/>
        <wsdl:output message="nsl:deleteResponseMessage"/>
       <wsdl:fault name="UnexpectedErrorFault" message="nsl:UnexpectedErrorFault"/>
   </wsdl:operation>
</wsdl:portType>
```

4.2 Oracle Cloud Adapter for Salesforce.com-Inbound

4.2.1 Oracle Cloud Adapter for Salesforce.com Walkthrough-Inbound

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 **Exposed Services** swim-lane in the composite.xml page, as shown in Figure 4-18.

Figure 4-24 Salesforce Adapter



The Salesforce Cloud Adapter Configuration Wizard dialog is displayed.

4.2.2.1 Basic Info Page

The first page of Salesforce Cloud Adapter Configuration Wizard is – Basic Info page. For more details, refer <u>Section 4.1.2.1</u>.

Figure 4- 25 Basic Info Page

Configure Salesforce Endpoint	int - Step 1 of 4	X
Welcome to the Salesfo	rce Endpoint Configuration Wizard	
Basic Info Connection Outbound Messaging Summary	This wizard helps you configure an endpoint using the Salesforce Cloud connection You will be asked to specify configuration parameters and select object and related "What do you want to call your endpoint? SalesforceService What does this endpoint do? Describe the endpoint's purpose and detail	criteria for the service.
Help		< Back Next > Einish Cancel

4.2.2.2 Connection Page

The next page of the adapter configuration wizard is – Salesforce Cloud Server Connection. For more details, refer Section 4.1.2.2.

4.2.2.3 Outbound Messaging

Upload the Outbound messaging WSDL by clicking on the upload icon as shown in Figure below:

Figure 4-26 Outbound Messaging

Configure Salesforce Endpoint - Provide information on Out	Step 3 of 4 tbound Messaging WSDL to receive notification from th	analalananan unukatisisis	*
Basic Info <u>Connection</u> Outbound Messaging	Select the target WSDL to receive outbound message notifications from the Salesforce application		
U Summary	You must first generate the Salesforce outbound messaging WSDL you would want to set To generate the WSDL, perform these steps: 1. join to your Salesforce accurd and go to Setup -> Outbound Messages. 2. Select the required object. 3. First other required details (in the Endpoint URL field, enter a dummy URL), and click of the Outbound Messaging WSDL:		
Help	< <u>B</u> ack	Next > Einish	Cancel

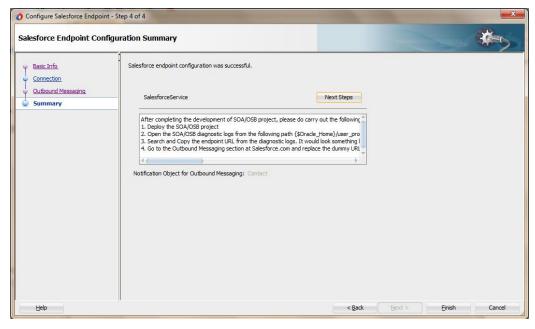
Uploading new WSDL against the option '**Select new Outbound Messaging WSDL**' will replace the previously uploaded WSDL. Follow the steps below to download Outbound Messaging WSDL from Salesforce.com.

- 1. Open the Salesforce application.
- 2. Go to Setup and click Workflow option.
- 3. In the Workflow Rules panel, click the workflow rule.
- 4. Select object to which this workflow is applicable and click Next.
- 5. Enter Rule name, Rule condition and click Next.
- 6. Click Add Workflow Action and select New Outbound Messaging.
- 7. Enter require details and in the Endpoint URL field, enter dummy URL and click Save.
- 8. Now, click Generate WSDL and download the WSDL.

4.2.2.4 Summary

The next page in Salesforce Cloud Adapter Configuration Wizard is – **Summary** page. This page summarizes the Oracle Cloud Adapter for Salesforce Inbound configuration as shown in Figure below.

Figure 4-27 Summary Page



Follow the post-configuration steps:

- 1. Deploy the SOA/OSB project
- 2. Open the SOA/OSB diagnostic logs from the following path:

{\$Oracle_Home}/user_projects/domains/{your_domain}/servers/{server_name}/l ogs/{server_name}-diagnostic.log

3. Search and Copy the endpoint URL from the diagnostic logs. It would look something like this:

For

SOA: https://{host}:{port}/integration/flowsvc/salesforce/{partition_name}/{proj ect_name}/{service_name}/v1.0

For

OSB: https://{host}:{port}/integration/flowsvc/salesforce/{project_name}/{servic e_name}/v1.0/

4. Go to the Outbound Messaging section at Salesforce.com and replace the dummy URL you entered with the SOA/OSB endpoint URL fetched from the last step.

Click Finish to complete the configuration and Cancel to discard.

5

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, "Designing a Composite for Service Integration"
- Section 5.3, "Configure Oracle Cloud Adapter for Salesforce.com"
- Section 5.4, "Integration with BPEL"
- Section 5.5, "Deploy the Composite"
- Section 5.6, "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 Designing a Composite for Service Integration

The steps mentioned below design a composite using the Oracle JDeveloper Studio Edition (12.2.1.2.0), 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.

5.2.1 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.

