TIBCO ActiveMatrix BusinessWorks™ Plug-in for Salesforce.com

User's Guide

Software Release 2.5
September 2016

Two-Second Advantage®

Important Information

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Preface

TIBCO ActiveMatrix BusinessWorks™ Plug-in for Salesforce.com plugs into TIBCO ActiveMatrix BusinessWorks™ and can be installed separately. You can use this plug-in to configure a connection to the Salesforce.com server, and then use activities, such as Salesforce Query All, to integrate with the Salesforce.com database.

This document describes the product concepts and features in detail, and helps you get started easily by providing hands-on examples.

Topics

Related Documentation

This section lists documentation resources you might find useful.

TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com Documentation

The following documents form the TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com documentation set:

- *TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com Installation* Read this manual for instructions on site preparation and installation.
- *TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com User's Guide* Read this manual for instructions on using the product on all platforms.
- *TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

Other TIBCO Product Documentation

You might find it useful to read the documentation for the following TIBCO products:

- TIBCO ActiveMatrix BusinessWorks™
- TIBCO Adminstrator™
- TIBCO Business Studio™
- TIBCO Designer™
- TIBCO Hawk®
- TIBCO Runtime Agent™
- TIBCO Rendezvous®

Third-Party Documentation

The following documents from Salesforce.com are related to TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com. They are available from the Salesforce.com website:

- *Force.com Web Service API Developer's Guide*: this manual provides programmatic access to your organization's information using a simple,

powerful, and secure application programming interface, the ApexWeb Services API (the API).

- *Apex Developer's Guide*: this manual provides information about what Apex is, how Apex works, and the Apex development process.

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
ENV_NAME *TIBCO_HOME*	TIBCO products are installed into an installation environment. A product installed into an installation environment does not access components in other installation environments. Incompatible products and multiple instances of the same product must be installed into different installation environments. An installation environment consists of the following properties: • **Name** Identifies the installation environment. This name is referenced in documentation as *ENV_NAME*. On Microsoft Windows, the name is appended to the name of Windows services created by the installer and is a component of the path to the product shortcut in the Windows Start > All Programs menu. • **Path** The folder into which the product is installed. This folder is referenced in documentation as *TIBCO_HOME*.
SFDC_HOME	TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com is installed into a directory within *TIBCO_HOME*. This directory is referenced in documentation as *SFDC_HOME*. The default value of *SFDC_HOME* depends on the operating system. For example, on Windows systems, the default value is `C:\tibco\bw\plugins\salesforce`.
BW_HOME	*BW_HOME* is the directory on the host where TIBCO ActiveMatrix BusinessWorks is installed. The value of *BW_HOME* depends on operating systems. For example, on Windows systems the value can be `C:\tibco\bw\5.9`.
USER_HOME	The user's home directory.
`code font`	Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example: Use `MyCommand` to start the foo process.

Table 1 General Typographical Conventions (Cont'd)

Convention	Use
`bold code font`	Bold code font is used in the following ways: • In procedures, to indicate what a user types. For example: Type **`admin`**. • In large code samples, to indicate the parts of the sample that are of particular interest. • In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, `MyCommand` is enabled: `MyCommand [`**`enable`**` | disable]`
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO ActiveMatrix BusinessWorks Concepts*. • To introduce new terms For example: A portal page may contain several portlets. *Portlets* are mini-applications that run in a portal. • To indicate a variable in a command or code syntax that you must replace. For example: `MyCommand` *PathName*
Key combinations	Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C. Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Table 2 Syntax Typographical Conventions

Convention	Use
`[ ]`	An optional item in a command or code syntax. For example: `MyCommand [optional_parameter] required_parameter`
`|`	A logical `OR` that separates multiple items of which only one may be chosen. For example, you can select only one of the following parameters: `MyCommand param1 | param2 | param3`

`{ }`	A logical group of items in a command. Other syntax notations may appear within each logical group.
	For example, the following command requires two parameters, which can be either the pair `param1` and `param2`, or the pair `param3` and `param4`.
	`MyCommand {param1 param2} | {param3 param4}`
	In the next example, the command requires two parameters. The first parameter can be either `param1` or `param2` and the second can be either `param3` or `param4`:
	`MyCommand {param1 | param2} {param3 | param4}`
	In the next example, the command can accept either two or three parameters. The first parameter must be `param1`. You can optionally include `param2` as the second parameter. And the last parameter is either `param3` or `param4`.
	`MyCommand param1 [param2] {param3 | param4}`

Connecting with TIBCO Resources

How to Join TIBCOmmunity

TIBCOmmunity is an online destination for TIBCO customers, partners, and resident experts. It is a place to share and access the collective experience of the TIBCO community. TIBCOmmunity offers forums, blogs, and access to a variety of resources. To register, go to http://www.tibcommunity.com.