```
Oracle JDeveloper 12c Development Build - Testing.jws : S_E_B_13_001_02.jpr : C:\JDeve
File
     Edit
            View
                   Application Refactor
                                          Search Navigate
                                                              Build
                                                                     Run Team
                                         b
                                            Application...
   New
<u> О</u>реп...
                             Ctrl-O
                                           Project...
   Reopen
                                         ۲
                                            💑 BPEL 2.0 Subprocess...
                                            💑 BPEL Process...
   Check Code Compliance
                                            Business Rules...
   Close
                             Ctrl-F4
                                           Composite Test...
   Close All
                             Ctrl+Shift-F4
                                           Cross Reference(XREF)...
   Delete
                                           Domain Value Map(DVM)...
   Save
                             Ctrl-S
                                            🗲 Event Definition...
   Save As...
                                            🏠 Human Task...
   Save As HTML
                                            Maven POM for Project...
🗐 Save All
                                            🐔 Mediator...
   Rename...
                                            Spring Context...
                                            WSDL Document...
   Import...
                                           📇 XML Schema...
   Export...
                                           XQuery File ver 1.0...
   Compare With
                                         ۲
                                           🔀 XQuery Library ver 1.0...
   Replace With
                                           XSL Map...
   Page Setup...
                                            From Gallery...
                                                                           Ctrl-N
🐴 Print...
                             Ctrl-P
   Print Preview...
   Print Area
                                         ۲
                             Alt-F4
   Exit
```

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	
2	
ategories: 	Items: Show All Description Application from EAR File Application Template Custom Application Database Application Database Application Extension Application Database Application Database Application Def Papplication Service Bus Application Service Bus Application Service Bus Application Service Bus Application Service Bus Application Service Bus Application Creates a SOA (service-oriented architecture) application. The application consists of one SOA project for the SOA composite, components, and adapters. UML Application UML Application

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

Figure 5-3 Name your application

Create SOA Application	- Step 1 of 3	×
Name your application	01010101010101010101010101010101010101	
	Application Name:	
Application Name	Application	
Project Name	Directory:	
 Project SOA Settings 	C:\JDeveloper\mywork\Application	Browse
	Application <u>P</u> ackage Prefix:	
Help	< <u>B</u> ack <u>N</u> ext > Einish	n Cancel

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

Figure 5-4 Name your project

Oreate SOA Application	- Step 2 of 3	the second se	X
Name your project		01	B
Application Name Project Name	<u>P</u> roject Name: Dir <u>e</u> ctory:	Project1 C:\JDeveloper\mywork\Application\Project1	Bro <u>w</u> se
Project SOA Settings	Project Featu SOA Suite SOA Suite is a	res: a suite of tools to model SOA(Service Oriented Architecture) ap	plications.
<u>H</u> elp		< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	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		101039393939393	5
Application Name Project Name Project SOA Settings	Composite Name: Project1 Start from: ① Standard Composite ② Composite With Human Task ③ Composite With BPEL Process ③ Composite With Subprocess ④ Composite With Subprocess ④ Composite With Business Rule ⑤ Composite With Spring ④ 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	×
	s 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.	*
BPEL 2.0 S	pecification O BPEL 1.1 Specification	
<u>N</u> ame:	BPELProcess1	
Namespace:	http://xmlns.oracle.com/Application/Project1/BPELProcess1	
Directory:	C:\JDeveloper\mywork\Application\Project1\SOA\BPEL	_ 🔍
Template:	Synchronous BPEL Process	- 3
Service Name:	bpelprocess1_dient	
	Expose as a SOAP service	
	Transaction: required	• 2
	Input: [http://xmlns.oracle.com/Application/Project1/BPELProcess1}process	_ 🔍
	Qutput: [{http://xmlns.oracle.com/Application/Project1/BPELProcess1}processResponse	
Help	ОК	Cancel

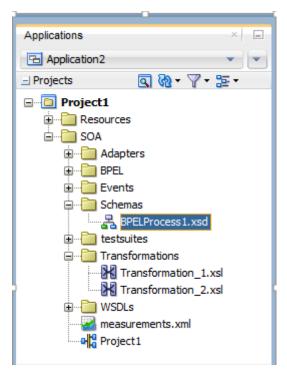
9. The composite.xml looks as shown in Figure 5-7.

Figure 5-7 Composite.xml

3 Start Page × 📲 Project1 × 🍾	BPELProcess1.bpel ×	
🖌 🕼 🌌 💥 🖏 I 🕅 🧕 🖉	🖶 🔁 🏶 🔂	Project1
Exposed Services	Components	External References Rectangular Snip
✓ 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

Find		
xm</td <td>l version="1.0" encoding="UTF-8"?></td> <td></td>	l version="1.0" encoding="UTF-8"?>	
⊟ <sch< td=""><td>ema attributeFormDefault="unqualified"</td><td></td></sch<>	ema attributeFormDefault="unqualified"	
	<pre>elementFormDefault="qualified"</pre>	
	<pre>targetNamespace="http://xmlns.oracle.com/Application2/Project1/BPELProcess1"</pre>	
	<pre>xmlns="http://www.w3.org/2001/XMLSchema"></pre>	
-	<pre><element name="process"></element></pre>	
	<complextype></complextype>	
	<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>	
	<pre><element name="processResponse"></element></pre>	
	<complextype></complextype>	
	<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>	
ma 🔻		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

New Account Edit			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 V	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	

5.3 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.

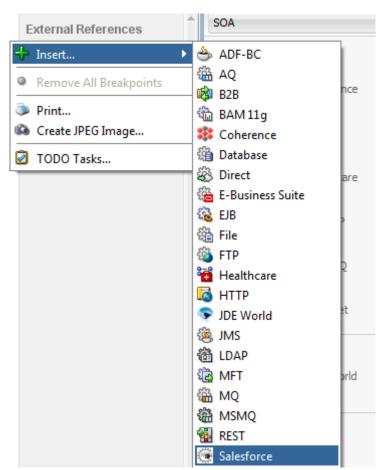


Figure 5-11 Salesforce Adapter

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

Figure 5- 12 Welcome Page



- 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.

Figure 5-13 Salesforce Cloud Server Connection Page

Salesforce Server Connection Basic Info Connection Operations Custom Operations Headers Summary Pick the key to get in the door Security Policy: Custom Key: Authentication Key: Pick the Key to get in the door Security Policy: Refresh MetaData Cache:	23
• Connection Operations Operations @ Where can I find the Objects you need? Custom Operations "Enterprise WSDL Location: Headers @ Pick the key to get in the door Sommary @ Pick the key to get in the door Security Policy: CLSTOM *Authentication Key: • Test	

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 Bro	owser
i igui e e i i		,

👌 WSDL Choose	r	and the state of	the Real Property lies	and and a			X
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL		
Location	: 🛅 C: \offical					- 🔾 🔾 🏹	🖻 📰 🖿
Work Project Application		nterprise.wsdl					
Home	File Name: Sales						
	File <u>Type</u> : Web		on Files (*.wsdl)				•
Selection: file:/C:	/offical/Salesforce	Enterprise.wsdl					
Help						OK	Cancel

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

Figure 5-15 Localize Files Dialog

O Localize Files	— X
file:/C:/SVN/SNC/DEMO/SFDC_TO_SNC/Project1/SOA/WSDLs/Enterprise_SS_v33.wsdl is e project. In order to make this file available to your project at runtime, JDeveloper can now 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:\SVN\SNC\DEMO\SFDC_TO_SNC\Project2\SOA :	
WSDLs/Enterprise_SS_v33.wsdl	
Help	Cancel

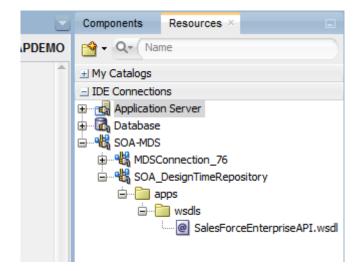
7. Click **OK**. You are returned to the Salesforce Cloud Server Connection page.

O Configure Salesforce Endpo	bint - Step 2 of 6	X
Salesforce Server Conn	ection	
Basic Info Connection Operations Question Operations Headers Summary	A Salesforce Server connection is required to access the operations and business ob Where can I find the Objects you need? "Enterprise WSDL Location: * Pick the key to get in the door Security Policy: CLISTOM • "Authentication Key: *	jects available.
Help		< gack Next > Enish Cancel

Figure 5-16 Salesforce Cloud Server Connection Page

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



- 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

alesforce Server Conn	ection				*
Basic Info Connection Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business of	tijects available.			
Help		< Back	Next >	Einish	Cancel

10. Click OK.

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

Figure 5-19 Create a New Authentication Key

Configure Salesforce Endpo	int - Step 2 of 6		
lesforce Server Conne	ection	01010101010101010101010101010	
Basic Info Connection Connection Costom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects available. Where can I find the Objects you need? "Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsd Pick the key to get in the door Security Policy: CLISTOM "Authentication Key: SFDC_Test Fest Refresh MetaData Cache:		
Help	< Back	Next > Einish	Cancel

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

*CSF Key Name:		
*Username:		
*Password:		
*Re-Enter Password:		

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

Figure 5-21 Test Connection

Configure Salesforce Endpo	nt - Step 2 of 6		×
esforce Server Conn	ction	alatatatatatatata ang ang ang ang ang ang ang ang ang an	*
Basic Info Connection Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects available. ③ Where can I find the Objects you need? "Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsdl ④ Pick the key to get in the door Security Policy: CUSTOM▼ "Authentication Key: SFDC_Test▼		
Help	< Back	Next > Einish	Cancel

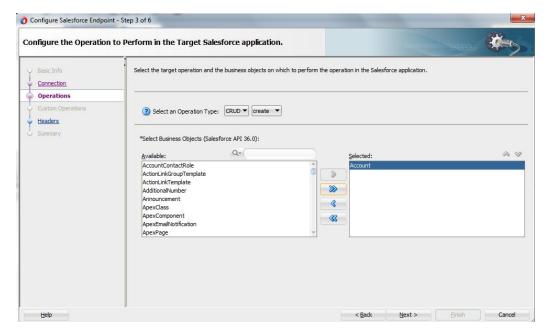
- 14. Click Next.
- 15. The Cloud Operation Configuration page is displayed, as shown in Figure 5-22.

Configure Salesforce Endpoint	nt - Step 3 of 6	×
Configure the Operation	to Perform in the Target Salesforce application.	*
Basic Info <u>Connection</u>	Select the target operation and the business objects on which to perform the operation in the Salesforce application.	
Operations Custom Operations Headers Summary	Select an Operation Type: CRUD create " Select Business Objects (Salesforce API 36.0):	
	Available: Account Account ChrokerRole ActorLinkGroupTemplate AcditionalNumber AnditionalNumber ApexClass ApexComponent ApexEmalNotification	
Help	<back next=""> Enish</back>	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.

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

O Configure Salesforce Endpoint - :	Step 5 of 6	X
Select headers for the targe	et Salesforce Operation	*
Basic Info Connection Qeerations Custom Operations Headers Summary	Following are the header properties for the target operation. Configure the headers as per your requirement. Configure the Header Properties for the Selected Operation: The following header properties are available with the operation create AllorHoneHeader Specifies whether a call rolls back all changes unless all records are processed successfully. Image: selected operation AllorHoneHeader AllowFieldTruncationHeader DebuggingHeader EmailHeader PackageVersionHeader.packageVersions	
Help	< <u>B</u> ack <u>N</u> ext > Einish	Cancel

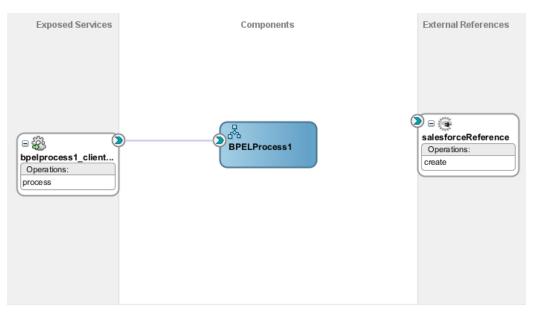
- **18.** Select the appropriate header to your requirement. Headers displayed in this page depend on the operation selected in the previous page.
- 19. Click Next.
- **20.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation would operate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

Figure 5-25 Finish Page

Configure Salesforce Endpo	int - Step 6 of 6		×
Salesforce Endpoint Co	nfiguration Summary		=5
Basic Info Connection Operations Custom Operations Headers Summary	Salesforce endpoint configuration was successful. Selected Operation Name: create Selected Object(s) Name: Account Selected Header Properties: AllOrNoneHeader.allOrNone : true		
Help		< Back Next > Finish	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.

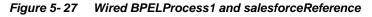
Figure 5-26 SFDC Cloud Account

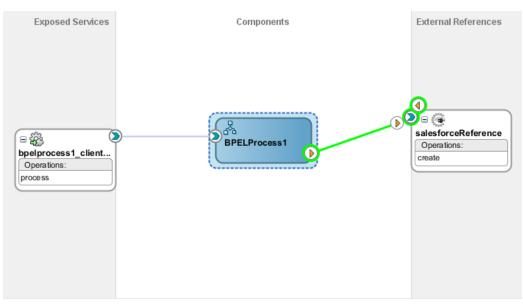


5.4 Integration with BPEL

Perform the following steps to integration with BPEL:

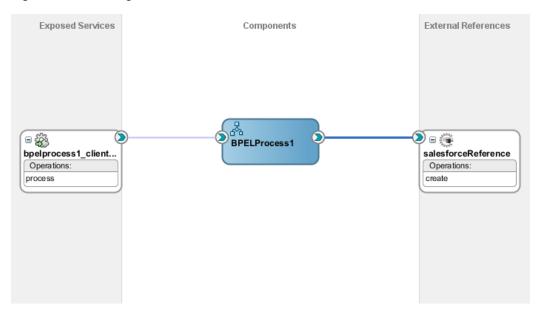
1. Connect **BPELProcess1** and **salesforceReference** via a wire, as shown in Figure 5-27.





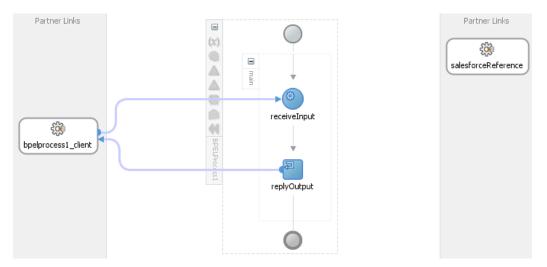
2. After wiring your composite looks like as shown in Figure 5-28.

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>.

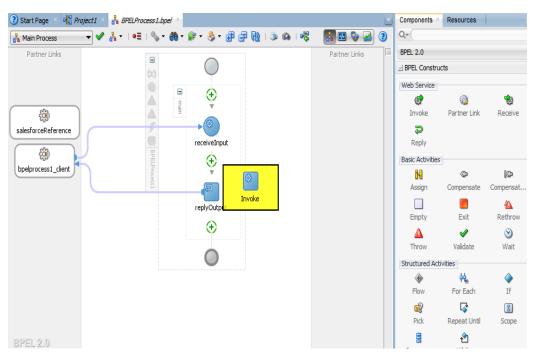
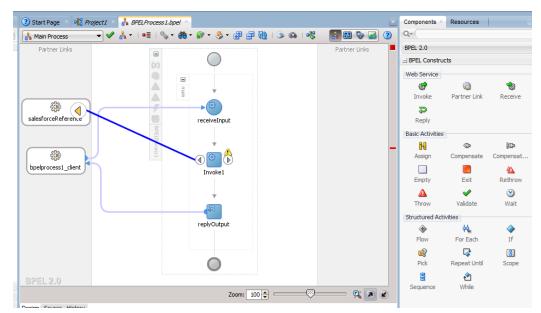


Figure 5- 30 Add invoke activity to invoke the salesforceReference Partner Link

 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	5 V		23	
Assertions		ources Targets		
General	Correlations Pr	operties Anno	otations	
<u>N</u> ame:	Invoke 1			
<u>C</u> onversation	1D:			
👩 Create Varia	🕐 Create Variable			
<u>N</u> ame: In	voke1_create_InputVariable_1			
Type: {h	ttp://xmlns.oracle.com/pcbpel/ada	apter/salesforce/Automa	ation/Sample_	
	Global Variable O Local Variable			
Help		OK	Cancel	
Operation	: 🐚 create	•		
Variables				
Input:				
			4 Q	
O <u>u</u> tput:		`	┲ ╲	
<u>H</u> elp	Ar	oply 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		-	X
	p Condition Heade		gets
General	Correlations	Properties	Annotations
<u>N</u> ame:	Invoke 1		
Conversation ID:			E.
👌 Create Variable			23
<u>N</u> ame: Invoke	1_create_OutputVaria	able_1	
Type: {http:/	//xmlns.oracle.com/pcl	opel/adapter/salesfor	ce/Automation/Sample_
() Glo	bal Variable 🔘 Local V	/ariable	
	0 -		
<u>H</u> elp			OK Cancel
Operation:	n create		•
Variables			
Input:			
Output:			~
<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.

Figure 5- 34	Transform Activities
--------------	----------------------

Partner Links		Partner Links
	receiveInput	
	Transform1	
bpelprocess1_client	Invoke1	sfdcCreateAccount
Ture demand of James and a star [6]	Transform2 Transformation	

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

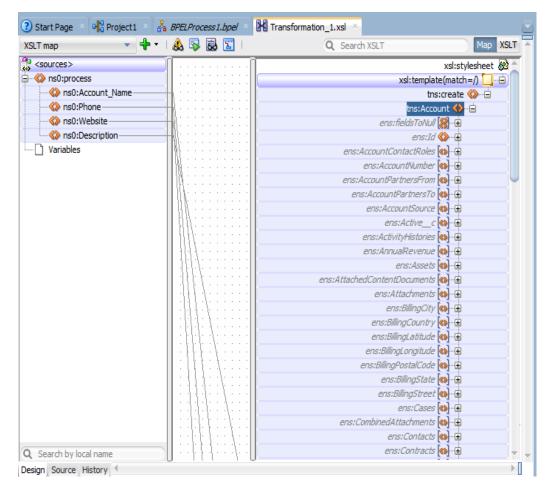
Figure 5-35 Edit Transform

Annotations	Skip Conditio	n Sou	rces T	argets	
Genera	I		Tr	ansformatio	n
Source:				+ /	× 4 3
Variable			Part		
inputVariable			payload		
Target Variable		ariable		T <u>a</u> rget ▼ <mark>≣</mark> pa	Part: rameters
		ariable			
		ariable			

- 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



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

🚺 Edit Transfor	mation	-						x
Annotations	Skip Conditio	n Sou	urces	Targe	ts			
Gene	ral			Transfo	ormation	ı		
Source:				G	₽ /	*	<u>ئ</u>	
Variable			Part					
Invoke1_crea	te_OutputVari	able	param	eters				1
Target Variab				•	T <u>a</u> rget I			
Mapper File:	Mapper File: 2\SOA\Transformations\Transformation_2.xsl							
<u>H</u> elp			<u>A</u> pply		OK		Cancel	

Figure 5- 37 Edit Transform

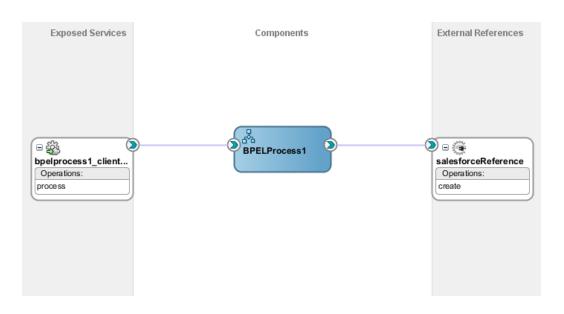
12. Perform the mappings for output variable, as shown in Figure 5-38.

Figure 5- 38 Mappings for Output Variable

<sources></sources>	n n	xsl:stylesheet 😹
		xsl:template(match=/) 🛄 🖷
🚊 🚸 ns0:SaveResult		tns:processResponse 🚸 🚊
🖨 🔣 ns2:errors		tns:ID 🚷
🕀 🔯 ns2:fields		tns:Status
ms2:message		tns:Error_Fields 🚸
ms2:statusCode		tns:Error_Code 🚸
🖨 🚸 ns2:id		tns:Error_Message 《》
xsi:nil		
ms2:success		
····· 🗋 Variables		

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

Figure 5-39 Composite.xml after Project Creation



5.5 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.

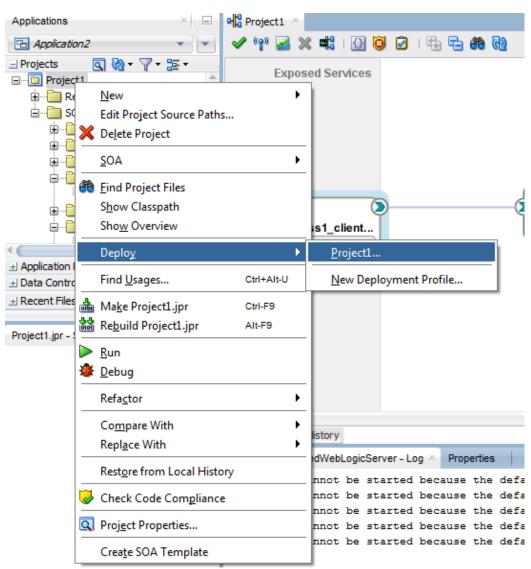


Figure 5- 40 Deploy the Composite

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.

5.6 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:

5.6.1 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	site ▼
	tire Shut Down Test Settings Composite Definition Flow Instances Lieit Tests Policies Test Service Test Service
Name	rocess1

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

Figure 5- 42 Test Web Service

I	Test Web Service	
Web service, enter the WSDL or	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

Test Status	Request successfully re	ceived. 💾	
Response Time (ms)			
Tree View 🔻			
new flow instance wa	s generated. Launch	Flow Trace	
Marana.	Type	Value	
Name	1784		
vame ∡ payload	payload	1 Minutes	
		0019000000shBZFAA2	
⊿ payload	payload		
⊿ payload ID	payload string	001900000shBZFAA2	
⊿ payload ID Status	payload string string	001900000shBZFAA2	

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 ⁽³⁾

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

Error Message lo faults found.	Fault Na	me	Error Code
Actions View Show Instance			
Actions → View → Show Instance (IDs	Туре	Usage	State
Actions → View → Show Instance (IDs		Usage	State
Instance IDs	Туре	-	

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

Figure 5- 45 Audit Trail

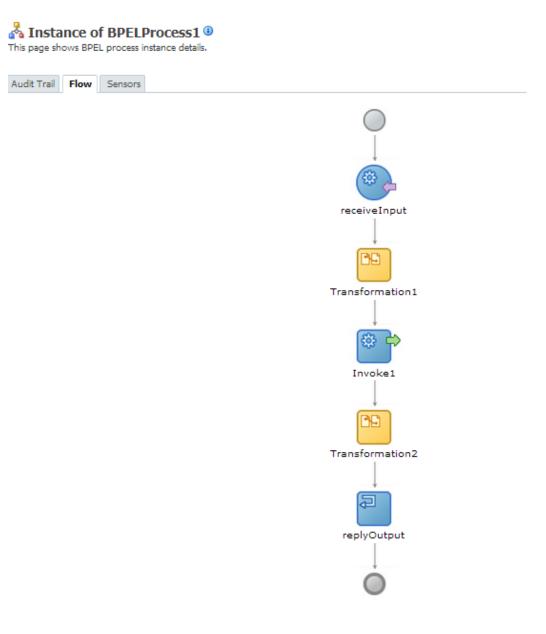
🛃 Instance of BPELProcess1 🖲

This page shows BPEL process instance details.

udit Trail Flow Sensors	
Actions → View → Highlight Faults	
<process></process>	
▲ <main (64)=""></main>	
🔺 🕬 receiveInput	
Apr 2, 2014 4:30:14 PM	Received "process" call from partner "bpelprocess1_client"
View Payload	
Iransformation1	
Apr 2, 2014 4:30:14 PM	Updated variable "Invoke1_create_InputVariable_1"
View Payload	
Apr 2, 2014 4:30:14 PM	Completed assign
🔺 🕬 Invoke1	
Apr 2, 2014 4:30:14 PM	Started invocation of operation "create" on partner "salesforceReference".
Apr 2, 2014 4:30:14 PM	Invoked 2-way operation "create" on partner "salesforceReference".
View Payload	
Transformation2	
Apr 2, 2014 4:30:14 PM	Updated variable "outputVariable"
View Payload	
Apr 2, 2014 4:30:14 PM	Completed assign
🔺 🕬 replyOutput	
Apr 2, 2014 4:30:14 PM	Reply to partner "bpelprocess1_client".
View Payload	
Apr 2, 2014 4:30:14 PM BPEL	process instance "40474" completed

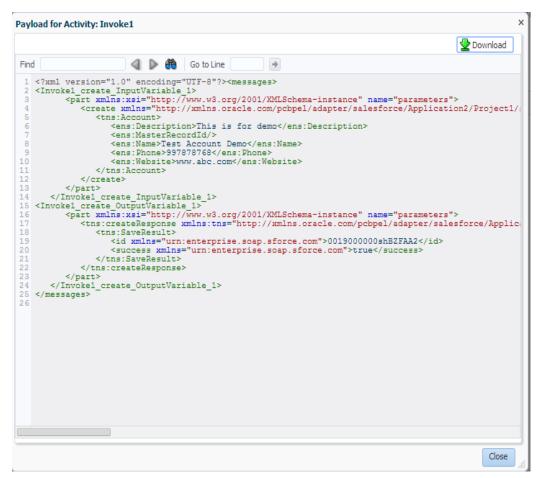
8. Click on Flow tab, The Flow tab is shown in Figure 5-46.

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

	ount Demo		
y f 🔣 🕅		Cu	istomize Page Edit Layout Printable View Help for this Page (
-I- Show Feed			
	Oppor	tunities [0]	
Account Detail	Edit Delete Include Offline		
Account Owner	D Stratentra Senah [Change]	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			

<u>6</u>

Configuring Processes 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"
- Section 6.3, "Testing OSB project from Service Bus Console"
- Section 6.4, "Configuring Processes using OSB Modelling Console"

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.

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:

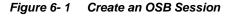
To create OSB projects using OSB Console, you need to use Oracle Cloud Adapter for Salesforce.com artifacts generated using JDeveloper 12c.

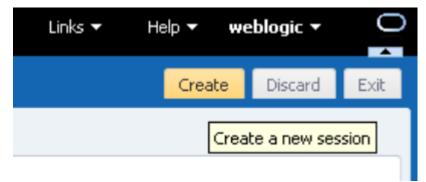
To create a BPEL composite, refer to the section "Designing a Composite for Service Integration". Next, to configure the Oracle Cloud Adapter for Salesforce.com, refer to the section "Configure Oracle Cloud Adapter for Salesforce.com". Save the Oracle Cloud Adapter for Salesforce.com artifacts in a directory. 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 Project					
* 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

DRACLE' Serv	ice Bus Console	= 12c
Resources Admin	Coreate Create Create Coreate Coreate Coreate Coreate Coreate Coreate Coreate Convert to XQ 1.0 Convert to XQ 2004 Collapse Show as Top	SFDC_create x Project Definition Folder Proxy Service Business Service Pipeline WXDL WADL WXP Policy X Query X XQuery X Str MFL Service Key Provider Archive Hert Destination
		M XML Document M Throttling Group Cross Reference (XRef) DVM JavaScript

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

			×
SalesForceEnterprise			
SalesForceEnterprise.wsdl	Upo	date	
		Create	Cancel
	SalesForceEnterprise SalesForceEnterprise.wsd		SalesForceEnterprise.wsdl Update

- 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		1
File Upload	salesforceReference.wsdl	Update
?	Cre	ate 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 Se	ervice Bus Cons	ole	12c	
	⇒		SFDC_create × salesf	orceEnterpri
Resources Admin	Create		WSDL Definition	
All Projects CreateAcco CreateAcco Codefault Codelete Codel	 Move mename X Delete Clone Muport 	•	Folder Folder Folder Folder Forxy Service Folder Forxy Service Folder Forxy Service Folder Forxy Service Folder Forxy WADL Forxy For	mins.oracle rrtType its
query_CSF G SFDC crec System	Show as Top		MFL Service Account Service Key Provider Archive Alert Destination XML Document Month Document Cross Reference (XRef) DVM JavaScript	у 340 к

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 Binding					
* Resource Name	salesforceReference_salesforce				
Description		1			
File Upload	salesforceReference_salesforce.jca	pdate			
3	Create	Cancel			

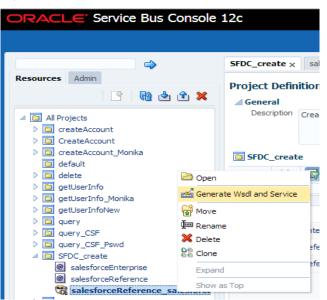
- 14. Click Create. You are returned to the project page.
- **15.** You may get an error message as "The JCA Binding 'salesforceReference_salesforce' was successfully created with validation errors. View the JCA Binding/Conflicts to see detailed diagnostic messages." This error is thrown because JCA 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		
Description		
WSDL Dependency Name salesforce	sReference	٩
Path Stoc_pa	eate	

- 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.

JCA Binding Name	salesforceReference_salesforce	
* New WSDL Name	salesforceReference_salesforce	
New Business Service Name	salesforceReference_salesforce	
estination		
View 👻 🖶 🖶		
🔯 default		
🔺 🛅 delete		
Resources		
🔺 🛅 getUserInfo		
Resources		
🔺 🛅 getUserInfoNew		
Resources		
🔺 🛅 query		
Resources		
✓ ☐ query_CSF		
Resources		
query_CSF_Pswd		
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.

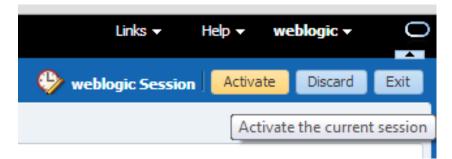


Figure 6- 12 Activate Session

- **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				

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>N</u> ew			•	🖪 Ap	plication				۰ 🏶		
🔁 <u>O</u> pen		Ct	rl-O	📴 <u>P</u> r	oject						
<u>R</u> eopen			•	🚴 BP	FL 2.0 Subp	ocess					

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

Figure 6-15 Choose Application

Q service bus	×	
Categories:	Items:	Show All Description
	 Service Bus Application (Application Create a new Service Bus application wit application is needed for the import of a Service Bus Application with Service Bus 	hout a project. Useful when a Service Bus Service Bus configuration jar.
	 Service Bus Configuration (Deployment P Service Bus Project (Deployment Profiles Service Bus Project (Projects) 	

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 Appl	cation - Step 1 of 1	
Name your application		
Application Name	Application Name: ServiceBusApplication1 Directory:	
	C:\JDeveloper\mywork\Jdev12c_Stage14\ServiceBusApplication1 Browse Application Package Prefix:	
Help	< Back Next > Finish Cancel	

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



2, service bus		
ategories: 	Items: Image: Service Bus Application (Applications) Image: Service Bus Application with Service Bus Project Image: Service Bus Configuration (Deployment Profiles) Image: Service Bus Project (Deployment Profiles) Image: Service Bus Project (Projects) Create a new Service Bus Project	
All Items		OK Cancel

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

Figure 6- 18	Name Your Project
--------------	-------------------

Create Service Bus Proje	ect - Step 1 of 1		
Name your project		010101010101010101010304010103	
Project Name	Project Name: Directory:	SBProject1 C:\JDeveloper\mywork\ServiceBusApplication1\SBProject1	Browse
	Project Featu		bro <u>m</u> bern
	mediate, and	s is a proven, lightweight SOA integration platform. It is designed manage interactions between heterogeneous services, legacy enterprise service bus (ESB) instances across an enterprise-w	applications,

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			•
	- - 	-{çj}		^
	FTP Transport	JCA	JMS	
	- 60		£63	
	Local	MQ Transport	SFTP	
	*			
	Third Party			
	Cloud			
	Salesforce			
				~
Salesforce				×
A Salesforce Cloud ad 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

O Configure Salesforce Endpoint -	Step 1 of 6		×
Welcome to the Salesforce	Endpoint Configuration Wizard	CLOIDE DE LOIDE DE LO	*
Basic Info Connection Operations Custom Operations Headers Summary	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for the service. "What do you want to call your endpoint? SalesforceReference What does this endpoint do? Describe the endpoint's purpose and detail "Which Salesforce service would you like to design your integration with? () Standard applications delivered by Salesforce.com () Custom applications built using Apex Classes and hosted on force.com		
Help	< gad	k 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 shown in the Figure below.

Figure 6-21 Connection Page

Configure Salesforce Endpoi	nt - Step 2 of 6	_	-	_	2
alesforce Server Conne	ction		010101010101		*
Basic Info Connection Constant Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business obje	ccts available.			
Help		< <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

Application	Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL	
<u>L</u> ocation	: 🛅 C: \official					- 🗘 🗘 🞝	🖻 📰 🗉
Work Project	Salesforce	Enterprise.wsdl					
Application Home		lesforceEnterprise. eb Service Definitio					
Calastian flav (Ca	/official/Salesfor	ceEnterprise.wsdl					

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

Import Service Bus Re	sources - Step 1 of 2	2	x
Source			
Source Configuration	Resource Type: Source URL: Resource Name:	d select an import destination. WSDL C:\pfficial\SalesforceEnterprise.wsdl SalesforceEnterprise.wsdl C:\JDeveloper\mywork\12C_RC3\ServiceBusApplication1\SBProject1\Resources	
Help		< Back Next > Einish Can	cel

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

1 Import Service Bus Reso	ources - Step 2 of 2	_	×
Configuration			
y <u>Source</u>	Select the resources to import.		
Configuration			5 F
	Resource	Operation	URL
	Image: ServiceBusApplication1 Image: ServiceBusApplication2 Image: ServiceBusApplication2 </th <th>Create</th> <th>file:/C:/official/SalesforceE</th>	Create	file:/C:/official/SalesforceE
Help	< <u>B</u> ac	k <u>N</u> ext >	<u>F</u> inish Cancel

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

Figure 6- 25 Connection Page

Pasic Info A Salesforce Server connection is required to access the operations and business objects available. Operations ③ Where can I find the Objects you need? Custom Operations Pick the key to get in the door Summary ③ Pick the key to get in the door Security Policy: CUSTOM ▼ *Authentication Key: SFDC_Test ▼ ▲ ▲ Refresh MetaData Cache: □	alesforce Server Conne	sction			*