How to Access TIBCO Documentation

Documentation for this and other TIBCO products is available on the TIBCO Documentation site:

https://docs.tibco.com

Documentation on the TIBCO Documentation site is updated more frequently than any documentation that might be included with the product. To ensure that you are accessing the latest available help topics, please visit us at https://docs.tibco.com.

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, contact TIBCO Support as follows:

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

  http://www.tibco.com/services/support

- If you already have a valid maintenance or support contract, visit this site:

  https://support.tibco.com

  Entry to this site requires a user name and password. If you do not have a user name, you can request one.

Chapter 1 Plug-in Introduction

This chapter gives an overview of Salesforce.com and TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

Topics

Overview of Salesforce.com

Salesforce.com is the worldwide leader in on-demand customer relationship management (CRM) services. It delivers integrated and completely customizable enterprise applications for companies of all sizes.

Salesforce.com provides a web services Application Programming Interface (API) to customers and Independent Software Vendors (ISVs) who want to build integrations. Although web services are incredibly powerful, customers might run into a number of limitations when trying to build enterprise-class integrations quickly and easily.

Customers, partners, and consultants build the same common components during each integration effort. These components, including session management, exception handling, logging, process management, configuration management, reliable transactions, and polling services, are necessary for every enterprise-class integration implementation.

Overview of TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com

TIBCO ActiveMatrix BusinessWorks is an easy-to-use integration software that provides world-class integration technology in a rapid deployable solution that manages the entire lifecycle of integration projects. TIBCO ActiveMatrix BusinessWorks Salesforce.com Plug-in plugs into TIBCO ActiveMatrix BusinessWorks and can be installed separately. You can use this plug-in to configure a connection to the Salesforce.com server, and then use activities, such as Salesforce Query All to integrate with the Salesforce.com database.

TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com provides the following common functionalities for integrating with the Salesforce.com server:

- Easy-to-configure connection configuration shared resources that can be reused for different activities and processes.
- Get Session activity that provides a simple interface and hides all the details of complex session management tasks, such as login, session expiration, and so on.
- Metadata Management with which you can build metadata at design time and store the metadata as XML Schema Definition (XSD) schemas, which in turn is used at run time to perform runtime type-checking.
- High level data calls, such as Create All, Query All, Update All, Upsert All, Retrieve All, and Delete All. Each of these activities has built-in error handling and logging.
- Dynamically Web Service Definition Language (WSDL) switching with which you can work with different versions of Salesforce.com Partner and Enterprise WSDLs.
- Outbound Message Listener with which you can receive notifications from the Salesforce.com server.
- Relationship Query that can be used to query multiple sObjects at a time in the Salesforce.com database. Relationships are created between those sObjects. Sforce Object Query Language (SOQL) provides the syntax to support relationship queries. Parent-to-children and child-to-parent are the two possible relationships between sObjects.

Plug-in Components

Using TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com components, you can create plug-in projects that run as a standalone process. This plug-in component is referred to as the *Standalone plug-in*.

Standalone plug-in projects are created and configured using TIBCO Designer and deployed using TIBCO Administrator.

Chapter 2 Salesforce Tools

This chapter describes the Salesforce tools used in TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

Topics

Select WSDL

Web Services Description Language (WSDL) is an XML-based language that can be used to describe the services a business offers and to provide a way for individuals and other businesses to access those services electronically.

Importing a WSDL

When working with TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com, you must select a WSDL for your project.

To select a WSDL, perform the following steps:

1. Start TIBCO Designer, and then create a new project.
2. Click **Tools > Salesforce Tools > Select WSDL** from the TIBCO Designer menu. The Select WSDL dialog is displayed.
3. Select a WSDL you want to work with from the **Salesforce WSDL** list. The default WSDL is `Partner 30.0 WSDL`. If you select **Other WSDLs** from the **Salesforce WSDL** list, you have to locate the corresponding WSDL file in your computer.
4. Click **OK**, the Importing Selected WSDL dialog is displayed.
   a. If you click **Yes**, the selected WSDL is imported, and the Server URL is also substituted based on the selected WSDL.
   b. If you click **No**, only the selected WSDL is imported.

This manual uses the Partner 30.0 WSDL to describe the Salesforce activities. For each activity, the fields in the **Input**, **Output**, and **Error Output** tabs are generated from the Partner 30.0 WSDL. If you select a WSDL other than this WSDL in a project, the **Input**, **Output**, and **Error Output** fields might be different from the fields explained in Chapter 3, Salesforce Palette.

Default WSDL

In TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com, all available WSDLs and the `SalesforceWSDLs.xml` file that defines the WSDLs shown in the **Salesforce WSDL** list are located in the *SFDC_HOME*`\wsdls` directory.

If you do not select a WSDL for your project, the default WSDL is automatically imported into the project when you create a Salesforce Connection shared resource in the project. The default WSDL is defined in the first `wsdl` node in the `SalesforceWSDLs.xml` file. See Figure 1.

Figure 1 Default WSDL in the XML File

SalesforceResources Folder

In the project you just created, if the WSDL is successfully selected, the **SalesforceResources** folder is displayed in the Project panel. It is used to store Salesforce resource files related to your current project. The resource files include the WSDL files, metadata files, and so on.

You cannot rename, edit, or delete the WSDL and the metadata files in the **SalesforceResources** folder.

You can add other files to the **SalesforceResources** folder.

Switching WSDL

TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com contains two types of Salesforce.com WSDLs, the Partner WSDL and the Enterprise WSDL. You can select only one WSDL for your project. If you want to switch the current WSDL to another one, you have to perform the Select WSDL operation again and pay attention to the following guidelines:

- When switching WSDLs between two different versions of Partner WSDLs, you have to perform the Select WSDL operation to import a target WSDL first, and then update the metadata on the Salesforce.com server. For more information, refer to Refresh Metadata on page 12.
- When the Partner WSDL is replaced with an Enterprise WSDL, all metadata files related to the original Partner WSDL are erased from the **SalesforceResource** folder. The Enterprise WSDL contains its own metadata that can be used in your process.
- When the Enterprise WSDL is replace with a Partner WSDL, you have to select a Partner WSDL first, and then perform the Get Metadata operation to obtain the metadata from the Salesforce.com server.
- If the WSDL is changed, the Server URL string in all the Salesforce configuration resources is updated according to your choice. See step 4 in Importing a WSDL on page 6. If you want to set the Server URL to be a specific address, you have to manually change the value in the **Server URL** field in the **Configuration** tab.

The Server URL in all the Salesforce configuration resources must be the same version as the selected WSDL.

- For the Salesforce activities, the fields in the **Input**, **Output** and **Error Output** tabs are parsed from the certain WSDL. After the WSDL is changed, the mapping configuration for the fields mentioned previously might be affected. You have to repair the incorrect mappings. See *TIBCO ActiveMatrix BusinessWorks Process Design* for more information.

Get Metadata

The Salesforce_Metadata resource describes the schema definition metadata for a given organization as an XML schema definition (XSD). To obtain the metadata, you must perform the following tasks:

- Setting Up a Salesforce Connection, page 9
- Retrieving the Metadata, page 10

Task A Setting Up a Salesforce Connection

Before retrieving metadata for your project, you must set up a Salesforce connection, which you can download and store metadata as an XSD resource in the TIBCO ActiveMatrix BusinessWorks project during design time.

To set up a Salesforce connection, perform the following steps:

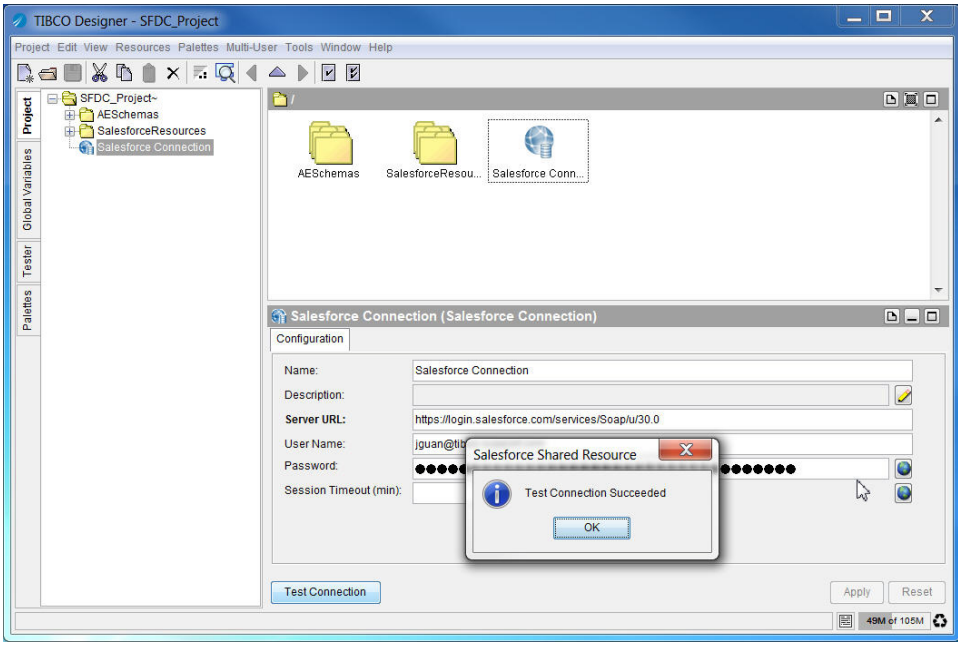
1. Start TIBCO Designer, and then select the project you created in Importing a WSDL on page 6.
2. Drag the Salesforce Connection icon from the Palettes panel to the Design Panel.
3. Enter the user name and password in the **Configuration** tab, and then click **Test Connection**. Click **OK** in the Test Connection Succeeded dialog. See Salesforce Connection on page 17 for more information.