	Connection Operations Custom Operations Headers	Where can I find the Objects you need? "Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsd) Pick the key to get in the door Security Policy: CUSTOM "Authentication Key: SFDC_Test Test	ects available.		

- **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

*CSF Key Name:		
*Username:	1	
*Password:		
*Re-Enter Password:		

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

Figure 6-27 Connection Page

O Configure Salesforce Endpoi	nt - Step 2 of 6	
Salesforce Server Conne	ection	
Ease Info Connection Connection Count on Operations Headers Summary	A Salesforce Server connection is required to access the operations and business object Where can I find the Objects you need? "Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsdl Pick the key to get in the door Security Policy: CUSTOM "Authentication Key: SFDC_Test Refresh MetaData Cache:	s available.
Help		< Back Next > Einish Cancel

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

Figure 6-28 Operation Configuration Page

nfigure the Operation	to Perform in the Target Salesforce application.	romania in a substance
Basic Info	Select the target operation and the business objects on which to perform the operation	ation in the Salesforce application.
Operations Custom Operations Headers Summary	Select an Operation Type: RUD reate delete *Select Business Objects (Salesforce API 36, Jethieve Available: AccountContactRole ActionLinkGroupTemplate ActionLinkGroupTemplate ActionLinkGroupTemplate ActionLinkGroupTemplate AdditionalNumber Announcement ApexClass ApexComponent ApexEmalNotification	Selected:

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.

Figure 6-29 Operation Configuration Page

Basic Info	Select the target operation and the business objects on which to perform the operation in the S	alesforce application.
Operations Custom Operations Headers	3 Select an Operation Type: CRUD Greate	
Summar y	*Select Business Objects (Salesforce API 36.0): Available: AccountContactRole ActionLinKTemplate AdditionalNumber Announcement ApexComponent ApexComponent ApexPage	& ⟨

14. Click Next. The Header and Properties Page is visible as shown in the Figure below.

Figure 6- 30 Headers Page

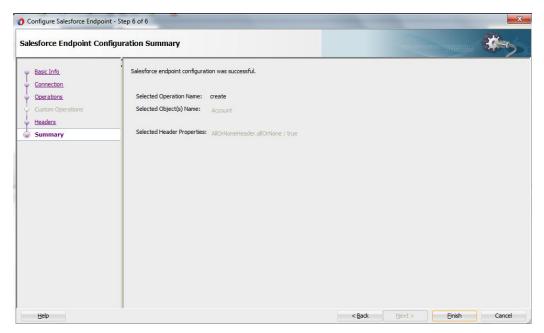
Configure Salesforce Endpoint - St	ep 5 of 6		X
Select headers for the target	Salesforce Operation	0101010101010101010101010101	*
Basic Info Connection <u>Operations</u> Custom Operations Headers <u>Summary</u>	Following are the header properties for the target operation. Configure the headers as per your requirement Configure the Header Properties for the Selected Operation: The following header properties are available with the operation create I AllorHoneHeader Specifies whether a call rolls back all changes unless all records are processed successfully. I allorHone AllowFieldTruncationHeader AllowFieldTruncationHeader DebuggingHeader E MailHeader MruHeader Area PackageVersionHeader.packageVersions	st.	
Help	< <u>B</u> ack <u>N</u>	ext > Einish	Cancel

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

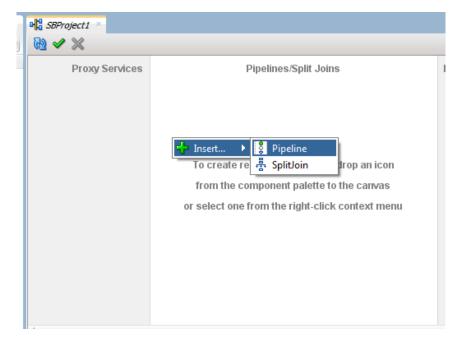


Configuring an Outbound OSB Process Component

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.





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

Figure 6- 33	Create Pipeline Servic
--------------	------------------------

👌 Create Pipeline Service	e - Step 1 of 2						x
Create Service							5
Create Service	General Service Name: Location: Description Definition From Template	Pipeline C: \JDeveloper\mywork	\12C_RC3\Service				Q
Help			< <u>B</u> ack	<u>N</u> ext >	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.

Figure 6- 34	Create Pi	ipeline S	Service
--------------	-----------	-----------	---------

Create Pipeline Servio Type		×
<u>Create Service</u> Type	Service Type: WSDL-based service	۵
	Response: Expose as a Proxy Service Proxy Name: PipelineProxyService Proxy Location: C:\/Developer/mywork/12C_RC3\ServiceBusApplication1\SBProject1 Proxy Transport: http	٩
<u>H</u> elp	Messages: ②A WSDL resource must be specified. < <u>Back</u> Next > Einish Car	ncel

- 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 W	SDL					
Select WSDL							x
Application	Application Server	File System	Project Libraries	SOA-MDS		WSIL	
Resource Cho	oser						
🚊 🛅 SBPro							
📄 📴 R	esources SalesforceEnt	erprise.wsdl					
	salesforceRef	erence.wsdl	_				
(salesforceRef	erence-concrete.	wsdl				
Selection: file:/C:	/JDeveloper/myw	ork/12C_RC3/Ser	viceBusApplicati	on 1/SBProject 1/Re	esources/salesfor	ceReference-conc	rete.wsdl
Help						OK	Cancel

6. Click OK.

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

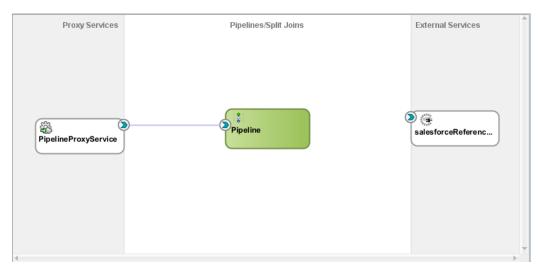
Figure 6- 36	Create Pipeline Service
--------------	-------------------------

Oreate Pipeline Service -	Step 2 of 2		×
Туре		orotonononononakideliku	÷.
<u>Create Service</u>		SDL-based service	
🧅 Туре	WSDL:	SBProject1/Resources/salesforceReference-concrete	۵
	O Any SOAP:	Binding: salesforceReferencePortType-binding	
		30AF 1.1	
		Reguest:	
		Res <u>p</u> onse:	
	✓ Expose as a l	Proxy Service	
	Proxy Name:	PipelineProxyService	
	Proxy Location:	C:\JDeveloper\mywork\12C_RC3\ServiceBusApplication1\SBProject1	Q
	Proxy <u>T</u> ransport:	http 🗸	
	Messages:		
Help		< <u>B</u> ack <u>N</u> ext > <u>F</u> inish C	ancel

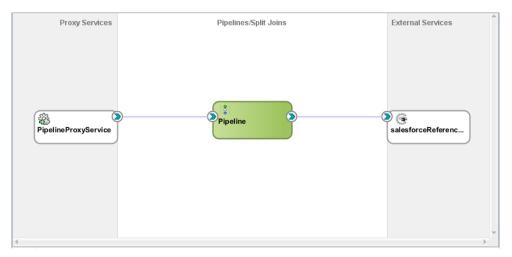
- 7. Select checkbox for Expose as a Proxy Service.
- 8. Select Proxy Transport as http.
- 9. Click Finish.

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

Figure 6-37 Pipeline Component

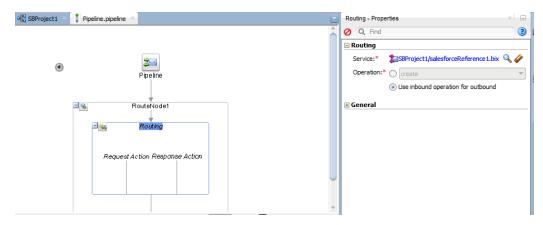


10. Connect salesforceReference to the Pipeline, as shown in the Figure below..*Figure 6- 38 Pipeline Component*



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

O Deploy ServiceBusApplic	cation1_SBProject1_ServiceBusProjectProfile	x
Deployment Action		
Deployment Action	Select a deployment action from the list below.	
Select Server	Deploy to Service Bus Server	
O Summary		
	Deploy a Service Bus project to a Weblogic server which includes a Service Bus runtime	
Help	< Back Next > Einish Canc	el

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:	🔂 💕 💠
Select Server	IntegratedWebLogicServer (domain unconfigured) server132	
	\bigcirc Overwrite modules of the same name	
Help	< <u>B</u> ack <u>N</u> ext > Einish	Cancel

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

Figure 6- 42 Summary Page

Opploy ServiceBusApplication1_SBProject1_ServiceBusProjectProfile				
	Summary			
	Deployment Action Select Server Summary	Deployment Summary: 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 Can	cel	

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

Figure 6-43 Success Message Page

Build - Issues				
Description	File	e	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

ORACLE' 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.

Service Bus Console 12c Resources Admin 🔄 - 🔂 🕹 🏦 💥 🔺 🛅 All Projects ▷ 🛅 createAccount CreateAccount 📴 default ▷ 🛅 delete ▷ 🛅 getUserInfo ▷ D getUserInfoNew 🕨 🛅 query Image: provide the second s SBProject1 Resources
 Pipeline PipelineProxyService SalesforceReference > 🖸 SFDC_create ▷ 🛅 System

Figure 6- 45 Service Bus Console

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

ORACLE' Service Bus Console	12c	Links 🕶 Help 🕶 weblogic 🕶 🔵
		Create Discard Exit
Resources Admin	salesforceReference x Eusiness Service Definition Configuration Security St.A. Alert Rules General Transport Detail Message Fanding Performance Service Type WSD, Based Service - SDAP 1.1 WSD, Based Service - SDAP 1	
D		
10 20 22 12 2:70 20 /cep écobur /facer /recourser#	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

Create	Discard	Exit
ŀ] 🗐 🕐	⊠ -
1	- ⋗ 🕹	₽
L	aunch Test	Console

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

Display Business Service Testing - salesforceReference						
Execute	Execute-Save Reset Close					
⊗ Service Operation						
Operation:	Operation: create T					
🔁 Request Do	cument					
For	n XML					
SOAP Header:	<soap:header xmins:soap="http://schemas.xmisoap.org/soap/envelope/"> </soap:header>					
* Payload:	Choose File No file chosen					
	<pre><saticreate adapter="" http:="" pcbea="" salesforce="" salesforcebeference"="" sbproject1="" servicebusapplication1="" xminssat="" xmio.xarcle.com=""> <saticreate adapter="" http:="" pcbea="" salesforce.com"="" xminssat="" xmio.xarcle.com=""> <saticreate xminssat="">http://xmio.xarcle.com/pcbea/adapter/salesforce.com"> <saticreate xminssat="">http://xmio.xarcle.com/pcbea/adapter/salesforce.com"> <saticreate xminssat="">http://xmio.xarcle.com/pcbea/adapter/salesforce.com"> <saticreate xminssat="">http://xmio.xarcle.com/pcbea/adapter/salesforce.com"> <saticreate xminssat="">http://xmio.xarcle.com/pcbea/adapter/salesforce.com"> <saticreate xminssat="">http://xmio.xarcle.com/pcbea/adapter/salesforce.com"> <saticreate xminssat=""> <saticreate "="" xminssat=""> <saticreate "="" xminssat=""> <saticreate "="" <="" saticreate="" xminssat=""> </saticreate> </saticreate> </saticreate> </saticreate><th>•</th><th></th></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></saticreate></pre>	•				
🖹 Transport		8				

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.

Configuring Processes using OSB Modelling 6.4 Console

This section explains how to create OSB projects using OSB Modelling console. This section is divided into two parts:

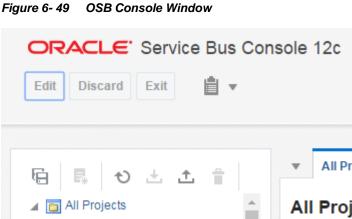
- Section 6.4.1, "Configuring Outbound Process (Business Service)"
- Section 6.4.2, "Configuring Inbound Process (Proxy Service)"

6.4.1 Configuring Outbound Process (Business Service)

Follow the below steps to create OSB projects (Outbound), and services using the OSB Modelling Console.

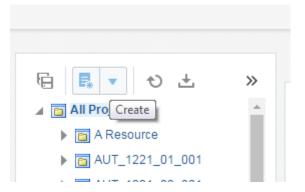
- 1. Login to the OSB Console: <host:port/sbconsole>
- 2. Click Edit as shown in the Figure below.

This opens a new session in the OSB console to enable you to make changes.



3. To create a new project in OSB, click Create.

Figure 6- 50 New Project OSB



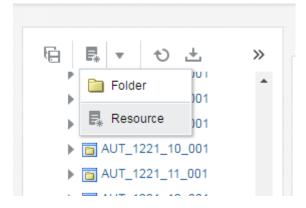
4. **Create a new Project** window opens. Provide *Resource Name* and *Description*, and click **Create** to create the project or **Cancel** to dismiss the operation.

Figure 6-51 Create a new Project window

Create a new P	roject	×
* Resource Name	SFDC_TEST	
Description		
0	Create	incel

5. Click on the dropdown option and select Resources.

Figure 6-52 Create a new Project Window- Dropdown option



6. Select **Business Service** (Outbound SFDC) and then select **Cloud** in the **Resource Gallery** page as shown in the Figure below.

Resource Gallery		×
< Back	and the service and the servic	Cloud
Web Service	Salesforce	Cloud
Cloud	Oracle ERP Cloud	
Technology	Oracle Eloqua Cloud	
	Oracle RightNow	
	Oracle Sales Cloud	
	NetSuite Cloud Adapter	
0		Ok Cancel

Figure 6-53 Resource Gallery Page

- 7. Select **Salesforce** adapter and click **Ok** to go to the Adapter Configuration Wizard or **Cancel** to discard the changes.
- 8. In the **Basic Info** page, provide a suitable name and description of the endpoint, and click **Next** to go to the **Connection** page or **Cancel** to go back to the OSB window.

Figure 6- 54 Basic Info Page

onfigure Salesfor	ce Endpoint						;
		۵.	Help 💌	< Back	Next >	Cancel	Done
Welcome to the Salesforce Endpoint Configuration Mizard This wizard helps you configur parameters and define an oper alphabetic characters, numbers, underscores, and		n ×					
Basic Info	* What do	alphabetic characters, numbers, underscores, and dashes. You cannot include blank spaces, special characters, and multibyte characters.					
connection	Create_Ac	count					
perations	What does	this endpoint do?					
leaders	Describe th	e endpoint's purpose and detail					
ummary							

9. On the **Connection** Page, upload Salesforce Enterprise WSDL, and select the Security Policy.

Provide Authentication Key and click **Next** to go to the **Operation** page, **Back** to go to the **Basic Info** Page or **Cancel** to cancel the operation.

onfigure Salesfor	ce Endpoint
	Help v < Back Next > Cancel Dor
	e Server Connection ce Server connection is required to access the operations and business objects available.
Basic Info	Specify information to connect to your application and process requests
onnection	Enterprise WSDL Location file:/tmp/ca_fileupload/16253/SHA_Enterprise_SF
perations	Upload File 🖉 Choose file No file chosen
eaders	Please specify the Key and login credentials to access your application
mmary	Security Policy CUSTOM V
	* Authentication Key
	Test
	Refresh MetaData Cache
	Reiresii metabata Cache

Figure 6- 55 Connection Page

a. Create a new **Authentication Key** by clicking on the '+' icon, and provide the required parameters as shown below.

Figure 6- 56 Create CSF Key popup

Create CSF Key		
* CSF Key Name	SFDC_USER	
* Username	shalindra.singh@bcone.com	
* Password		
* Re-Enter Password		
		ОК Сал

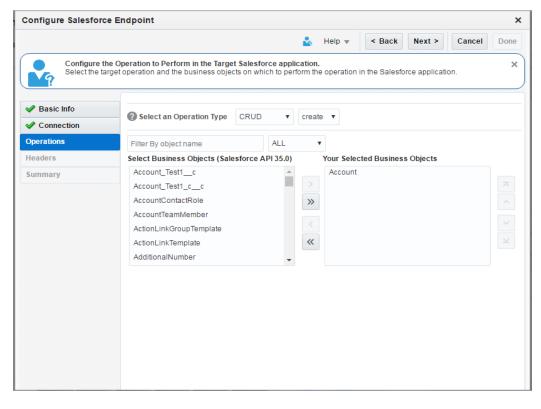
b. Click **Test** to test the connection as shown in the Figure below.

onfigure Salesfor	rce Endpoint
	Help v < Back Next > Cancel Dom
	e Server Connection ce Server connection is required to access the operations and business objects available.
Basic Info	Specify information to connect to your application and process requests
onnection	Enterprise WSDL Location file:/tmp/ca_fileupload/16253/SHA_Enterprise_SF
perations	Upload File 🗷 Choose file No file chosen
eaders	Please specify the Key and login credentials to access your application
immary	Security Policy CUSTOM V
	* Authentication Key SFDC_SHALINDRA V
	Connection was established successfully.
	Refresh MetaData Cache

Figure 6- 57 Test Connection link

10. On the **Operations** page, select the Operation, and Object (s) as shown in the Figure below.

Figure 6-58 Operations Page



11. Click **Next** to go to the **Headers** page, **Back** to go to the **Operations** Page or **Cancel** to cancel the operation.

onfigure Salesforce	e Endpoint
	Help v < Back Next > Cancel Done
	eaders for the target Salesforce Operation > Operation Headers
Basic Info Connection Operations leaders ummary	Configure the Header Properties for the Selected Operation The following header properties are available with the operation create AltOrNoneHeader altOrNone true AltowFieldTruncationHeader AssignmentRuleHeader bebuggingHeader EmailHeader MruHeader PackageVersionHeader.packageVersions

Figure 6- 59 Headers Page

- 11. Select the required Header (s) and provide its value.
- 12. Click **Next** to go to the **Summary** page, **Back** to go to the **Headers** page or **Cancel** to cancel the operation.
- 13. **Summary** page opens. Review the Salesforce Endpoint Configuration, and Click **Done** to confirm and save the settings, **Back** to go to the **Headers** Page or **Cancel** to cancel the operation.

Figure 6- 60 Summary Page

onfigure Salesford	e Endpoint		>
		Help v < Back Next > Cancel	Done
Salesforce Salesforce e	Endpoint Configuration Summary endpoint configuration was succes	y ssful.	×
Basic Info	Selected Operation Name	create	
Connection	Selected Object(s) Name	Account	
 Operations Headers 	Selected SOAP Header(s)	AllOrNoneHeader.allOrNone : true	
Summary			

6.4.2 Configuring Inbound Process (Proxy Service)

Follow the below steps to create OSB projects (Inbound), and services using the OSB Modelling Console.

- 1. Follow Steps 1-5 of section 6.4.1, "Configuring Outbound Process (Business Service)".
- 2. Select **Proxy Service** (Inbound) and then select **Cloud** as shown in the Figure below.

Resource Gallery		×
< Back	arrice	Cloud
Web Service	Salesforce	Cloud
Cloud	Oracle ERP Cloud	
Technology	Oracle RightNow	
4	Oracle Sales Cloud	
1		
1		
		Ok Cancel
0		Caller

Figure 6- 61 Resource Gallery Page

- 3. Select **Salesforce** adapter and click **Ok** to go to the Adapter Configuration Wizard or **Cancel** to discard the changes.
- 4. In the **Basic Info** page, provide a suitable name and description of the endpoint, and click **Next** to go to the **Connection** page or **Cancel** to go back to the OSB window.

Figure 6- 62 Basic Info Page

onfigure Salesforce I	Enupoint
	Help 🔻 < Back Next > Cancel Dor
This wizard hel	e Salesforce Endpoint Configuration Wizard ps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration I select object and related criteria for the service.
asic Info	* What do you want to call your endpoint?
onnection	Get_Contacts
utbound Messaging	What does this endpoint do?
ummary	Describe the endpoint's purpose and detail

5. On the **Connection** Page, upload Salesforce Enterprise WSDL, and select the Security Policy.

Provide Authentication Key and click **Next** to go to the **Operation** page, **Back** to go to the **Basic Info** Page or **Cancel** to cancel the operation.

Configure Salesforce E	Calesforce Endpoint X		
	Help V Kext > Cancel Done		
	ver Connection erver connection is required to access the operations and business objects available.		
🖋 Basic Info	Specify information to connect to your application and process requests		
Connection	Enterprise WSDL Location file:/tmp/ca_fileupload/16251/SHA_Enterprise_Sf		
Outbound Messaging	Upload File 🕑 Choose file No file chosen		
Summary	Please specify the Key and login credentials to access your application		
	Security Policy CUSTOM V		
	* Authentication Key		
	Test		
	Refresh MetaData Cache		
	Refresh MetaData Cache		

Figure 6- 63 Connection Page

a. Create a new **Authentication Key** by clicking on the '+' icon, and provide the required parameters as shown below.

Figure 6- 64 Create CSF Key Popup Window

reate CSF Key		
* CSF Key Name	SFDC_USER	
* Username	shalindra.singh@bcone.com	
* Password		
* Re-Enter Password		
		ОК

b. Click **Test** to test the connection as shown in the Figure below.

Configure Salesfor	rce Endpoint
	Help v < Back Next > Cancel Done
	e Server Connection ce Server connection is required to access the operations and business objects available.
🖋 Basic Info	Specify information to connect to your application and process requests
Connection	Enterprise WSDL Location file:/tmp/ca_fileupload/16253/SHA_Enterprise_Sf
Operations	Upload File 🖉 Choose file No file chosen
leaders	Please specify the Key and login credentials to access your application
Summary	
	Security Policy CUSTOM V
	* Authentication Key SFDC_SHALINDRA 🔻 🛖 🥒 🗙
	Test
	Connection was established successfully.
	Refresh MetaData Cache

Figure 6- 65 Test Connection Link

 On the Outbound Messaging page, upload Outbound Messaging WSDL. For steps to download the Outbound Messaging WSDL, refer section 4.2.2.3, "Outbound Messaging"

Figure 6-66 Outbound Messaging Page

Configure Salesforc	e Endpoint X
	Help 🔻 K Back Next > Cancel Done
	rmation on Outbound Messaging WSDL to receive notification from the Salesforce application rget WSDL to receive outbound message notifications from the Salesforce application.
Basic Info	You must first generate the Salesforce outbound messaging WSDL you would want to select on this page. To
Connection Outbound Messaging Summary	generate the WSDL, perform these steps: 1) Log in to your Salesforce account and go to Setup → Outbound Messages. 2) Select the required object. 3) Enter other required details (in the Endpoint URL field, enter a dummy URL), and click Save. 4) Click Generate WSDL to download the WSDL.
	Selected Outbound Messaging WSDL ContactOutbound.wsdl Select New Outbound Messaging WSDL Choose file No file chosen

- 7. Click **Next** to go to the **Summary** page, **Back** to go to the **Outbound Messaging** page or **Cancel** to cancel the operation.
- 8. **Summary** page opens. Review the Salesforce Endpoint Configuration, and Click **Done** to confirm and save the settings, **Back** to go to the **Headers** Page or **Cancel** to cancel the operation.

Figure 6- 67 Summary Page

inigure sulestore L	re Salesforce Endpoint					
	Help 🔻 < Back Next > Cancel D					
	point Configuration Summary voint configuration was successful.					
Basic Info	Notification Object for Outbound Messaging Contact					
Connection Outbound Messaging	After completing the development of SOA/OSB project, please do carry out the following tasks					
mmary	1) Deploy the SOA/OSB project					
	<pre></pre>					
	<pre><html><head><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><html><</html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></html></head></html></pre>					
	<pre>chtml><head><title></title></head></pre>					

7

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

7.1 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 7.1.1, "Generic Properties"
- Section 7.1.2, "Properties available in the response"
- Section 7.1.3, "Retry Properties"
- Section 7.1.4, "Precedence of Salesforce.com Property Values"

7.1.1 Generic Properties

Table 7-1 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.

Table 7- 1	Run-time Properties
------------	---------------------

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

Property Name	Туре	Default Value	Description	Configurable At
jca.salesforce.Q ueryOptions.bat chSize	integer	500	Specifies the batch size for queries. The default is 500; the minimum is 200, and the maximum is 2,000.	Oracle Cloud Adapter for Salesforce Configuration Wizard/ BPEL invoke activity
jca.salesforce.H ttpTimeout	Integer	10 sec	Maximum value 120 sec. It specifies the timeout value for the transactions.	BPEL invoke activity
jca.salesforce.q ueryLocator	String	NA	The queryLocator value is returned in case of query 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.	BPEL invoke activity

 Table 7-1
 Run-time Properties (Continued)

7.1.2 Properties available in the response

Table 7-2 shows the properties available in the response.

Table 7-2Properties 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

Property Name	Туре	Default	Description	Configurable

		Value		At
jca.salesforce.re sponse.limitInfo .current	String	NA	This value is returned as part of Header response, specifying the number of calls that have already been used in the organization. (Supported in Salesforce.com 29.0 version or higher)	BPEL invoke activity
			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 sponse.limitInfo .limit	String	NA	This value is returned as part of Header response, specifying the organization's limit for the number of calls it can make. (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.	BPEL invoke activity

Providing the Property Values in BPEL Invoke Activity

Figure 7-1 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.

Assertions Skip Condition Heade	ers So	ources	Targets	
General Correlations	Pr	operties	Annotat	ions
Properties:				
Name		Value	Туре	
,		value	Type	
jca.msmq.message.Id				
jca.msmq.message.MaxTimeToReach(Queue			
jca.msmq.message.Priority				
jca.msmq.message.SentTime				
jca.msmq.message.TimeToLive				
jca.salesforce.AllOrNoneHeader.allOrI	None			
jca.salesforce.HttpTimeout				
jca.salesforce.LocaleOptions.language	e			
jca.salesforce.QueryOptions.batchSiz	e			
jca.salesforce.queryLocator				
jca.salesforce.response.debugLog				
jca.salesforce.response.limitInfo.curr	ent			
jca.salesforce.response.limitInfo.limit				_
jca.socket.host				
jca.socket.port				
jca.ums.bcc				
ica.ums.cc				1
🖌 Eit to Width				

Figure 7-1 Properties Available in the Invoke Activity of BPEL Process

7.1.3 Retry Properties

Table 7-3 shows the configurable properties related to Oracle Cloud Adapter for Salesforce.com. These properties can be modified in the composite file or at the Enterprise Manager console.

Table 7-3 Oracle Cloud Adapter for Salesforce.com Configurable Properties

Property Name	Туре	Default Value	Description	Available at
jca.retry.count	integer	4	Specifies the number of retries to post the message.	Composite.xml, EM console
jca.retry.backoff	integer	2	Specifies the retry interval growth factor.	Composite.xml, EM console
jca.retry.interval	integer	1	Specifies the time interval between two retries.	Composite.xml, EM console
jca.retry.maxInte rval	integer	120	Specifies the maximum interval between two retries.	Composite.xml, EM console

7.1.3.1 Providing the Property Values in the Composite

Figure 7-2 shows the properties available in the composite.xml file.

Figure 7-2 Composite.xml File Properties

Project	
Q.* Find	
	 <pre> <pre> <pre>oproperty name="bpel.config.oneWayDeliveryPolicy" type="xs:string" many="false">async.persist </pre></pre></pre>
6	<pre><reference name="salesforceReference" ui:wsdllocation="WSDLs/salesforceReference.wsdl"> <interface.wsdl interface="http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application6/Projectl/</td></tr><tr><td></td><td><pre>Oproperty name=" jca.retry.count"="" many="false" override="may" type="xs:integer">4 Oproperty name="jca.retry.interval" type="xs:integer" many="false" override="may">1 Oproperty name="jca.retry.backoff" type="xs:integer" many="false" override="may">2 Oproperty name="jca.retry.maxInterval" type="xs:integer" many="false" override="may">2 Oproperty name="jca.retry.maxInterval" type="xs:integer" many="false" override="may">120</interface.wsdl></reference></pre>
8	bpelprocessl_client_ep BPELProcessl/bpelprocessl_client
8	<pre><vire> <source.uri>BPELProcess1/salesforceReference</source.uri> <target.uri>salesforceReference</target.uri></vire></pre>

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 7-3.

Figure 7-3 Salesforce Adapter Properties

External References	oracle.cloud.rt.sfd targetOperation selectedObjects	cA http://xmlns.oracle. create Account		
	Composite Properties Properties			
		÷		
	Name	Value		
	jca.retry.count	4		
	jca.retry.interval	1		
- ⊇ = 🧿	jca.retry.backoff	2		
SalesforceReference Operations:	jca.retry.maxInter	val 120		
create	···· Binding Properties ······			
······································		+		
	Name	Value		
	Callback Binding Properties (No callback binding) Policies			
	···· Binding Policies ···			
	_	ategory Status		
-	··· Callback Binding			

7.1.3.2 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 7-4.

Figure 7-4 Services & References Section

Services and References		
Name	Туре	
Supplements Strengther	Web Service	
RgetUpdatedDemo	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 7-5.

Figure 7-5 Salesforce Adapter Properties

🖏 getUpdatedDemo ((Custom Adapter)
---------------------	-----------------

ashboard Policies Properties Adapter	Reports
You can edit or delete the following binding prop	erties. Click Add to add additional properties
View 👻 💠 Add 🔠 Revert	
Name (Operation or Port Type)	Value
jca.retry.count	4
jca.retry.backoff	2
jca.retry.interval	1

7.1.4 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 8.1, "Troubleshooting and Error Messages"
- Section 8.2, "API Fault"
- Section 8.3, "Status Code"
- Section 8.4, "Known Issues"

8.1 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
```