If you have installed TIBCO ActiveMatrix BusinessWorks 5.13, when you attempt to connect to the Salesforce.com server, the connection fails and the following error is thrown:

```
javax.net.ssl.SSLHandshakeException: Received fatal alert:
handshake_failure
```

Use java.property.TIBCO_SECURITY_VENDOR=j2se property in <TIBCO_HOME>\designer\<VERSION>\bin\designer.tra file for running on designer. For admin deployment add it to <TIBCO_HOME>\bw\<VERSION>\bin\bwengine.tra file.

Figure 2 Setting Up a Salesforce Connection Successfully



Task B Retrieving the Metadata

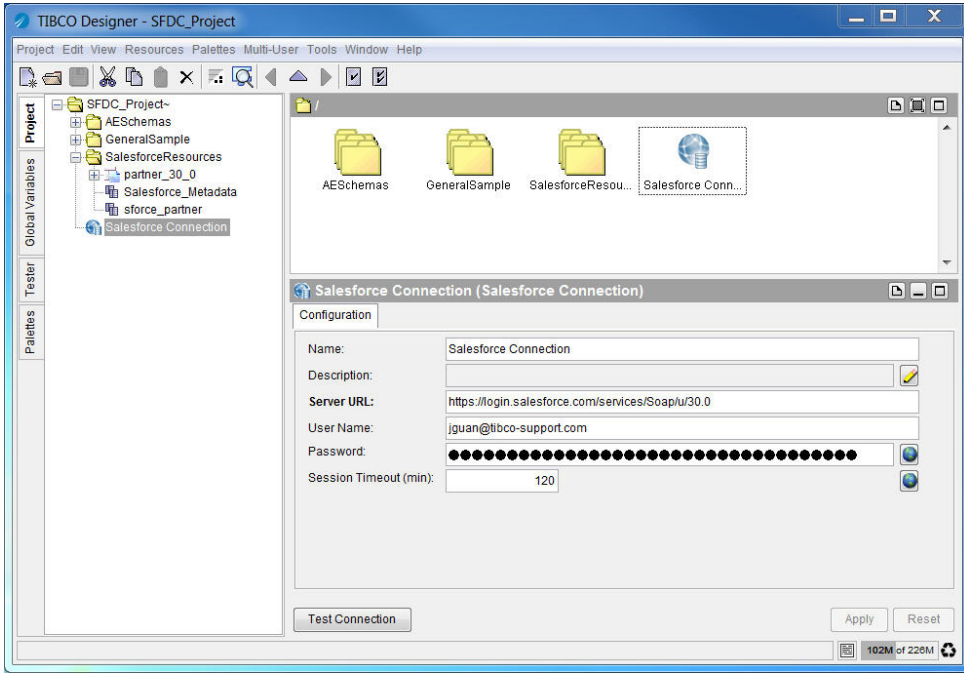
To retrieve the metadata from the Salesforce.com server, perform the following steps:

1. Click **Tools > Salesforce Tools > Get Metadata**. The Get Metadata dialog is displayed.
2. Use the default schema name or type one you want to use.

   Click **Browse** next to the **Salesforce Connection** field, and the Select a Resource dialog is displayed. Select one of the listed usable connections in the dialog to your current activity, and then click **OK**.
3. Click **OK** to retrieve the metadata from the Salesforce.com server. Click **OK** when the metadata has been retrieved successfully.

After retrieving the metadata from the Salesforce.com server, the **sforce_partner** schema and **Salesforce_Metadata** schema are displayed in the **SalesforceResources** folder in the Project panel. See Figure 3.

Figure 3 Retrieving the Metadata Successfully



- The **sforce_partner** schema stores some public data properties.
- The **Salesforce_Metadata** schema is a metadata schema that comes from a specified database on the Salesforce.com server.

When selecting an Enterprise WSDL for your project, you do not have to perform the Get Metadata operation to retrieve Salesforce metadata. The Enterprise WSDL contains Salesforce metadata.

Refresh Metadata

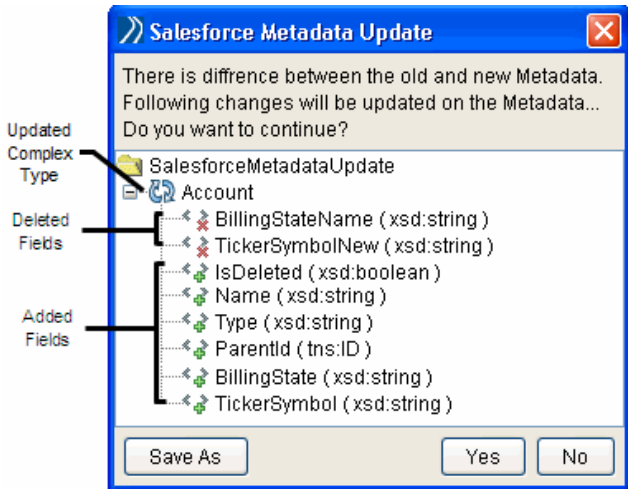
The Refresh Metadata operation can be used to retrieve updated schema from the Salesforce.com server. Schema objects might change between the development phase and the production phase, or over the time. It is important for you to decide to accept or reject the change. If you accept the change, you are warned that all processes referring to the metadata might be impacted.