8.1.1 Oracle SFDC Cloud Adapter Design-Time JDeveloper

 Table 8-1 shows the common errors faced while using Oracle Cloud Adapter for Salesforce.com in JDeveloper and their possible solutions.

 Table 8-1
 Oracle Cloud Adapter for Salesforce.com in JDeveloper

Error	Solution
The login credentials are not valid, or the maximum number of logins has been exceeded. Contact your administrator for more information.	Provide the valid Salesforce.com credentials. Delete the CSF key and add it again providing the correct credentials.

Error	Solution
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 8-1 Oracle Cloud Adapter for Salesforce.com in JDeveloper (Continued)

8.1.2 Oracle SFDC Cloud Adapter Run-time

Table 8-2 shows the common errors faced in the SOA server run-time.

Table 8-2 Error 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.

8.2 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

8.3 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

8.4 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 8-1.

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. 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**.
- 4. Binding parameters textbox is getting generated when user click WSDL operation textbox: When user provides a bind query in query statement text area and click WSDL operation textbox, it generates Binding parameters text box.
- 5. User is allowed to change the Reference name in Edit mode.
- **6.** In the current version, Suppress Response, Clear Cache, and Offline Configuration functionality is not supported.
- 7. Refresh Metadata is not working in the current release.
- **8.** BPM is not supported in the 12.2.1.1.0 release.
- 9. For migration of projects, user needs to create CSF key and Map manually.

Temporary Fix: After completing the development of SOA/OSB project, follow the steps provided below:

- a) Deploy the SOA/OSB project.
- b) Open the SOA/OSB diagnostic logs from the following path:

{\$Oracle_Home}/user_projects/domains/{your_domain}/servers/{server_name}/l ogs/{server_name}-diagnostic.log

c) Search and Copy the endpoint URL from the diagnostic logs. It would look something like this:

Figure 8-1 WSDL Location

For SOA:

https://{host}:{port}/integration/flowsvc/salesforce/{partition_name}/{project_na me}/{service_name}/v1.0

For OSB:

https://{host}:{port}/integration/flowsvc/salesforce/{project_name}/{service_na me}/v1.0/

- **d**) Go to the Outbound Messaging section at Salesforce.com and replace the dummy URL you entered with the SOA/OSB endpoint URL fetched in the previous step.
- **10** User is not able to invoke Oracle Cloud Adapter for Salesforce.com when operation (s) is changed in EDIT Mode.

Temporary Fix: After Editing and changing the operation in EDIT mode, delete the wire between BPEL and SFDC Adapter from Composite.xml and rewire in order to invoke the Adapter with the new operation.

- 11 Although user is able to configure two Oracle Cloud Adapter for Salesforce.com with the same name, this will create one common jca file for the two adapter and hence causing issue during deployment.
- 12 User is not able to use Debug Header for Salesforce Custom WSDL scenario in SbConsole. The whole Configuration Wizard of salesforce adapter will become unresponsive if he will use Debug Header.

Temporary fix: User have to use Firefox to open SbConsole and then he can use Debug Header for Salesforce Custom WSDL.

8.5 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 <u>here</u>.

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 <u>here</u>.

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 9.1, "Complete Backward Compatibility"
- Section 9.2, "Migrating 11g Application and Projects to 12c"
- Section 9.3, "Points to Remember"

9.1 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.

9.2 Migrating 11g Application and Projects to 12c

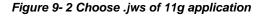
This section will outline the steps to migrate your applications and projects created in Oracle SOA Suite 11g to the latest version of Oracle SOA Suite 12c. Follow the steps as shown:

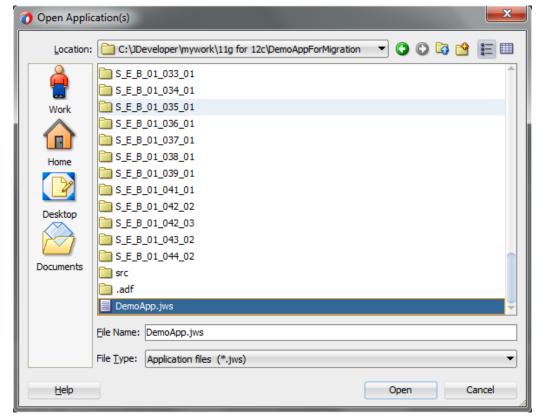
- 1. Create a copy of your existing 11g applications in a new directory inside your "mywork" folder, for example C:\JDeveloper\mywork\11g-12c\
- 2. Open JDeveloper 12c.
- 3. Click on Open Application

File
Édit
View
Application
Refactor
Search
Navigate
Build
Run
Team
Loois
Window
Help

Figure 9- 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.





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 9- 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 9- 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 9- 5 Migration successfully completed

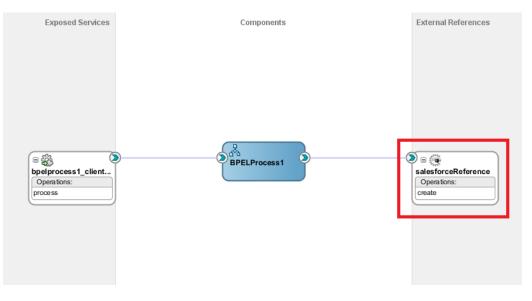
8. Click **OK** and you will see all your projects in the Projects Tab in Application. If you expand one of your projects, you will see the inner directory structure to be different than it was in 11g (this is expected behavior and will not affect the functioning of your projects).

Applications X -🔁 DemoApp × ब 🖓 - 🍸 - 🏷 🗖 Projects SOA 🗄 🖳 Events 🗄 💼 Schemas 🗄 📲 WSDLs 🗄 👘 🛅 xsd 🗄 🖳 📩 xsl Enterprise_WSDL_v29.wsdl EnterpriseWSDL_28_0910.wsdl a pom.xml • <u>SEB0100201</u> S_E_B_01_002_01Process.bpel S_E_B_01_002_01Process.wsdl sfdc_salesforce.jca øfdc.wsdl 🗄 💼 Web Content

Figure 9- 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 9-7 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".

Figure 9- 8 Oracle Cloud Adapter for Salesforce.com Welcome Screen

0 C	onfigure Salesforce Endpoi	nt - Step 1 of 6			-	×
We	lcome to the Salesfo	rce Endpoint Configuration Wizard				*
P	Basic Info	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for th	e service			
Ŷ	Connection Operations	"What do you want to call your endpoint?				
ų	Custom Operations	SalesforceReference				
Ý	Headers	What does this endpoint do?				
0	Summary	Describe the endpoint's purpose and detail				
		*Which Salesforce service would you like to design your integration with?				
		Custom applications built using Apex Classes and hosted on force.com				
	Help		< <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 9- 9 Oracle Cloud Adapter for Salesforce.com Connection Page - Edit CSF Key

O Configure Salesforce Endpoint	Step 2 of 6		-		— X
Salesforce Server Connect	ion			interesting and the	*
Basic Info Connection Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business Where can I find the Objects you need? Test Refresh MetaData Cache: A Salesforce Server connection is required to access the operations and business A Salesforce Server connection is required to access the operations and business A Salesforce Server connection is required to access the operations and business A Salesforce Server connection is required to access the operations and business A Salesforce Server connection is required to access the operations and business A Salesforce Server connection is required to access the operations and business A Salesforce Server connection is required to access the operations and business D C/Test/SOA/WSDL/shEnterprise.wsd D C/Test/SOA/WSDL/shEn	objects available.			
Help		< <u>B</u> ack	Next >	Einish	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.

9.3 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.
- **4.** Create new CSF Map and key in EM console. Refer Section A.2, "CSF Key in Enterprise Manager".

Oracle Cloud Adapter for Salesforce.com-BPEL 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 , MDS, Salesforce headers, etc. by means of few examples. These examples would be beneficial in resolving any complexities associated with the integration to Salesforce.

10.1. 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 10.1.1, "How to use query and queryMore Operations?"
- Section 10.2.1, "How to use MDS for importing WSDL into JDeveloper"
- Section 10.3.1, "How to use Debug Header (Response Header)"

10.1.1. 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 10-1.

Figure 10 - 1	Name your project
---------------	-------------------

O Create SOA Application	- Step 2 of 3				×
Name your project			01010101010101	010103939393935	F
Application Name Project Name	<u>P</u> roject Name: Dir <u>e</u> ctory:	QueryProject1 C:\JDeveloper\mywor	k\Application7\Query	/Project1	Bro <u>w</u> se
Project SOA Settings	Project Featur SOA Suite SOA Suite is	res: a suite of tools to mode	al SOA(Service Orier	nted Architecture)	applications.
Help		< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

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 10-2.

O Create SOA Application	- Step 3 of 3
Configure SOA settin	Igs
Application Name Project Name Project SOA Settings	Composite Name: QueryProject1 Start from: Start from: Soc Standard Composite Soc Template Composite With BPEL Process Composite With BPEL Process Composite With Human Task Composite With Subprocess Composite With Mediator Composite With Mediator Composite With BPMN Process Composite With BPMN Process Composite With Business Rule Composite With Business Rule Composite With Spring
Help	Customizable

Figure 10 - 2 Configure SOA Setting

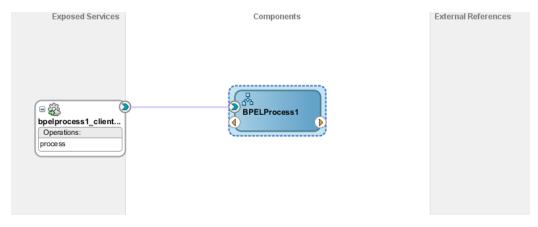
- 2. Click Finish.
- **3.** Select the BPEL 1.1 radio button and **Synchronous BPEL Process** from **Template** drop-down and click **OK**, as shown in Figure 10-3.

Figure 10 - 3 Create BPEL Process

O Create BPE	L Process	x			
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.					
O BPEL 2.0 Sp	pecification () BPEL 1.1 Specification				
<u>N</u> ame:	BPELProcess 1				
Namespace:	http://xmlns.oracle.com/Application7/QueryProject1/BPELProcess1				
Directory:	C:\JDeveloper\mywork\Application7\QueryProject1\SOA\BPEL	Q			
Template:	Asynchronous BPEL Process	- 3			
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	@ Q e Q			
Help	ОК Са	ancel			

The composite.xml looks like Figure 10-4.

Figure 10 - 4 Composite.xml



4. In External References swim-lane of the composite.xml file, right-click and select Salesforce adapter, as shown in Figure 10-5.