When selecting an Enterprise WSDL for your project, if you want to refresh the metadata, you must regenerate the WSDL file from the Salesforce.com server and then import the new WSDL file to your project.

To refresh metadata from the Salesforce.com server, perform the following steps:

1. Click **Tools > Salesforce Tools > Refresh Metadata**. The Refresh Metadata dialog is displayed.
2. Click **OK** to perform the operation.
   - If no update is available on the metadata on the Salesforce.com server, then just click the relevant buttons to finish the operation.
   - If the metadata on the Salesforce.com server is different from the local metadata, the Salesforce Metadata Update dialog is displayed. See Figure 4. Fields modified on the Salesforce.com server are displayed in the dialog.

Figure 4 Salesforce Metadata Update Dialog



3. Click **Yes** to accept the updated result. Click **No** to reject this result. Click **Save As** to save the result to an XML file.

Chapter 3 Salesforce Palette

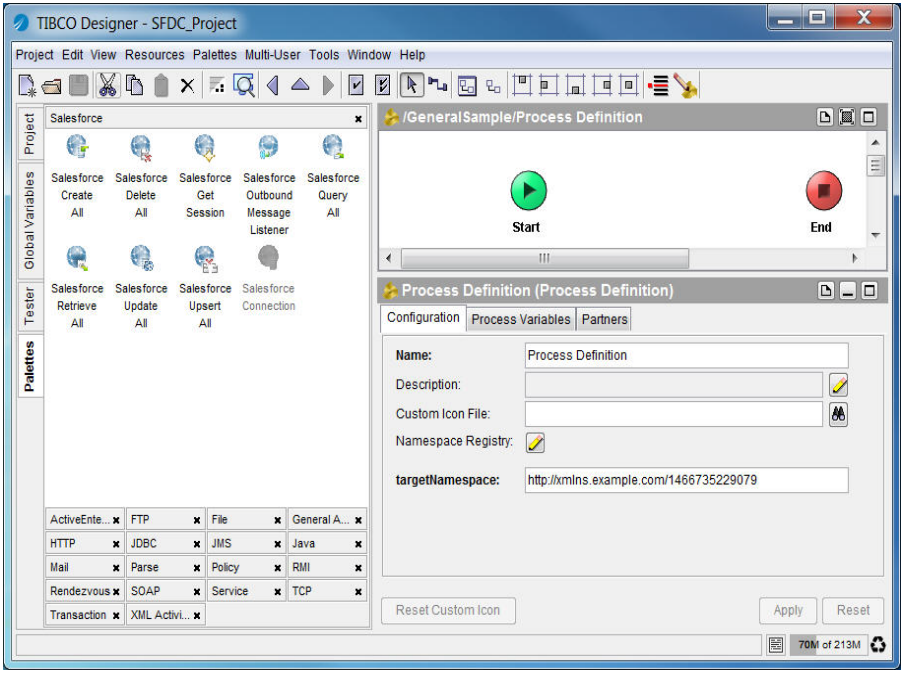
This chapter describes the salesforce palette, which contains shared configuration resource and salesforce activities for TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

Topics

Palette Overview

Salesforce palette is available from the Palettes panel in TIBCO Designer. This section describes the shared configuration resource, activities, and process starter.

Figure 5 Salesforce Palette



Salesforce Connection

Shared Configuration

The Salesforce Connection shared resource describes a connection to the Salesforce.com server. Salesforce connections are used when you specify activities from the Salesforce palette.