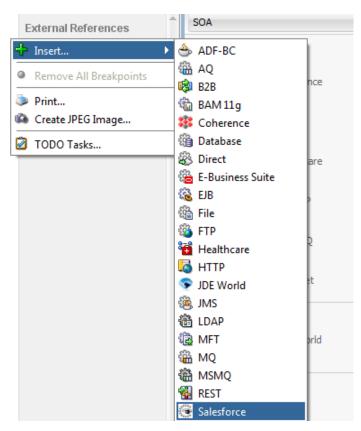


Figure 10 - 5 Salesforce adapter

5. The Salesforce Cloud Adapter Configuration Wizard -Welcome page is displayed, as shown in Figure 10-6.

Figure 10 - 6 Welcome Page

00	onfigure Salesforce Endpoi	nt - Step 1 of 6	-			×
We	lcome to the Salesfor	ce Endpoint Configuration Wizard		81010101010		*
100	Basic Info Connection Operations Custom Operations Headers Summary	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for t "What do you want to call your endpoint? SalesforceReference What does this endpoint do? Describe the endpoint's purpose and detail "Which Salesforce service would you like to design your integration with? (a) Standard applications delivered by Salesforce.com Custom applications built using Apex Classes and hosted on force.com	the service.			
	Help		< <u>B</u> ack	Next >	Einish	Cancel

6. In the Welcome page, Enter a Reference Name in the Name field, as shown in Figure 10-7

Figure 10 - 7 Name your Service

Configure Salesforce Endpoint -	Step 1 of 6	-		×
Welcome to the Salesforce	Endpoint Configuration Wizard	out.		*
Basic Info Connection Operations Custom Operations Headers Summary	This witzard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for the "What do you want to call your endpoint? SalesforceReference_query What does this endpoint do? Describe the endpoint's purpose and detail "Which Salesforce service would you like to design your integration with?	service.		
Help		< Back Next	> 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 10-8.

Figure 10 - 8	Salesforce Cloud Server Connection Page
---------------	---

Configure Salesforce Endpo	sint - Step 2 of 6		X
Salesforce Server Conn	lection		*
Basic Info Operations Outrations Headers Summary	A Salesforce Server connection is required to access the operations and business objects avail Where can I find the Objects you need? Enterprise WSDL Location: Pick the key to get in the door Security Policy: CUSTOM *Authentication Key: Test Refresh MetaData Cache:	able.	
Help	ii < Back	Next > Enish	Cancel

9. The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in Figure 10-9.



👌 WSDL Choose	r		and Marris 1	111			X
Application Server	File System	Project Libraries	SOA-MDS	UDDI	WSIL		
Location:	: C:\WSDL					- 🗘 🗘 🖏	🔒 📰 🖽
Work Project Application	Eile Name: Enter						
Home	- File <u>T</u> ype: Web		on Files (*.wsdl)				•
Selection: file:/C:	/WSDL/Enterprise.	wsdl					
Help						ОК	Cancel

Note: Alternatively, you can store WSDL at an MDS location and access it, as shown in Figure 10-10.

_

Figure 10 - 10 SOA Resource Browser

	Components	Resources ×	
PDEMO	🗳 - 🔍 Nar	me)
•	± My Catalogs → IDE Connectio	ns	
	Applicatio	on Server	sdl

- 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 10-11.



O Configure Salesforce Endpoint - S	tep 2 of 6		×
Salesforce Server Connection	n	010101010101010101010101010101010	*
Basic Info Connection Coston Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects available. Where can I find the Objects you need? Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsd Pick the key to get in the door Security Policy: CUSTOM *Authentication Key: SFDC_Test Field CEST Refresh MetaData Cache:		
Help	< Back	Next > Einish	Cancel

- 13. Click OK.
- **14.** Click + button to create a new **Authentication Key**, as shown in Figure 10-12.

Salesforce Server Connection Basic Info Connection Observations Observations Peaders Summary Pick the key to get in the door Security Policy: Summary Test Refresh MetaData Cache:	Configure Salesforce Endpo					X
Connection	Salesforce Server Conn	ection		0101010101	of Dictory Save Solicitor	4
	Connection Connection Connection Custom Operations Headers	Where can I find the Objects you need? "Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsd ? Pick the key to get in the door ? Pick the key to get in the door Security Policy: CUSTOM *Authentication Key: SFDC_Test *FDC_Test *Test	objects available.			

Figure 10 - 12 Create a New Authentication Key

15. The **Add Credential** page is displayed, as shown in Figure 10-13. 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 10 - 13 Add Credential

Create CSF Key		_		
*CSF Key Name:				
*Username:				
*Password:				
*Re-Enter Password:				
Help	í	OK	Cano	el

16. Click **Test Connection** button to validate the Authentication Key, as shown in Figure 10-14 .

Figure 10 - 14 Test Connection

Oconfigure Salesforce Endpo	int - Step 2 of 6			_	×
Salesforce Server Conn	ection		0101010101		
Basic Info Connection Connection Control operations Headers Summary	A Salesforce Server connection is required to access the operations and business obje	ects available.			
Help		< <u>B</u> ack	Next >	Einish	Cancel

17. Click Next.

18. The Cloud Operation Configuration page is displayed, as shown in Figure 10-15.

Figure 10 - 15 Cloud Operation Configuration Page

Basic Info	. Select the target operation and the business objects on which to perform the	he operation in the Salesforce application.	
Operations Custom Operations Headers	③ Select an Operation Type: CRUD ▼ create ▼ create ▼ create ▼ create ▼		
) Summary	*Select Business Objects (Salesforce API 36, retrieve update Available: Account AccountContactRole ActionLinkGroupTemplate ActionLinkTemplate AdditionalNumber Amouncement ApexClass ApexComponent ApexComponent ApexComponent	Selected:	0

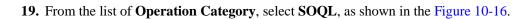


Figure 10 - 16 Select SOQL

Welcome to the Cloud Co	nnection Configuration Wizard - Step 3 of 5		X
Configure the Operati	on to Perform in the Oracle Salesforce Application	enterororariante	*
Basic Info Connection	Select the target operation and business objects in the Ori	acle Salesforce application.	
Operations Headers Summary	Select an Operation Type: CRUD CORE	▼ (create ▼	
	"Select Business Objects (Salesforce API 33.0): Available:	SOQL Selected:	~ ~
	Account_Test_c Account_Test_c Account_vod_c AccountContactRole ActionLinkTemplate AdditionalNumber	ActionLinkGroupTemplate	
	Address_vod_c Announcement ApexClass (2) **WSDL Operation: create		
Help		< Back Next > Einist	Cancel

20. Now, the query operation will automatically be selected. Provide the query string in the text box, as shown in the Figure 10-17.

Figure 10 - 17 Provide the query String

figure the Operatio	n to Perform in the Target Salesforce application.		0101010101	
Basic Info	Select the target operation and the business objects on which to perform the operat	tion in the Salesf	orce application.	
Operations Custom Operations	Select an Operation Type: SOQL query			
Headers Summary	*Enter a Salesforce Object Query Language (SOQL) Statement:			
	Select Id,Name from Account			
	Refresh			
	③ Binding Parameters:			
	No Parameters			
	Test My Query			
	No Result			

21. You can also test the query string after clicking on the **Query Test** button. As shown in Figure 10-18.

Figure 10 - 18 Query Test button

Configure Salesforce Endpo	int - Step 3 of 6				×
Configure the Operation	n to Perform in the Target Salesforce application.				*
Basic Info Connection Operations Custom Operations Headers Summary	Select the target operation and the business objects on which to perform the Select an Operation Type: SOQL	operation in the Salest	force application.		
	Test My Query No Result				÷
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

22. After clicking on query test button, a **Query Test** dialog appears, as shown in Figure 10-19.

Figure 10 - 19 Query Test

Configure Salesforce Endpoi	int - Step 3 of 6	×
Configure the Operation	to Perform in the Target Salesforce application.	
Basic Info <u>Connection</u> Operations	Select the target operation and the business objects on which to perform the operation in the Salesforce apple ② Select an Operation Type: 50QL ▼ query ▼	ication.
Custom Operations Headers Summary	"Enter a Salesforce Object Query Language (SOQL) Statement: Select Id,Name from Account	
	Refresh @ Binding Parameters:	
	No Parameters	
Help	1 (// PNH >	< Back Next > Finish Cancel

23. Click on **Next**. The **Header and Properties** page is displayed. Provide the value of headers as per your business requirement, as shown in Figure 10-20.

Figure 10 - 20 Provide the Value of Headers

Configure Salesforce Endpoint -	- Step 5 of 6	×
Select headers for the targ	yet Salesforce Operation	*
Basic Info Connection Operations Custom Operations Headers Summary	Following are the header properties for the target operation. Configure the headers as per your requirement. AllOrHoneHeader AllOrHoneHeader AlssignmentRuleHeader DebuggingHeader EmailHeader Specifies whether to update most recently used item on Salesforce.com or not. updateMru PackageVersionHeader.packageVersions Specifies the package version for each installed managed package. majorNumber: namespace:	
Help	< <u>B</u> ack <u>N</u> ext > Einish	Cancel

24. Click Next.

25. 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 10-21.

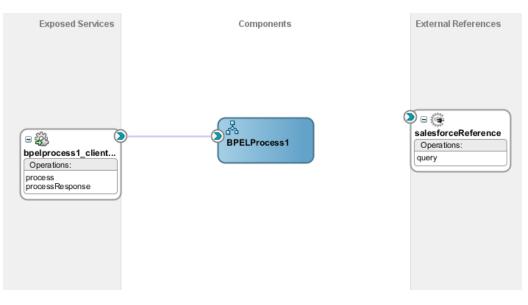
Figure 10 - 21 Finish Page

Configure Salesforce Endpoint	- Step 6 of 6	×
Salesforce Endpoint Confi	guration Summary	
Basic Info Connection Operations Custom Operations Headers	Salesforce endpoint configuration was successful. Selected Operation Name: retrieve Selected Object(g) Name: ActionLinkGroupTemplate Selected Header Properties: No Header Selected	
Help		< Back Next > Enish Cancel

26. Click the **Finish** button to complete adapter configuration.

27. After clicking on **Finish** button, the following screen appears, as shown in Figure 10-22.

Figure 10 - 22 Composite Screen



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 10-23 shows all the above mentioned values.

Figure 10 - 23 Query Operation Structure

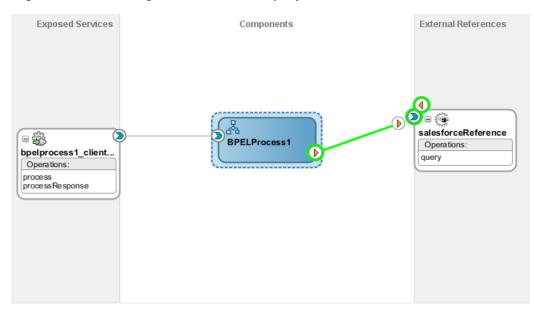


Integration with BPEL

Perform the following steps for integration with BPEL:

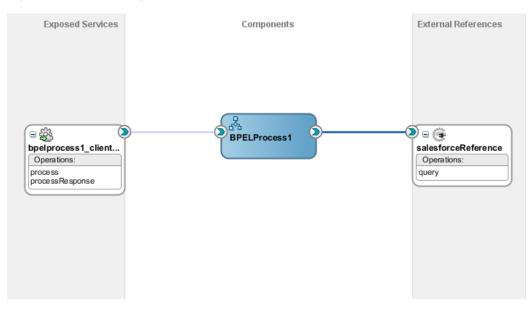
1. Connect BPELProcess1 and query via a wire, as shown in Figure 10-24.

Figure 10 - 24 Wiring BPELProcess1 and query



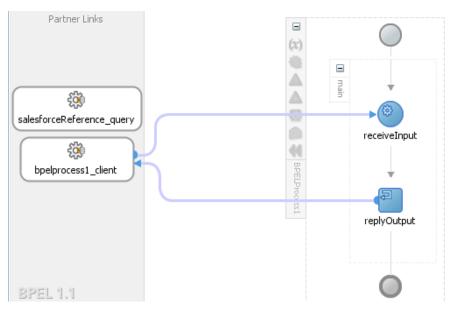
2. After wiring, your composite will look, as shown in Figure 10-25.

Figure 10 - 25 Wiring BPELProcess1 and query

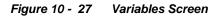


3. Double-click and open **BPELProcess1**. The **query** adapter should be present as part of Partner Links, as shown in Figure 10-26.

Figure 10 - 26 Open BPELProcess1



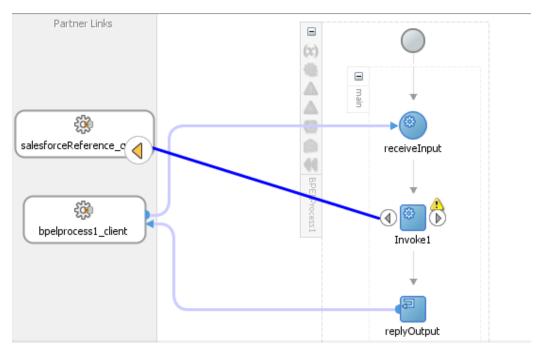
4. Create two variables **varDone** and **varQueryLoc** to track the values of "queryLocator" and "done" returned in query response from Salesforce.com, as shown in Figure 10-27.



	oles: Name	Tuno	Chama
6.2		Туре	QName
(x)	inputVariable	MessageType	dient:BPELProcess1RequestMess
(X)	outputVariable	MessageType	client:BPELProcess1ResponseMes
(x)	varDone	Simple Type	xsd:boolean
(x)	varQueryLoc	Simple Type	xsd:string

5. Add an invoke activity to invoke the query Partner Links, as shown in Figure 10-28.

Figure 10 - 28 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 10-29.

👩 Edit Invok	(e	23
Assertions General	Skip Condition Headers Sources Targets Correlations Properties Annotation	ons
<u>N</u> ame:	Invoke 1	
<u>C</u> onversati	ion ID:	<u>F</u> ₂,
🕜 Create Va	riable	x
<u>N</u> ame:	Invoke1_query_InputVariable	
<u>Type</u> :	{http://xmlns.oracle.com/pcbpel/adapter/salesforce/Application	7/QueryF
(<u>Global Variable</u> <u>Local Variable</u>	
<u>H</u> elp	ОК С	Cancel
Operati	ion: 🐚 query 🔻	
Variables	;	
Input:		
O <u>u</u> tput:	:	۹
<u>H</u> elp	<u>A</u> pply OK C	Cancel

Figure 10 - 29 Create Variable

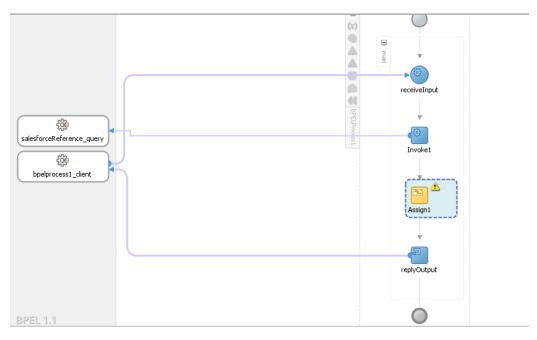
 Create an output variable from the partner link by clicking the '+' button adjacent to Output text box in the Variables section. The Create Variable dialog is displayed, as shown in Figure 10-30.

Figure	10 -	30	Create	Variable
--------	------	----	--------	----------

👩 Edit Invoke			22
Assertions S	kip Condition Header	rs Sources Targ	jets
General	Correlations	Properties	Annotations
<u>N</u> ame:	Invoke 1		
<u>C</u> onversation II):		
Oreate Variabl	e		x
<u>N</u> ame: Invol	<pre>ke1_query_OutputVaria</pre>	ble	
Type: {http	://xmlns.oracle.com/pcb	opel/adapter/salesforc	e/Application7/QueryF
<u>و</u>	obal Variable O Local V	/ariable	
<u>H</u> elp		(OK Cancel
Operation:	n query		▼
Variables			
Input:	Invoke1_query_Input	Variable	
Output:			
<u>H</u> elp		Apply C	DK Cancel

8. Introduce Assign activity right after the invoke activity, as shown in Figure 10-31.

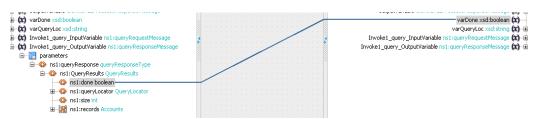
Figure 10 - 31 Introduce Assign activity



9. Inside the Assign activity, assign the value of

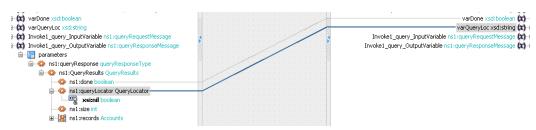
"Invoke1_query_OutputVariable/done" variable to "varDone" variable, as shown in Figure 10-32.

Figure 10 - 32 Wire the Assign activity



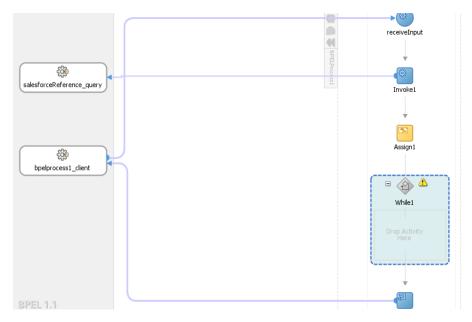
- **10.** Next, assign the value of "Invoke1_query_OutputVariable/queryLocator" variable to "varQueryLoc" variable in the same Assign activity, as shown in Figure 11-33.
- 11. Click on Apply and then OK.





12. Add a While activity after the Assign activity, as shown in Figure 10-34. While activity is used to introduce iterations in the BPEL flow.

Figure 10 - 34 Add a While activity



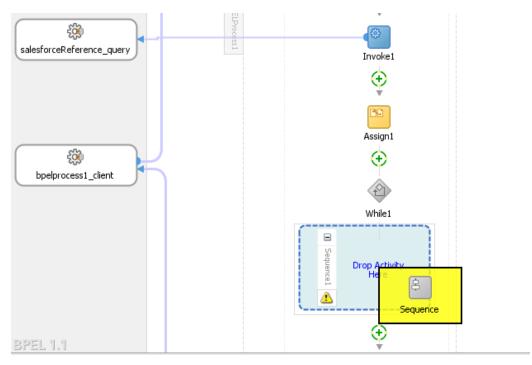
13. Double-click on the While Activity, a dialog box appears where you can specify condition for the while loop. Here, provide the condition, as shown in Figure 10-35.

Figure 10 - 35 Edit While activity

🕜 Edit While				×
General Annotations	Skip Condition	Sources	Targets	L
Name: While1				
Condition:				F
\$varDone = false				
<u>H</u> elp	Apply	/ 0	ж	Cancel

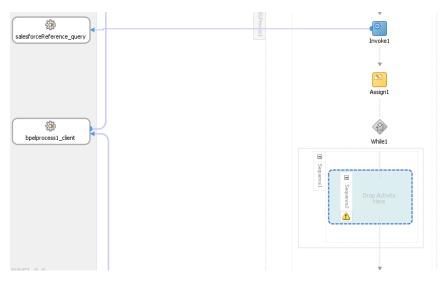
- 14. Click on Apply and then OK.
- 15. Drag and drop a Sequence Activity inside the While, as shown in Figure 10-36.

Figure 10 - 36 Add Sequence Activity



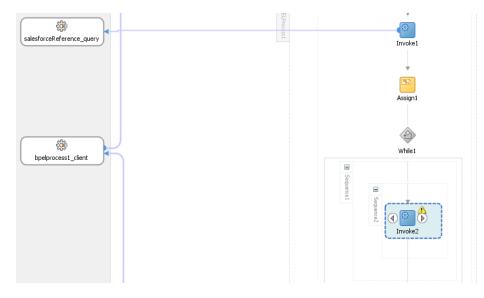
The While Activity will look like Figure 10-37.





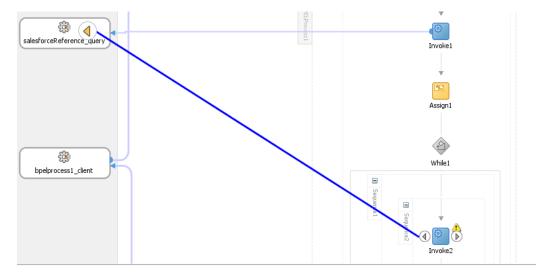
16. Drag and drop Invoke activity in the Sequence, as shown in Figure 10-38.