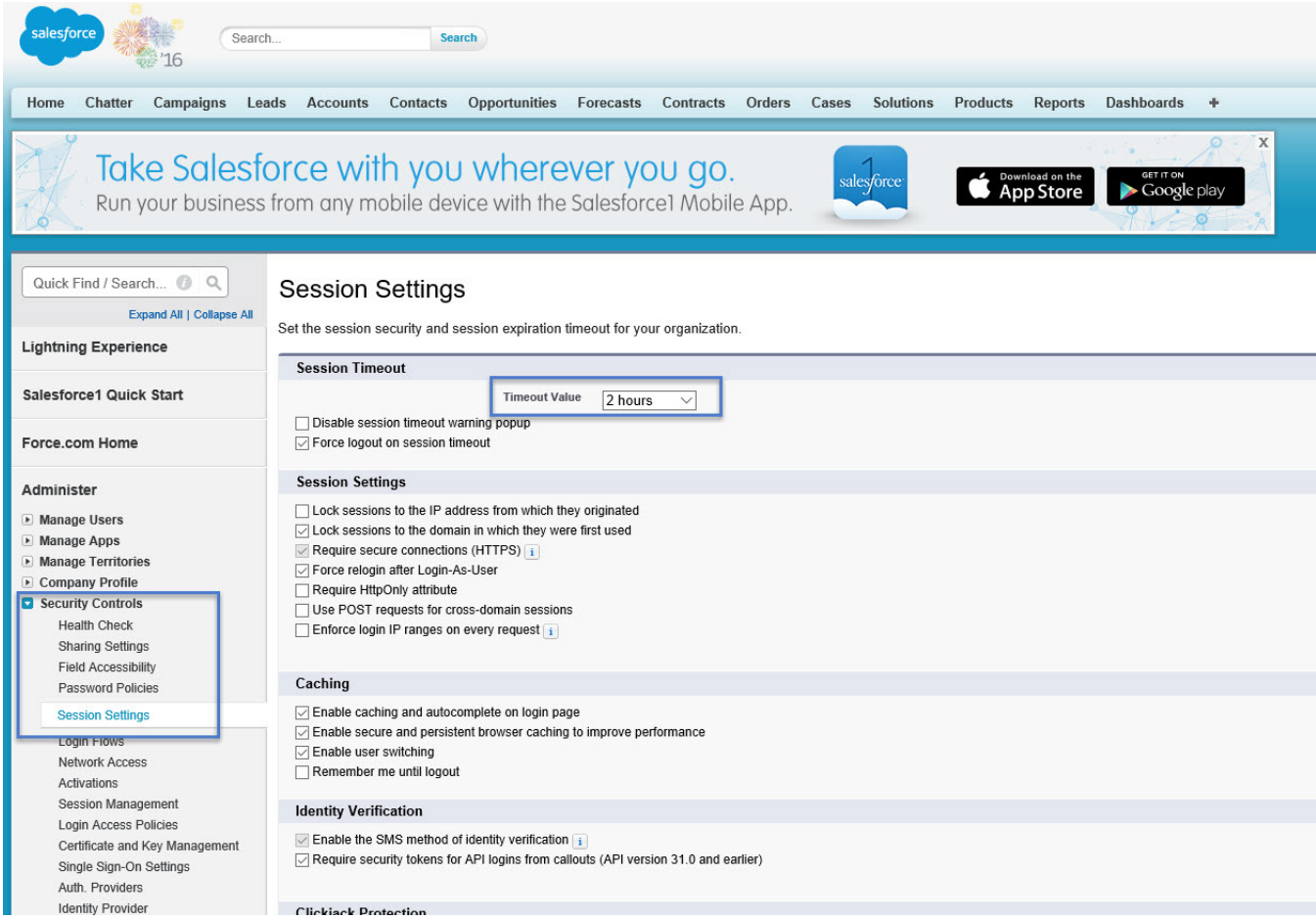
Configuration Tab

Table 3 lists and explains the fields in the **Configuration** tab.

Table 3 Salesforce Connection Configuration Tab

Field	Global Var?	Description
Name	No	The resource name. The default value is `Salesforce Connection`.
Description	No	Short description of the resource.
Server URL	Yes	The URL to be used when the plug-in connects to the Salesforce.com server. After selecting a WSDL for your project, the URL information is automatically filled in this field. **Note:** You must maintain one Server URL when configuring the whole Salesforce project.
User Name	Yes	The user name to access the Salesforce.com server.
Password	Yes	The password to access the Salesforce.com server. **Note:** You must append the security token to your password. A security token is an automatically generated key from Salesforce.com. For example, if your password is *mypassword*, and your security token is *XXXXXXXXXX*, you must enter *mypasswordXXXXXXXXXX* to log in. For detailed information on when to use a security token and how to generate it, see *Force.com Web Service API Developer's Guide*.
Session Timeout (min)	Yes	Specifies the duration for which the session is active. The value set here must be less than or equal to the value set on the Salesforce.com website. See Figure 6. The default value is `120` minutes.
Test Connection	No	Click this button to test whether the specified configuration fields result in a valid connection to a database on the salesforce.com server.

Figure 6 Set Session Timeout Value on the Salesforce.com Website



Salesforce Create All

Activity

The Salesforce Create All activity adds one or more new individual objects to the data of your organization.

Configuration Tab

Table 4 lists and explains the fields in the **Configuration** tab.

Table 4 Salesforce Create All Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the salesforce connection information. Click the **Browse** button next to the **Salesforce Connection** field to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 5 lists and explains the **Activity Input** fields in the **Input** tab.

Table 5 Salesforce Create All Input Tab: Activity Input (Sheet 1 of 6)

Input Items	Data Type	Description
connectionInfo (All fields in this section are optional.)		
serverUrl	String	URL of the endpoint that is used by this operation.
sessionId	String	Unique ID associated with this session.