Figure 10 - 38 Add Invoke activity in the Sequence



 Wire this invoke activity to the partner link named "query", as shown in Figure 10-39.

Figure 10 - 39 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 10-40.

	p Condition Headers	s Sources Tar	gets
General	Correlations	Properties	Annotations
<u>N</u> ame:	Invoke2		
Conversation ID:			F .
etail Label:			
	Invoke as Detail		
 <u>Interaction</u> T 	ype: 🔞 Partner Link	▼	
Partner Role W	/eb Service Interface -		
_	salesforceReference_q		Q
Port Type:	🔅 salesforceReferen	ce queryPortiype	
Port <u>Typ</u> e: O <u>p</u> eration:	🖗 salesforceReferen	ce_queryPortType	•
		ce_queryPortType	•
Operation:			- - -
Operation: Variables	🖷 query	/ariable	

Figure 10 - 40 Edit Invoke

19. Click on **Properties** tab in the same dialog. Search for the property named "jca.salesforce.queryLocator", as shown in Figure 10-41.

ssertions	Skip Condition	Headers	Sources	Targets	
General	Correlatio	ns	Properties	A	nnotations
Properties:					
Name		Va	alue	Туре	
ica.msmq.m	essage.BodyLeng	th		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	essage.Delivery				
jca.msmq.m					
	essage.MaxTimeT	oRe			
	essage.Priority				
	essage.SentTime				
jca.msmq.m	essage.TimeToLiv	e			
jca.salesfor	ce.AllOrNoneHead	er.a			
jca.salesfor	ce.HttpTimeout				
jca.salesfor	ce.LocaleOptions.l	ang			
jca.salesfor	ce.QueryOptions.	batc			
jca.salesfor	ce.queryLocator				
	ce.response.debu				
•	ce.response.limitIr				
•	ce.response.limitIr	nfo.li			
jca.socket.h					
jca.socket.p	ort				-
Fit to Wid	dth				

Figure 10 - 41 Properties Tab

20. Browse for the variable by double-clicking on the button shown in Figure 10-42.

Conservation Conservation	Headers Source		to Konne
General Correlation	s Propert	les Anno	tations
Properties:			
Name	Value	Туре	
jca.msmq.message.BodyLength			
jca.msmq.message.Delivery			
jca.msmq.message.Id			
jca.msmq.message.MaxTimeToF	Re		
jca.msmq.message.Priority			
jca.msmq.message.SentTime			
jca.msmq.message.TimeToLive			
jca.salesforce.AllOrNoneHeader	.a		
jca.salesforce.HttpTimeout			
jca.salesforce.LocaleOptions.la	ng		
jca.salesforce.QueryOptions.ba	atc		
jca.salesforce.queryLocator		input	
jca.salesforce.response.debugl	-		
jca.salesforce.response.limitInf			
jca.salesforce.response.limitInf	o.li		
jca.socket.host			
jca.socket.port			
 Fit to Width 			

Figure 10 - 42 Browse for the variable

21. Adapter Property Value dialog box is displayed. Click on the Search, as shown in Figure 10-43.

ssertions	Skip Condition Head	lers Sou	rces	Targets	
General	Correlations	Prop	erties		Annotation
roperties:					
Name		Value		Туре	
jca.msmq.mes	sage.BodyLength				
(a) Variable					
● <u>V</u> ariable	C Expression		0	К	Cancel
	<u>Expression</u>		0	К	Cancel
ca.salesforce	.queryLocator .response.debugLog		_	ĸ	Cancel
ca.salesforce ca.salesforce ca.salesforce	.queryLocator .response.debugLog .response.limitInfo		_	ĸ	Cancel
ica.salesforce ica.salesforce ica.salesforce ica.salesforce	.queryLocator .response.debugLog .response.limitInfo .response.limitInfo.li		_	ĸ	Cancel
ca.salesforce ca.salesforce ca.salesforce	.queryLocator .response.debugLog .response.limitInfo .response.limitInfo.li		_	K	Cancel

Figure 10 - 43 Search Property Value

22. Select the variable varQueryLoc and click OK, as shown in Figure 10-44.

		Targets	
General Correlations	Properties	An	notations
Properties:			
Name	Value	Туре	
jca.msmq.message.BodyLength			
Adapter Property Value			×
Variable Expression			
varQueryLoc			2
	C	ĸ	Cancel
	C	К	Cancel
ica.salesforce.gueryLocator			Cancel
jca.salesforce.queryLocator jca.salesforce.response.debugLog		K (Cancel
			Cancel
jca.salesforce.response.debugLog			Cancel
jca.salesforce.response.debugLog jca.salesforce.response.limitInfo			Cancel
jca.salesforce.response.debugLog jca.salesforce.response.limitInfo jca.salesforce.response.limitInfo.li			Cancel
ca.salesforce.response.debugLog ca.salesforce.response.limitInfo ca.salesforce.response.limitInfo.li ca.socket.host			Cancel

Figure 10 - 44 Select the variable varQueryLoc

23. Click on OK and select the Type as input, as shown in Figure 10-45.

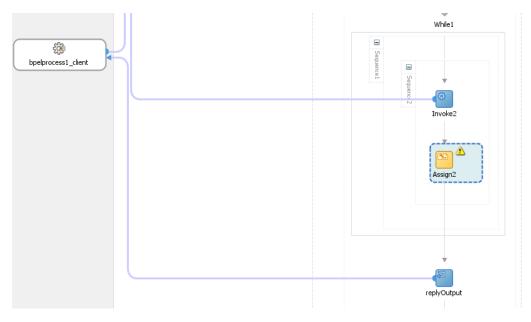
ssertions	Skip Condition	Headers	Sources	Targets	
General	Correlatio	ons	Properties	A	nnotations
roperties:					
Name		Val	ue	Туре	
ca.msmq.m	essage.BodyLeng	th			
ca.msmq.m	essage.Delivery				
ca.msmq.m	essage.Id				
ca.msmq.m	essage.MaxTimeT	oRe			
ca.msmq.m	essage.Priority				
ca.msmq.m	essage.SentTime				
ca.msmq.m	essage.TimeToLiv	e			
ca.salesfor	ce.AllOrNoneHead	er.a			
	ce.HttpTimeout				
	ce.LocaleOptions.	-			
	ce.QueryOptions.				
	ce.queryLocator		QueryLoc//	input	-
	ce.response.debu			input	
	ce.response.limitI			output	
	ce.response.limitI	nfo.li			
ca.socket.p	port				-
🖌 <u>F</u> it to Wi	dth				
ca.socket.h ca.socket.p	nost port	nto.li			

Figure 10 - 45 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 10-46.

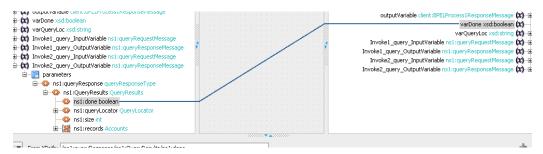
Figure 10 - 46 Drag and drop Assign activity



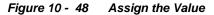
26. Double-click on **Assign activity**, and assign the value of

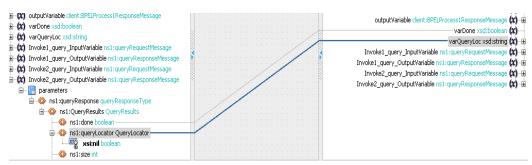
"Invoke2_query_OutputVariable/done" variable to "varDone" variable, as shown in Figure 10-47.

Figure 10 - 47 Assign the Value



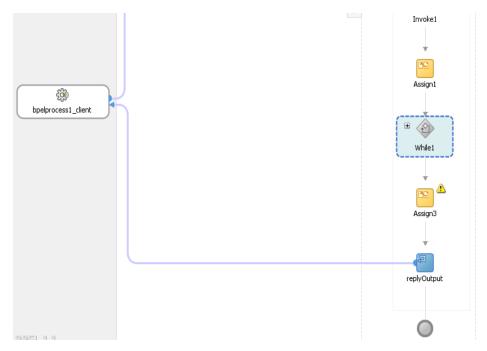
27. Assign the value of "Invoke2_query_OutputVariable/queryLocator" variable to "varQueryLoc" variable, as shown in Figure 10-48.





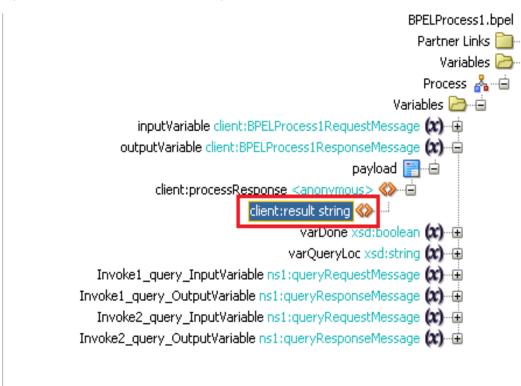
- 28. Click on Apply and then OK.
- **29.** Drag and drop **Assign** activity right after the **While** activity, as shown in Figure 10-49.

Figure 10 - 49 Drag and drop Assign activity



30. Double click on **Assign** activity and look for the variable **processresponse/result**, as shown in Figure 10-50.

Figure 10 - 50 Double click on Assign activity



31. Drag and drop the Expression over to this variable, as shown in Figure 10-51.

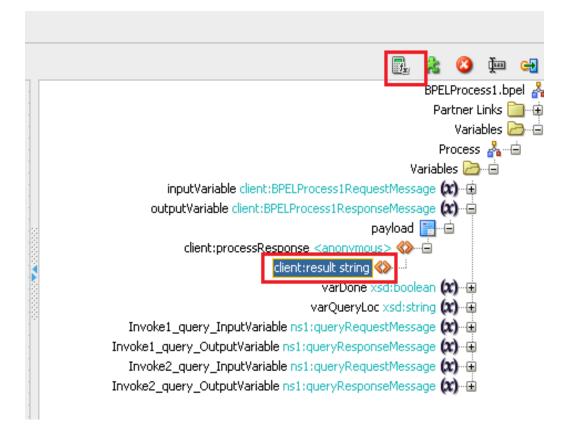


Figure 10 - 51 Drag and drop the Expression over to this variable

32. Expression Builder dialog box is displayed. Provide an expression value, as shown in Figure 10-52.

Figure 10 - 52 Expression Builder Dialog

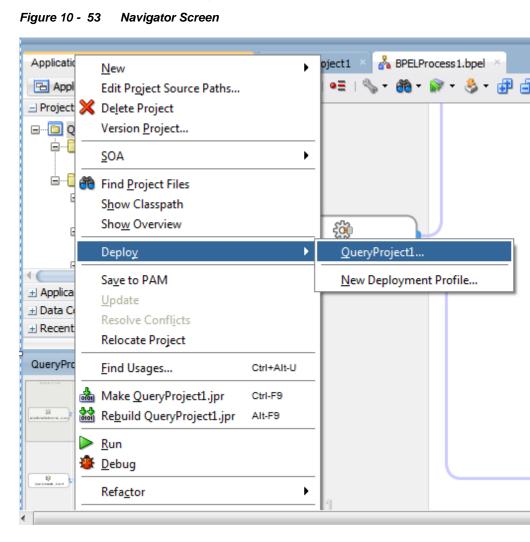
fragment editors below the Expression field. Expression: 'Process Completed	ି ଜି 🕅
À Insert In	to Expression
BPEL Variables	Functions
Variables Variables Variables Variables Variables Variable client:BPELProcess1RequestMessage Variable client:BPELProcess1ResponseMessa Variables Var	String Functions
Content Preview: xp20:compare()	
escription: Returns the lexicographical difference between inputString and con 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 10-53.



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 10-54.

Figure 10 - 54 Test Tab

	QueryPi SOA Comp	o ject1 [1	.0] 🔋				
ſ		etire	Shut Down e Definition	Settings Unit Tests	b		
	Comp	onents					
	Name	Process 1					

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 10-55.

```
Figure 10 - 55 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, Resource, 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
wSDL or WADL http://HOSMDM04.bcone.com:7003/soa-infra/services/default/QueryProject1/bpe/process1_client_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 10-56.

	Figure	10 -	56	Execution Window
--	--------	------	----	------------------

Litice 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 10-57.

Figure 10 - 57 Launch Flow Trac	Figure 1	10 -	57	Launch	Flow	Trace
---------------------------------	----------	------	----	--------	------	-------

low Trace ③ is page shows the flow of the message throu	ugh various composite and component i	nstances. 🗿	-	CTD 9e4b8ce653d1e16f:4265d5f2:143443d4ba5:- ted Jan 7, 2014 2:43:25 PM
Faults (0)				
Faults				
Select a fault to locate it in the trace view.				
Error Message			Recovery	Fault Time Fault Location
≥ Sensors (0)				
race Click a component instance to see its detailed	d audit trail.			
race Click a component instance to see its detailed Show Instance IDs	d audit trail. Type	Usage	State	Time Composite Instance
race Click a component instance to see its detailed Show Instance IDs		Usage 💖 Service	State State	Time Composite Instance Jan 7, 2014 2:43:25 PM QueryProject1 of 1150148
race Lick a component instance to see its detailed show Instance IDs	Туре			Jan 7, 2014 2:43:25 PM QueryProject1 of 1150148
ace Click a component instance to see its detailed how Instance IDs □ Instance ♥ ⓑ bpelprocess1_client_ep	Type Web Service		 Completed 	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 blow Instance IDs □ Instance ♥	Type Web Service BPEL Component	Service 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
😪 query	Type Web Service BPEL Component JCA Adapter	Service	 ✓ Completed ✓ Completed ✓ Completed 	

7. The Audit Trail will look like Figure 10-58.

Figure 10 - 58 Audit Trail

Audit Trail Flow Sensor Values Faults					
Expand a payload node to view the details.					
<pre></pre>					
✓ <@receiveInput					
<pre>✓ Jan 7, 2014 3:57:57 PM</pre> > <pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>	Received "process" call from partner "bpelprocess1_client"				
🗸 🦇 Invoke 1					
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					
<pre></pre>	Updated variable "varDone"				
▼ Jan 7, 2014 3:58:01 PM ▷ <payload></payload>	Updated variable "varQueryLoc"				
Jan 7, 2014 3:58:01 PM ▼ < While1 (109) >	Completed assign				
√ Acount 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 "01g9000000ZTdmMAAT-200".				
✓ Jan 7, 2014 3:58:06 PM View XML Document	Invoked 2-way operation "query" on partner "query".				
🗸 🔊 🖓 Assign2					

8. Click on Flow tab, The Flow tab will look like Figure 10-59.

Audit Trail	Flow Sensor Values Faults
Click an activity	to view the details.
	receiveInput
	Invoke1
	69
	Assign1
	While
	count loop
	🖂 Sequence1 (110)

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 10-60.

Figure 10 - 60 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".
____View xml document
```

Figure 10 - 59 Flow Tab

10.1.2. 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 10.1.1 Creating the BPEL Process.

Create an MDS connection.

Now you need to create a new MDS connection for your 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 10-61.

00	Create SOA	A-MDS (Connection		×					
	Create a File-based or a Database-based connection in the Resource Palette to connect to a MetaData Service (MDS) Server.									
	Create connection in: Application Resources IDE Connections Connection Name:									
MD	SConnectio	n1								
Con	nection Ty	pe:								
DB	Based MDS	S			-					
Con	nection:	Connec	tion 1	•	+ 🥒					
	User Nar	ne:	SFDCFEB3_MDS							
	Driver:		oracle.jdbc.OracleDriver							
	Connect	String:	jdbc:oracle:thin:@//10.30.32	2.76:1521/soa76						
Sele	ect MDS <u>p</u> ar	rtition:								
soa	a-infra				•					
	<u>T</u> est Conne	ection								
Stat	tus									
	<u>H</u> elp			ОК	Cancel					

Figure 10 - 61 Create SOA-MDS Connection

2. 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 10-62. Please enter the connection details as per your installation and DB configuration of the SOA SUITE.

O Create Database Connection					
Configure a new da	tabase connection and add it to the current appli	cation (Application	1).		
Cre <u>a</u> te Connection I	in: 🛃 IDE Connections		~		
Connection Name:	Connection 1				
Connection Type:	Orade (JDBC)				
<u>U</u> sername:		<u>R</u> ole:			
Password:		Save Pass	sword		
- Orade (JDBC) Set	tings				
Enter Custom]	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		0	K Cancel		

Figure 10-62 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 10-63.

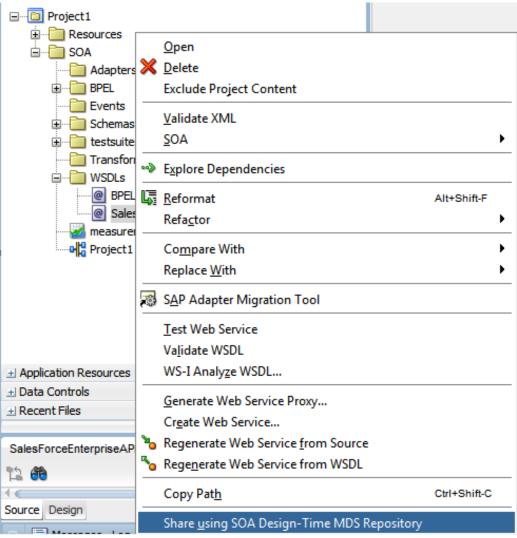
Figure 10-63 Create Database Connection

Components	Resources ×							
Ar Name								
± My Catalogs								
IDE Connectio	- IDE Connections							
🕀 📷 Applicatio	🕀 📷 Application Server							
	🗊 📆 Database							
🖮 🖏 SOA-MDS								
🖨 📲 MDSC	onnection 1							
😑 🗄 🗎 🗎	pps							
🛓 🗄 💼 s								
🖻 📲 🖏 SOA_	DesignTimeRepository							
a	pps							

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 <u>Figure</u> <u>10-64</u>.

Figure 10-64 SOA Design-Time MDS Repository



2. Now you will see a SOA-MDS Transfer Wizard as shown in the Figure 10-65.

Figure 10-65 SOA-MDS Transfer Wizard

SOA-MDS Transfer Wizard - Step 1 of 4					
Welcome					
Welcome Choose Target Dependencies References	 Welcome to the SOA-MDS Transfer Wizard 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 close all the open editors. 				
Help	Skip This Page Next Time				

3. Click on the **Next** button and you will see 'apps' folder as shown in the <u>Figure 10-66</u>. You can also notice the Transfer Location.

Figure 10 - 66 SOA-MDS Transfer Wizard

O SOA-MDS Transfer Wiza	rd - Step 2 of 4	×
Choose Target		
Welcome Choose Target Dependencies References	Transfer File: SalesForceEnterpriseAPI.wsdl Select target SOA-MDS Folder: Search SOA-MDS Total apps /apps /apps Transfer Location: /apps/SalesForceEnterpriseAPI.wsdl	
Help	< Back Next > Finish	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 10-67.

O SOA-MDS Transfer Wizard - Step 3 of 4						
Dependencies						
O Welcome	Following files will be transferred to the target SOA-MDS connection.					
	File Name	Target URL				
<u>Choose Target</u>	@ SalesForceEnterpriseAPI.wsdl	oramds:/apps/SalesForceEnterpriseAPI.wsdl 🖋				
Dependencies						
References						
Overwrite if document exists in the target MDS repository						
Help	< <u>B</u> ack	Next > Einish Cancel				

Figure 10 - 67 SOA-MDS Transfer Wizard

5. Click Next, You can see what all files would be updated with the oramds URLs Figure 10-68.

Figure 10 -68 SOA-MDS Transfer Wizard

O SOA-MDS Transfer Wizard - Step 4 of 4							
References							
Welcome Following referenced files will be updated with the appropriate oramds URLs.							
Choose Target	Show references to:	All File Name	Target URL	•			
Dependencies		The Maine	Target OKE				
References	_						
Help	_	< Back 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

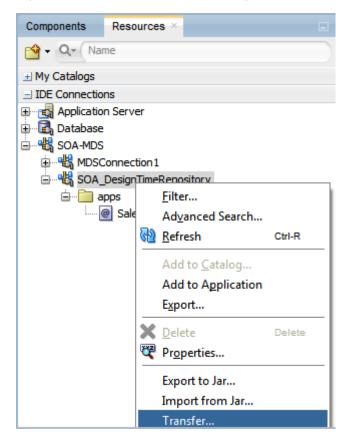
resources palette now. Expand SOA-MDS connection to see the transferred file as shown in the Figure 10-69.

Figure 10 -69 After Transferring WSDL to SOA_DesignTimeRepository

Applications ×	₩ <mark>©</mark> Project1 ×			Components Reference - sales for Resources × =
Application 1	🖌 🔥 🌌 🗶 🖏 I 🗊 🦉 I 🗄	🗄 🏟 🖓	Project1	😋 • Q* (Name
Projects Proje	Exposed Services	Components	External References	HY Caladys IDE Conclore(Galacytoton Server Galacytoton Server Galacytoton Server Galacytoton Server Galacytoton Galacytoton

 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 10-70.

Figure 10 - 70 Transfer from SOA_DesignTimeRespository



8. In the pop-window, select the Enterprise WSDL and click on **Transfer** as shown in the Figure 10-71.

Transfer from SOA_DesignTimeRepository	x
Select documents to transfer:	
Preview: (1 documents selected)	
Target Connection: MDSConnection 1	• /
Help Transfer Cance	

Figure 10 -71 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 10-72.

Figure 10 - 72 Confirmation for Transfer of WSDL File to MDS Connection

Transfer fro	m SOA_DesignTimeRepository
i	Transferred 1 documents to "MDSConnection 1" successfully.
	OK

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 10-73.

Configure Salesforce Endpoir	nt - Step 2 of 6		23
Salesforce Server Conne	ction	aratoroloson "Sodooson	*
Basic Info Connection Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects available. ③ Where can I find the Objects you need? [®] Enterprise WSDL Location: ③ Pick the key to get in the door Security Policy: [®] Authentication Key: ? * Refresh MetaData Cache:		
Help	< <u>B</u> ack	Next > Einish	Cancel

Figure 10 - 73 Connection Page in Edit Mode

2. Click on the WSDL Chooser button and select SOA-MDS tab as shown in Figure 10-74.

Figure 10 - 74	Connect	ion page i	n edit mode				
WSDL Chooser	-	-	ang Mare 1	141 a			x
Application Server	File System	Project Libraries	SOA-MDS		WSIL		
							බො
Q Search SOA-MD	S						
Selection:							
Help						ОК	Cancel

3. Expand apps folder and select the **Enterprise WSDL** as shown in <u>Figure 10-75</u>. This is the WSDL that was transferred to MDS in the previous steps.

0 WSDL Chooser	X
Application Server	
Q Search SOA-MDS	62
SalesForceEnterpriseAPI.wsd	
Selection: oramds:/apps/SalesForceEnterpriseAPI.wsdl	
Help	OK Cancel

Figure 10 - 75 WSDL Chooser Page

- 4. Subsequent steps for configuration would remain the same as in section 10.1.1 Creating the BPEL Process
- 5. In your JCA file, you can notice that the targetWSDLURL property has been updated with MDS file location see as shown in Figure 10-76.

Figure 10 - 76 Connection page in edit mode

```
Kadapter-config name="salesforceReferencePortType" adapter="salesforce" wsdlLocation="..
<connection-factory location="cloud/CloudAdapter">
        <non-managed-connection managedConnectionFactoryClassName="oracle.cloud.connector.sa
        <property name="targetWSDLURL" value="oramds:/apps/SalesForceEnterpriseAPI.wsdl"/>
        <property name="csfkey" value="SFDC_USER"/>
        <property name="csfkap" value="SOA"/>
        <property name="applicationVersion" value="29.0"/>
        </non-managed-connection>
        </connection-factory>
```

10.1.3. 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 10-77.

🕜 Create SOA Project - St	p 1 of 2				x
Name your project			010101010101010	1919191919191	
Project Name Project SOA Settings	Project Name: Project	1 /eloper \mywork \Apj	plication 12c\Projec	t1	Bro <u>w</u> se
	Project Features:				
	SOA Suite is a suite of	F tools to model SOA	(Service Oriented	Architecture) ap	plications.
Help		< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel

Figure 10 - 77 Name your project

3. Click **Next** and select **Composite with BPEL Process** from Standard Composite list, as shown in Figure 10- 78.

-	gure SOA Setting			
Create SOA Project - Ste	p 2 of 2			×
Configure SOA settin	gs	0101010101010	10103939393932340	
Project Name	Composite Name:			
Project SOA Settings	Project1 Start from: (a) Standard Composite	○ SOA Template		
	Empty Composite	O SON Template		
	🏠 Composite With Human Task			
	Composite With BPEL Process			
	Composite With Business Rule			
	Composite With Spring			
	Composite With Mediator			
$() \rightarrow$	<u>C</u> ustomizable			
Help	< <u>B</u> ack	Next >	<u>F</u> inish	Cancel

Figure 10 - 78 Configure SOA Setting

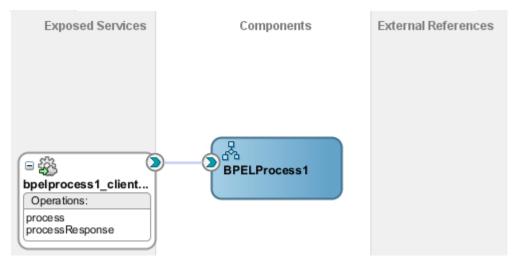
- 4. Click Finish.
- 5. Select the Synchronous BPEL Process from Template drop-down and click OK, as shown in Figure 10- 79.

Figure 10 - 79	Create BPEL Proc	cess
----------------	------------------	------

👩 Create BPE	L Process	×
	s 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 () BPEL 1.1 Specification	
<u>N</u> ame:	BPELProcess1	
Namespace:	http://xmlns.oracle.com/Application12c/Project1/BPELProcess1	
Directory:	C:\JDeveloper\mywork\Application12c\Project1\SOA\BPEL	_ 🔍
Template:	asynchronous BPEL Process	- 🕘
Ser <u>v</u> ice Name:	Z Synchronous BPEL Process	
	One Way BPEL Process Define Service Later	
	Base on a WSDL	3
	Subscribe to Events	
	Qutput: {http://xmlns.oracle.com/Application 12c/Project 1/BPELProcess 1}processResponse	
Help	ОКС	ancel

The composite.xml shown in Figure 10-80.

Figure 10 - 80 Composite.xml



6. In External References swim-lane of the composite.xml file, right-click and select Salesforce adapter, as shown in Figure 10- 81.

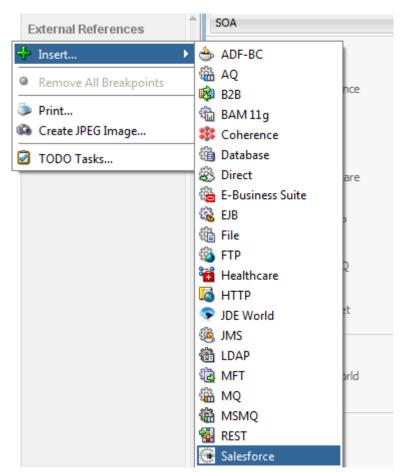


Figure 10 - 81 Salesforce adapter

7. The Salesforce Cloud Adapter Configuration Wizard - Welcome page is displayed, as shown in Figure 10- 82.

Figure 10 - 82 Welcome Page

Configure Salesforce Endpoir	nt - Step 1 of 6		×
Welcome to the Salesfor	ce Endpoint Configuration Wizard		-
Basic Info Connection Operations Custom Operations Headers Summary	This wizard helps you configure an endpoint using the Salesforce Cloud connection. You will be asked to specify configuration parameters and define an operation for the service. "What do you want to call your endpoint? SalesforceReference What does this endpoint do? Describe the endpoint's purpose and detail "Which Salesforce service would you like to design your integration with? (Standard applications delivered by Salesforce.com Custom applications built using Apex Classes and hosted on force.com		
Help	() (Bac	k 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 10- 83.

Figure 10 - 83 Salesforce Cloud Server Connection Page

Configure Salesforce Endpoi	nt - Step 2 of 6	<u></u>
Salesforce Server Conne	ection	
Basic Info Connection Operations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects ava Where can I find the Objects you need? Tetreprise WSDL Location: Pick the key to get in the door Security Policy: CUSTOM Test Refresh MetaData Cache:	lable.
Help	< <u>B</u> ac	k Next > Enish Cancel

10. The **WSDL** Chooser dialog is displayed, browse and select the downloaded Enterprise WSDL and click **OK**, as shown in Figure 10- 84.

Figure 10 - 84 SOA Resource Browser

👌 WSDL Chooser	-	en Bart				×
Application Server	System Project Libraries	SOA-MDS	UDDI	WSIL		
Location:	C:\WSDLs				- 🗘 🗘 🗟) = =
Work Project Application	Enterprise_WSDL_v29.wsd					
Hama	Name: Enterprise_WSDL_v					
	Type: Web Service Definiti					•
Selection: file:/C:/WSDL	.s/Enterprise_WSDL_v29.ws	dl				
Help					OK	Cancel

Note that as an alternative, you can store WSDL at an MDS location and access it, as shown in Figure 10-85.

Figure 10 - 85	SOA Resource Browser
----------------	----------------------

👌 WSDL Chooser	And industry Real	lag (41		x
Application Server	Project Libraries	UDDI	WSIL	
Q Search SOA-MDS				බො
SalesForceEnterprise	API.wsdl			
Selection: oramds:/apps/SalesFor	ceEnterpriseAPI.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 10-86.

Figure	10 - 86	WSDL	location
--------	---------	------	----------

Basic Info Connection Operations Custom Operations Headers Summary A Salesforce Server connection is required to access the operations and business objects available. Outstom Operations Headers Outstom Operations Pick the key to get in the door Security Policy: Custom Info Custom Ney: Test Refresh MetaData Cache:	alesforce Server Conn	ection	
0	Connection Operations Custom Operations Headers	 Where can I find the Objects you need? "Enterprise WSDL Location: [] Pick the key to get in the door Security Policy: CUSTOM "Authentication Key: Test 	available.

14. Click OK.

15. Click "+" button to create a new Authentication Key, as shown in Figure 10-87.

Configure Salesforce Endpo	sint - Step 2 of 6	
Salesforce Server Conn	ection	
Basic Info Connection Querations Custom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects Where can I find the Objects you need? "Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsd Pick the key to get in the door Security Policy: CUSTOM *Authentication Key: SFDC_Test Refresh MetaData Cache:	
Help		< Back Next > Enish Cancel

Figure 10 - 87 Create a New Authentication Key

16. The **Add Credential** page is displayed, as shown in Figure 10- 88. 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 10 - 88 Add Credential

*CSF Key Name:	
*Username:	
*Password:	
*Re-Enter Password:	

17. Click **Test Connection** button to validate the Authentication Key, as shown in Figure 10- 89.

Figure 10 - 89 Test Connection

Configure Salesforce Endp	sint - Step 2 of 6		X
Galesforce Server Conr	ection		*
Basc Info Connection Connection Coston Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects available. ③ Where can I find the Objects you need? *Enterprise WSDL Location: DC/Test/SOA/WSDL/shaEnterprise.wsd ③ Pick the key to get in the door Security Policy: CUSTOM *Authentication Key: SFDC_Test *Enterprise WSDL Location: FDC_Test		
Help	< Back	Next > Einish	Cancel

- 18. Click Next.
- **19.** Click **OK** in the next screen.
- 20. The Cloud Operation Configuration page is displayed, as shown in Figure 10-90.

Figure 10 - 90 Cloud Operation Configuration Page

Configure Salesforce Endpo	sint - Step 2 of 6		23
Salesforce Server Conn	ection		*
Basic Info Connection Operations Ustom Operations Headers Summary	A Salesforce Server connection is required to access the operations and business objects a Where can I find the Objects you need? "Enterprise WSDL Location: Pick the key to get in the door Security Policy: "Authentication Key: Image: Clustom Clu	vəlable.	
Help	<	ack Next > Enish	Cancel

21. From the list of **Operation Category**, select **CORE**, as shown in the Figure 10-91.

Figure 10 - 91 Select CORE

Configure Salesforce Endpoi	nt - Step 3 of 6 to Perform in the Target Salesforce application.	eierenteterene	**
Basic Info <u>Connection</u> Operations	Select the target operation and the business objects on which to perfor	rm the operation in the Salesforce application.	
Custom Operations Headers Summary	③ Select an Operation Type: Core ▼ convertLead ▼ *Select Business Objects (Salesforce API 36.0): Available: Q _*	Selected:	& ¥
		> Lead	
Help		< Back Next >	Finish Cancel

- **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 10-92.

Figure 10 - 92 Select Lead object

Basic Info	. Select the target operation and the business objects on which to perform the operation	ation in the Salesforce application.
Operations Custom Operations Headers	③ Select an Operation Type: Core ▼ Undelete ▼	
2 Summary	*Select Business Objects (Salesforce API 36.0): Available: Account AdditionalNumber Announcement Asset Attachment Campaign Case CaseComment CollaborationGroupRecord	Selected:

24. After selecting **Lead** object, move it to the **Selected** object area, as shown in Figure 10-93.

Figure 10 - 93 Select Lead object

onfigure the Operation	to Perform in the Target Salesforce application.	0101010101010101	
Basic Info <u>Connection</u> Operations	Select the target operation and the business objects on which to	perform the operation in the Salesforce application.	
 <u>Custom Operations</u> Headers Summary 	Select an Operation Type: Core undelete Select Business Objects (Salesforce API 36.0): <u>Available: Qr</u> Account AdditionalNumber Announcement Asset Attachment Campaign Case CaseComment	Selected:	۵ ۵
	CollaborationGroupRecord		

- 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 10- 94.

Figure 10 - 94 Header and Properties page, set value of DebuggingHeader

Configure Salesforce Endpoir	nt - Step 5 of 6
Select headers for the ta	rget Salesforce Operation
Basic Info Connection <u>Operations</u> Custom Operations Gueres	Following are the header properties for the target operation. Configure the headers as per your requirement. Configure the Header Properties for the Selected Operation: The following header properties are available with the operation undelete International Content of Conten
Summary	Specifies whether a call rolls back all changes unless all records are processed successfully.
Help	< Back Next > Enish Cancel

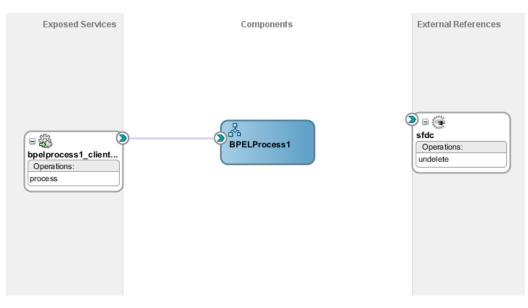
- 27. Click Next.
- **28.** The finish page is displayed. It provides a complete summary of the operation selected, object on which the operation would operate and the headers selected for that operation, as shown in Figure 10- 95.

Figure 10 - 95 Finish Page

Configure Salesforce Endpo	nt - Step 6 of 6		×
Salesforce Endpoint Co	nfiguration Summary	0101010101010101040400101	*
Basic Info. Connection Operations Custom Operations Headers Summary	Salesforce endpoint configuration was successful. Selected Operation Name: undelete Selected Object(6) Name: Lead Selected Header Properties: DebuggingHeader.debugLevel : DETAIL, AllOrNoneHeader.a		
Help	< <u>B</u> a	ack Next > Einish	Cancel

- **29.** Click the **Finish** button to complete adapter configuration.
- **30.** After clicking on **Finish** button, the following screen appears, as shown in Figure 10-96.



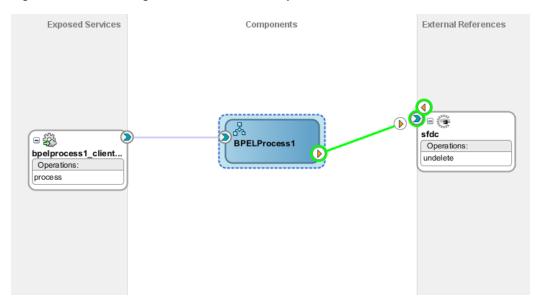


Integration with BPEL

Perform the following steps for integration with BPEL:

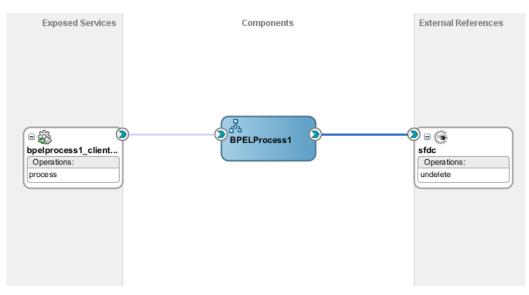
1. Connect BPELProcess1 and SFDC via a wire, as shown in Figure 10-97.

Figure 10 - 97 Wiring BPELProcess1 and adapter



2. After wiring, your composite will look like Figure 10-98.

Figure 10 - 98 Wiring BPELProcess1 and undelete



3. Double-click and open **BPELProcess1**. The adapter should be present as part of the Partner Link, as shown in Figure 10- 99.

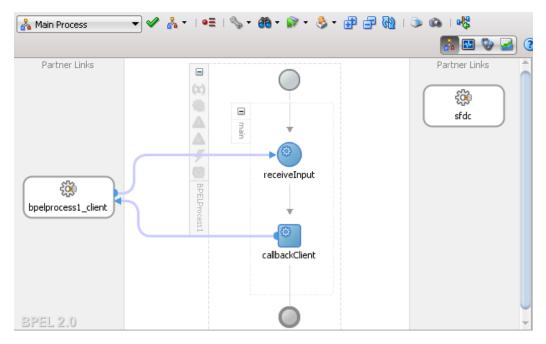


Figure 10 - 99 Open BPELProcess1

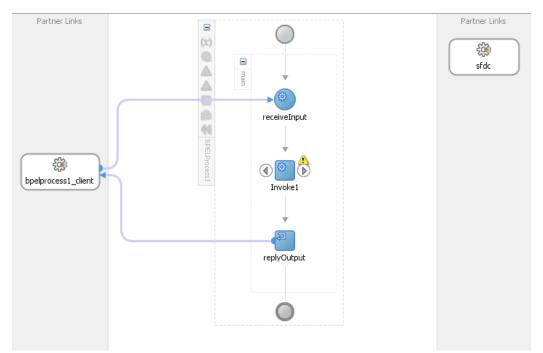
4. Create a variable **varDebugInfo** to track the debugLog returned in debuggingHeader from Salesforce.com, as shown in Figure 10- 100.

Figure 10 - 100 Variables Screen

		🖶 // 💥
ne	Туре	QName
tVariable	MessageType	client:BPELProcess1RequestMessage
outVariable	MessageType	dient:BPELProcess 1ResponseMes
ebugInfo	Simple Type	xsd:string
amespace URIs		
		OK Cancel
		OK Cancer
	outVariable DebugInfo	tVariable MessageType outVariable MessageType DebugInfo Simple Type

5. Add an **invoke activity** to invoke the query Partner Link, as shown in Figure 10-101.

Figure 10 - 101 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 10- 102.

👌 Edit Invo	ke		0				X
Assertion	s Skip	o Condition	Headers	Sources	Targets		
Genera	al	Correlatio	ons	Properties	3	Annotati	ons
<u>N</u> ame:		Invoke 1]
Conversa	ition ID:						
👌 Create V	ariable						x
<u>N</u> ame:	Invoke	1_undelete_	InputVariable	e			
Type:	{http:/	/xmlns.oracle	e.com/pcbpe	l/adapter/sa	lesforce/A	pplication	12c/Proje
	● <u>G</u> lob	al Variable (🔵 <u>L</u> ocal Vari	able			
Help					OK		Cancel
Opera	tion:	🐚 undelete	-			•	
Variable	es						
Input:						+	۹
Outpu	t:						0
+-	l						
Help				<u>A</u> pply	ОК		Cancel

Figure 10 - 102 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 10- 103.