Table 5 Salesforce Create All Input Tab: Activity Input (Sheet 2 of 6)

Input Items	Data Type	Description
externalSessionIdUsed	Boolean	Specifies whether an external session ID is used (`true`) or not (`false`). If the value is set to `true`, an external session ID is filled in the **sessionId** field. When the session has to be refreshed, the refresh operation cannot be performed, and an exception is thrown.
create		
batchSize	Integer	Optional. When processing large amounts of data, the activity internally invokes several SOAP calls. This field is used to set the batch size for the number of records created through a SOAP call. The value ranges from `1` and `200`: • If the input value equals to `-1`, it will be set to the default value. • If the input value is greater than `200`, it will be set to `200`. • If the input value is less than `1` (except `-1`), it will be set to `1`. • The default is `200`.
externalIdFieldName	String	Optional. This field is used when you perform the retry operation. An internal upsert method is called to perform the retry operation. If this field is not specified when you perform the retry operation, an exception is thrown and the retry operation fails. This field contains the name of the field defined as a key field in the sObject.
createSObjects		

Table 5 Salesforce Create All Input Tab: Activity Input (Sheet 3 of 6)

Input Items	Data Type	Description
sObjects	Complex	Required. An array of one or more objects to be created. This sObject can be converted to the specified type defined in the metadata schema, for example, the Salesforce_Metadata schema, retrieved from the Salesforce.com server. **Note:** • In this release, you can create up to 10 object types in one call. Right-click **type > Statement > Duplicate** to add multiple object types. See Figure 7 on page 24. • You do not have to specify the **Id** field in the sObject. To create a new relationship between a newly created sObject (sObject A) and an existing sObject (sObject B), where the sObject A schema includes the sObject B schema, set the value of the key field in sObject B while creating sObject A. If you modify the values of the fields in sObject B within the sObject A schema, the original sObject B will not be modified. The key field in sObject B within the sObject A schema is only used to link sObject A with the original sObject B.
create_Optional (All fields in this section are optional.)		
_configData		
timeout	Integer	Specifies the number of milliseconds an internal API call waits before the data is returned. The default value is `15000` milliseconds. You can also change the default timeout value by setting the properties. See Default Timeout Value Setting on page 103 for detailed information.
headers		
CallOptions		
client	String	A string that identifies a particular client.
defaultNamespace	String	A string that identifies a developer namespace prefix. Use this field to resolve field names in managed packages without having to fully specify the `fieldName` everywhere.
AssignmentRuleHeader		

Table 5 Salesforce Create All Input Tab: Activity Input (Sheet 4 of 6)

Input Items	Data Type	Description
assignmentRuleId	String	ID of a specific assignment rule to run for Case or Lead. It can be an inactive assignment rule. The ID can be retrieved by querying the AssignmentRule object. If this field is specified, set the value in the **useDefaultRule** field to `false`. This element is ignored for Account, because all territory assignment rules are applied. Case and Lead are two predefined Salesforce.com schema types. For more information about these two types, see *Force.com Web Service API Developer's Guide.*
useDefaultRule	Boolean	If the value of the **useDefaultRule** field is set to `true` for Case or Lead, the default (active) assignment rule for Case or Lead is used. If this field is specified, do not specify an assignmentRuleId and type an empty string in the **assignmentRuleId** field. If the value of the **useDefaultRule** field is set to `true` for Account, all territory assignment rules are applied; if the value is set to `false`, no territory assignment rules are applied.
MruHeader		
updateMru	Boolean	Specifies whether to update the list of most recently used items (`true`) or not (`false`), which is on the sidebar in the Salesforce.com user interface.
AllowFieldTruncationHeader		
allowFieldTruncation	Boolean	Specifies whether to truncate field values that are too long (`true`) or not (`false`). The default value is `false`: no change in behavior. If a string or text area value is too large, the operation fails and the error code `STRING_TOO_LONG` is returned.
DisableFeedTrackingHeader		
disableFeedTracking	Boolean	If the value of this item is set to `true`, the changes made in the current call are not tracked in feeds. The default value is `false`.
StreamingEnabledHeader		
streamingEnabled	Boolean	Specifies whether you want to receive streaming notifications for changes to Salesforce data.