Figure 10 -	103	Create	Variable
-------------	-----	--------	----------

👩 Edit Invoke	0	x
Assertions	Skip Condition Headers Sources Targets Correlations Properties Annotation	ns l
Name:	Invoke 1	
Conversation	ID:	f _x
👩 Create Varial	ble	×
Name: Inv	oke1_undelete_OutputVariable	
	tp://xmlns.oracle.com/pcbpel/adapter/salesforce/Application12	c/Proje
•	<u>G</u> lobal Variable 🔘 Local Variable	
Help	OK Ca	ncel
Operation:	🐚 undelete 🔹 🔻	
Variables -		-
Input:	Invoke1_undelete_InputVariable 📫 🤤	
Output:		6
Help	<u>A</u> pply OK Ca	ncel

8. Go the properties tab and locate jca.salesforce.response.debugLog and double click on the "…" button under values as shown in Figure 10- 104.

ssertions	Skip Condition	Headers	Sources	Targets	
General	Correlatio	ons	Properties		Annotations
Properties:					
Name			Value	Туре	
jca.msmq.m	essage.TimeToLiv	e			A
jca.salesfor	ce.AllOrNoneHead	ler.allOrN			
jca.salesfor	ce.HttpTimeout				
jca.salesfor	ce.LocaleOptions.	language			
jca.salesfor	ce.QueryOptions.	batchSize			
jca.salesfor	ce.queryLocator				
	ce.response.debu		-		
	ce.response.limitIr				
	ce.response.limitIr	nfo.limit			
jca.socket.ł					
jca.socket.p					
jca.ums.bcc	:				-
jca.ums.cc					
jca.ums.com					
jca.ums.dat					
jca.ums.fro					
jca.ums.in-r	reply-to				
Fit to Wi	dth				

Figure 10 - 104 Properties Tab

9. In the AdapterPropertyValue dialog, click on search for the variable as shown in Figure 10- 105.

Assertions Skip Condition Headers	Sources Ta	argets
General Correlations	Properties	Annotations
Properties:		
Name 👻	Value	Туре
jca.salesforce.LocaleOptions.language		
Adapter Property Value		— X
		٩,
	OK	Cancel
jca.ums.date	OK	Cancel
	OK	Cancel
jca.ums.from jca.ums.in-reply-to	OK	Cancel
jca.ums.from jca.ums.in-reply-to jca.ums.keywords	OK	Cancel
jca.ums.date jca.ums.from jca.ums.in-reply-to jca.ums.keywords jca.ums.message-id	OK	Cancel
jca.ums.from jca.ums.in-reply-to jca.ums.keywords	OK	Cancel

Figure 10 - 105 Search Property Value

10. In the next dialog, click **varDebugInfo** variable and click **OK** as shown in Figure 10-106.

🕜 Variable XPath Builder	×
Variables Variables Variables Variables Variables Variables Variables Variables Variable client:BPELProcess1RequestMessage VarDebugInfo xsd;string Novke1_undelete_InputVariable ns1:undeleteRequestMessage Novke1_undelete_OutputVariable ns1:undeleteResponseMessage Novke1_undelete_OutputVariable ns1:undeleteResponseMessage	
XPath:	
Help OK Ca	incel

Figure 10 - 106 Variable XPath Builder

11. After the variable is selected, click **OK** as shown in Figure 10- 107.

Figure 10 - 107	Select variable
-----------------	-----------------

	×
OK	Cancel
	ОК

12. Change the type to **Output** and click **OK**, as shown in Figure 10- 108.

ssertions	Skip Condition	Headers	Sources	Targe	ts	
General	Correlatio	ns	Properties		Anno	tations
roperties:						
Name 🤝			Value	1	Гуре	
ca.salesforce	.LocaleOptions.l	anguage				-
ca.salesforce	QueryOptions.	batchSize				
ca.salesforce	.queryLocator					
ca.salesforce	.response.debu	gLog	varDebugI	nfo// 📗	nput	-
	.response.limitIr			in	iput	
	.response.limitIr	nfo.limit		o	utput	
ca.socket.hos	st					
ca.socket.por	rt					
ca.ums.bcc						
ca.ums.cc						
ca.ums.comm	ients					
ca.ums.date						-
ca.ums.from						
ca.ums.in-rep						
ca.ums.keyw						
ca.ums.messa	-					
ca.ums.meta	data.amount					
Fit to Width	h					

13. Introduce Transform activity right before invoke activity, as show in Figure 10-109

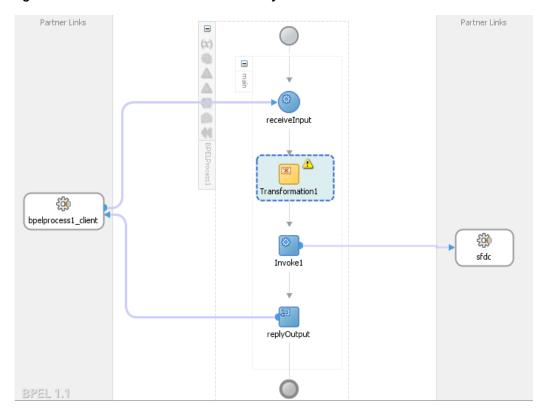


Figure 10 - 109 Introduce transform activity

14. Double-click on **Transform1** and add the source variable as inputVariable, as shown in Figure 10- 110.

🕐 Edit Transformation 🛛 🕅 🕅
Annotations Skip Condition Sources Targets
General Transformation
Source Variable
Source Variable:
(x) inputVariable
Source Part:
L payload
Help OK Cancel
Mapper File: 1\SOA\Transformations\Transformation_1.xsl
Help Apply OK Cancel

Figure 10 - 110 Transformation Tab

15. Add the target variable "Invoke1_undelete_InputVariable" as shown in Figure 10-111, and click **OK**.

Edit Transformation	×
Annotations Skip Condition So General	urces Targets Transformation
Source:	
Variable	Part
inputVariable	payload
<u>T</u> arget Variable: (x) inputVariable	T <u>a</u> rget Part:
(x) inputVariable	
(x) outputVariable	
(x) varDebugInfo	
 Invoke 1_undelete_InputVariable Invoke 1_undelete_OutputVariable 	
	n_1.xsl 🔍 🕂 🥖
Help	Apply OK Cancel

Figure 10 - 111 Add target variable

16. Map the input to the source variable in the mapper file, as shown in Figure 10- 112.

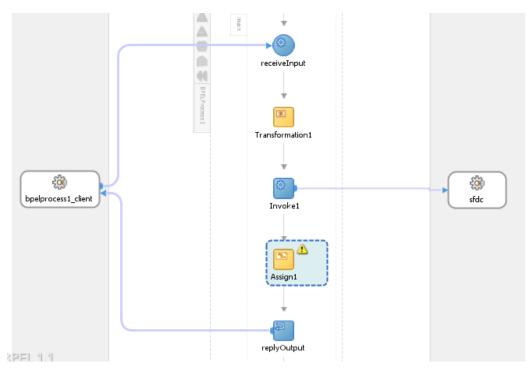
Figure 10 - 112 Map the input

<pre>sources></pre>	 	xsl:stylesheet 🕹
🗐 🚸 ns0:process	: : : : : : : : : : : : : : : : : [_	xsl:template(match=/)
	 <u></u>	tns:undelete 🚸 🗄
Variables		tns:ids 🔇

17. Save all and move back to BPELProcess1.

18. Introduce Assign activity right after the invoke activity, as shown in Figure 10-113.

Figure 10 - 113 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 10- 114.

Figure 10 - 114 Wire the Assign activity

Insert New Rule After 💌		🖪 🚖 🔕 👾 e
PFETProcessI.bpel Pertner Links Pertner Links Ports Po	Orag objects here	BPELProcess Lege Pertore Inis Pertores Variables Pertores Pe
⊇ <u>C</u> opy	To XPath: /dient:proces	ssResponse/dient:debugInfo 🚽 🗙 😭 🗄
From	То	
x) varDebugInfo//	(X) outputVariable/pay	/load//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 10- 115.

🗄 🛅 Proj	iert1			1
⊡ sfd	A	<u>N</u> ew	Ctrl-N	1
🗄 🗠 🛅 Tes		Edit Project Source P <u>a</u> ths		
	×	Delete Project		
		<u>V</u> ersion Project		
	<u> </u>	Find <u>P</u> roject Files		
		Show Overview		
	<u>д</u>	Make Project1.jpr	Ctrl-F9	
	<u>ө</u> м ФФ	Re <u>b</u> uild Project1.jpr	Alt-F9	
		Deploy	•	Project1
	L,	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 A <u>D</u> F Library Dependencies in Project1.jpr		BPELC option 'cla
Recently		References in Abject Jpr		
	_			

Figure 10 - 115 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 10-116.

Figure 10 - 116 Test Tab

Project1	
Active Reti	
Name	rocess1

4. Enter the ID of the objects you wish to undelete, as shown in Figure 10-117.

Figure 10 - 117 Enter ID

✓ Input Arguments Tree View ▼		
Name	Туре	Value
⊽ * payload	payload	
⊽ *ids	stringArray Size - [1] 📑	
* ids	string	00Q900000MoOtw

5. Click on **Test Web Service** button, as shown in Figure 10-118.

Figure 10 - 118	Test Web Service
-----------------	------------------

Logged in as weblogic 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 10-119.

Figure 10 - 119 Execution Window

Request Resp	onse	
Test Status R Response Time (ms) 1 Tree View 💌	equest successfully 6650	received.
A new composite instance	e was generated.	Launch Flow Trace
Name	Туре	Value
⊽ payload	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 10-120.

Figure 10 - 120 Launch Flow Trace

aults (0)						
aults						
Select a fault to locate it in the trace view.						
Error Message No faults found				Recovery	Fault Time Fault Location	Composite Instance
Sensors (0)						
ace ick a component instance to see its detailed now Instance IDs						
ace lick a component instance to see its detailed now Instance IDs	Туре	Usage	State		Time Composite Instance	
ace ick a component instance to see its detailed now Instance IDs stance 7 be/process 1_dient_ep	Type Web Service	Usage 🖏 service	 Completed 		7:19 PM ExtractDebugInfo of 260070	
ace lick a component instance to see its detailed now Instance IDs	Туре			Jan 10, 2014 4:2		

8. The Audit Trail will look like Figure 10-121.

Figure 10 - 121 Audit Trail

Audit Trail Flow Sensor Values	Faults
Expand a payload node to view the details.	Highlight Faults 🔲 Current Audit Level: development 🖲 🛛 View Raw XM
<process> ∀ <main (67)=""> ∀ ⇔@ receiveInput</main></process>	
 ✓ Jan 10, 2014 4:27:20 PM ▷ <payload></payload> ✓ Transform1 	Received 'process' call from partner 'bpeprocess1_client'
▼ Jan 10, 2014 4:27:20 PM ▷ <payload></payload>	Updated variable "InvolueUndelete_undelete_InputVariable"
Jan 10, 2014 4:27:20 PM	Completed assign
V 🕸 InvokeUndelete	
Jan 10, 2014 4:27:20 PM	Started invocation of operation "undelete" on partner 'undelete".
<pre></pre>	Updated variable "varDebugInfo"
Jan 10, 2014 4:27:24 PM	Received property "jca.salesforce.response.debuglog", value is "29.0 APEX_CODE,FINER;APEX_PROFILING,FINE;CALLOUT,INFO;D8,INFO;SYSTEM,FINEST 02:54:57.243]CUMULATIVE_PROFILING_BEGIN 02:57.243]CUMULATIVE_PROFILING_BEGIN 02:57.243]CUMULATIVE_PROFILING_BEGIN 02:57.243]CUMULATIVE_PROFILING_BEGIN
<pre>▼ Jan 10, 2014 4:27:24 PM ▷ <payload></payload></pre>	Invoked 2-way operation "undelete" on partner "undelete".
V 🕅 Assign1	
<pre>▼ Jan 10, 2014 4:27:24 PM ▷ <payload></payload></pre>	Updated variable "output/variable"
Jan 10, 2014 4:27:24 PM	Completed assign
🗸 🐗 replyOutput	
	Reply to partner "bpelprocess t_clent".
Jan 10, 2014 4:27:24 PM BPEL	process instance "260070" completed

9. Click on Flow tab, the Flow tab will look like Figure 10-122.

udit Trail	Flow Sensor Values	Faults
ck an activity	r to view the details.	
		\bigcirc
		(** <u>}</u>
		receiveInput
		Transform1
		\rightarrow
		🌐 🛱
		InvokeUndelete
		Ļ
		88
		Assign1
		(Final States)
		replyOutput
		Ó

10. Click on invoke activity, here you can see how the value of "debugLog" property being returned, as shown in Figure 10-123.



[2014/01/10 16:27:24]
Received property "jca.salesforce.response.debugl.og", 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 10-124.

Figure 10 - 124 Invoke updated variable

	0 16:27:24] ariable "varDebugInfo"
<var 29</var 	bugInfo> DebugInfo xmlns="" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ns="http://www.w3.org/2001/XMLSchema" xsi:type="ns:string"> .0 APEX CODE / EINER:APEX PROFILING, FINE;CALLOUT, INFO;DB, INFO;SYSTEM, FINEST
02 02	:54:57.243 CUMULATIVE_PROFILING No profiling information for SQL operations :54:57.243 CUMULATIVE_PROFILING No profiling information for SQL operations :54:57.243 CUMULATIVE_PROFILING No profiling information for DML operations
02 02 <th>:54:57.243 CUMULATIVE_PROFILING No profiling information for method invocations :54:57.243 CUMULATIVE_PROFILING_END rDebugInfo></th>	:54:57.243 CUMULATIVE_PROFILING No profiling information for method invocations :54:57.243 CUMULATIVE_PROFILING_END rDebugInfo>
	ebugInfo> s to clipboard

A Appendix

This appendix outlines the steps for generating enterprise WSDL for your Salesforce.com organization, contains information about Custom WSDLs and also contains steps on 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, "Generating Custom 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.



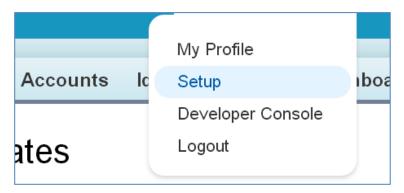
salesforce*	GREAT CUST Salesforce.com Po		
Log in to Salesforce Remember User Name Forgot your password? Sign up for free.	Learn more about Social Enterprise Learn more	Chatter is now free for your whole company Learn more	NEW Chatter app for iPhone Get it now

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	API WSDL
Expand All Collapse All Force.com Home	Salesforce's WSDL allows you to easily integrate salesforce to a place accessible to your development environment. For
System Overview	WSDL and Client Certificates
Personal Setup	Enterprise WSDL A strongly typed WSDL for customers who want to build an inter-
My Personal Information	Generate Enterprise WSDL
Email Import	Partner WSDL A loosely typed WSDL for customers, partners, and ISVs who
Desktop Integration	Generate Partner WSDL
 My Chatter Settings My Social Accounts and Contacts 	Apex WSDL Click on the link below to download an Apex programming WS
	Generate Apex WSDL
App Setup Customize	Metadata WSDL Click on the link below to download a Metadata WSDL file.
Create	Generate Metadata WSDL
Develop Apex Classes	Tooling WSDL Click on the link below to download a Tooling WSDL file.
Apex Triggers	Generate Tooling WSDL
Apex Test Execution	Delegated Authentication WSDL Click on the link below to generate and download a Delegated
Components	Download Delegated Authentication WSDL
Custom Settings Email Services	Client Certificate Click on the link below to download an SSL client certificate fo

Figure A-3 WSDL Download Page

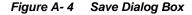
5. If the organization has managed packages installed in the organization, click **Generate Enterprise WSDL**, Salesforce.com will prompt you to select the version of each installed package to include in the generated WSDL.

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.



😨 Save As			x
CO C C Libraries	✓ 4y Search Libraries		٩
Organize 🔻		== ¥=	0
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 Documents Library Music Library	properties.	* III
Cibraries Documents Subversion	Pictures Library Subversion		-
File <u>n</u> ame: Enterp Save as <u>t</u> ype: All File	rise.WSDL		•
Aide Folders	Save	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 Generating Custom WSDL

Enterprises can use the Custom WSDL feature to extend/enrich the built in functionalities of Salesforce.com. You can create a custom WSDL that includes custom Apex classes written on force.com and exposed as SOAP web services. This enables external applications to access your code and application.

Follow the steps mentioned below to download Custom WSDL from Salesforce.com.

- 1. Open the Salesforce application.
- 2. In setup, search for Apex in quick search and click App Setup \rightarrow Develop \rightarrow Apex Classes.
- 3. Click New to create new Apex class.
- 4. Write the Apex code based on the logic you want to build. Click Save.
- 5. After you have saved the code, you can see the button **Generate WSDL**. Click this button as shown in the figure below.
- 6. You will see the WSDL on the web page. Download this WSDL to your local machine.

Figure A-5 Navigation Page

Apex Class AccountNew									Help for this Page 🕜
« Back to List: Apex Classes									
Apex Class Detail		Edit Delet	Generate WSDL	Download	Security	Show Dependenci	es		
Name	AccountNew					Status	Active		
Namespace Prefix	HelloWorldPkg					Code Coverage	0% (0/39)		
Created By	Priyanka Gupta,	2/14/2014 1:14 AM			I	Last Modified By	Priyanka Gupta,	3/26/2014 3:04 AM	
Class Body Class Summary	Version Settings	Trace Flags							

A.3 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:

Create "SOA" map in EM console (One-time setup)

- 1 Log in to Fusion Middleware Control Enterprise Manager
- 2 Expand 'Weblogic Domain' in the left panel
- 3 Right-click on the domain and select Security → Credentials, to display the page Credential store.

Figure A-6 Navigation Page

Application Deployments	Server
	Name AdminServer
WebLogic Domain	Host TDCVM13S06.bcone.com
Home	
 Monitoring	Listen Port 9070
n S Diagnostics	L Listen Port 9081
Control	•
Metadata Logs User Mes	► X Delete Control ▼ 🗳
Environment	Security Realms
Deployments	Users and Groups
JDBC Data Sources	Credentials
Messaging	Þ
Cross Component Wiring	Security Provider Configuration
Web Services	Application Policies
Other Services	Application Roles
Administration	▶ Keystore
Refresh WebLogic Domain	System Policies
Security	Audit Registration and Policy
JNDI Browser	
System MBean Browser	
WebLogic Server Administration Console	•

- 4 In the Credential store, click '**Create Map**' to create a new map
- 5 In the Create Map page, enter the 'Map Name' as SOA and click 'OK'.

Figure A-7 Create Map

Credential Store Provider			
View 🔻 🕂 Create Map 🕂 Create Key 🧪 Edit 🗙 Delete Credential Key Name	Detach		
Credential		Туре	Description
oracle.wsm.security			

Create <CSF-KEY> under "SOA" map in EM console

At the time of adapter reference creation in JDeveloper, user has provide the <CSF-KEY> details in connection page. The same <CSF-KEY> information should also be available in the run-time. User needs to create it manually for the EM console.

- 1. Log in to Fusion Middleware Control Enterprise Manager
- 2. Expand 'Weblogic Domain' in the left panel
- 3. Right-click on the domain and select Security → Credentials, to display the page Credential Store.
- 4. In the Credential store, click 'Create Key' to create a new key.
- 5. In the Create Key page, select 'Select Map as SOA
- 6. Enter key as <CSF-KEY>
- 7. Select type as 'Password'
- **8.** Enter User Name, Password, Confirm Password and Description (optional) details and click '**OK**'

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

Custom WSDL

Enterprises can use the Custom WSDL feature to extend/enrich the built in functionalities of Salesforce.com. You can create a custom WSDL that include custom Apex classes written on force.com and exposed as SOAP web services. This enables external applications to access your code and application.

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
- $\mathbf{RT} \mathrm{Run}\text{-time}$
- $SFDC-{\it Salesforce.com}$
- SOA -Service-Oriented Architectures
- SOSL Salesforce Object Search Language
- SOQL Salesforce Object Query Language
- WSDL –Web Services Description Language

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