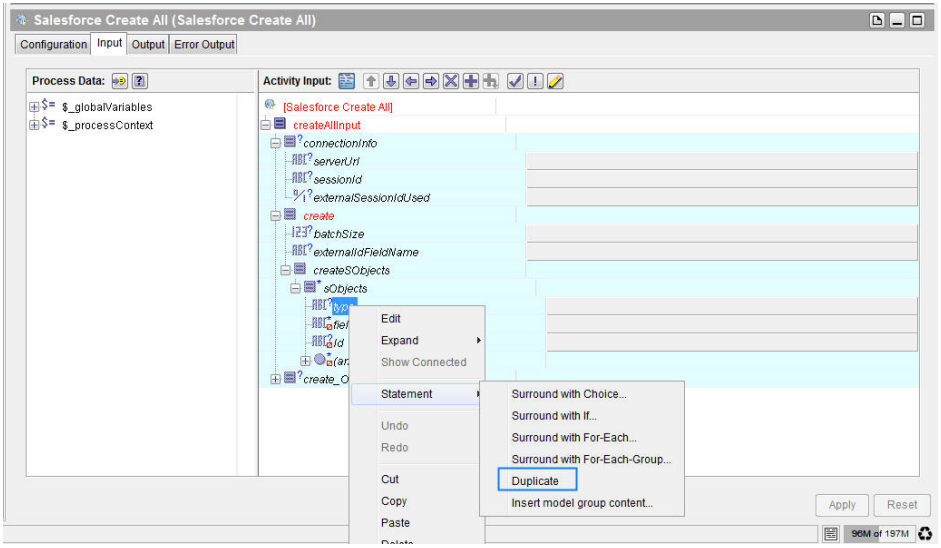
Table 5 Salesforce Create All Input Tab: Activity Input (Sheet 5 of 6)

Input Items	Data Type	Description
AllOrNoneHeader		
allOrNone	Boolean	If the value of the **allOrNone** field is set to `true`, any failed records in a call cause all changes for the call to be rolled back. Record changes are not committed unless all records are processed successfully. The default value is `false`. Some records can be processed successfully although others are marked as failed in the call results. **Note:** When processing large amounts of data, the activity internally invokes several SOAP calls. However, this `AllOrNoneHeader` only applies to each internal SOAP call. If the value of the **allOrNone** field is set to `true`, the records in each internal SOAP call will all succeed or be rolled back.
DebuggingHeader		
debugLevel	String	Specifies the level of detail in the debug header. See the Salesforce.com document *Apex Developer's Guide* for detailed information. The response of the debugging information can be found in the SOAP message log. You might have to enable the debug role log for tracing the debugging errors.
PackageVersionHeader		
PackageVersion		
majorNumber	Integer	The major version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
minorNumber	Integer	The minor version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
namespace	String	The unique namespace of the managed package.
EmailHeader		

Table 5 Salesforce Create All Input Tab: Activity Input (Sheet 6 of 6)

Input Items	Data Type	Description
triggerAuto ResponseEmail	Boolean	Specifies whether to trigger auto-response rules (`true`) or not (`false`), for leads and cases. In the Salesforce.com user interface, this email can automatically triggered by a number of events, for example, resetting a user password.
triggerOtherEmail	Boolean	Specifies whether to trigger an email outside the organization (`true`) or not (`false`). In the Salesforce.com user interface, this email can be automatically triggered by creating, editing, or deleting a contact for a case.
triggerUserEmail	Boolean	Specifies whether to send an auto-response email to the owner specified in the owner ID (`true`) or not (`false`).

Figure 7 Creating Multiple Object Types



Output Tab

Table 6 lists and explains the fields in the **Output** tab.

Table 6 Salesforce Create All Output Tab

Output Item	Data Type	Description
createAllResponse		
result		
errors	Complex	If errors occur during the activity, an array of Error objects with the error code and description will be returned.
id	String	ID of an sObject that you attempt to create.
success	Boolean	Indicates whether the create activity succeeds (`true`) or not (`false`).

Error Output Tab

Table 7 lists and explains the possible exceptions.

Table 7 Salesforce Create All Error Output Tab

Exception	Thrown when
SalesforceExecuteSOAP MethodException	An error occurs when a SOAP method is called. For example, a wrong value is set in the **Input** field or the Salesforce session times out.
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Delete All

Activity

The Salesforce Delete All activity deletes one or more individual objects from the data of your organization.

Configuration Tab

Table 8 lists and explains fields in the **Configuration** tab.

Table 8 Salesforce Delete All Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the salesforce connection information. Click the **Browse** button to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all of the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 9 lists and explains the **Activity Input** fields in the **Input** tab.

Table 9 Salesforce Delete All Input Tab (Sheet 1 of 4)

Input Items	Data Type	Description
connectionInfo (All fields in this section are optional.)		
serverUrl	String	URL of the endpoint that is used by this operation.
sessionId	String	Unique ID associated with this session.

Table 9 Salesforce Delete All Input Tab (Sheet 2 of 4)

Input Items	Data Type	Description
externalSessionIdUsed	Boolean	Specifies whether an external session ID is used (`true`) or not (`false`). If the value is set to `true`, an external session ID is filled in the **sessionId** field. When the session has to be refreshed, the refresh operation cannot be performed, and an exception is thrown.
delete		
batchSize	Integer	Optional. When processing large amounts of data, the activity internally invokes several SOAP calls. This field is used to set the batch size for the number of records deleted through a SOAP call. The value ranges from `1` to `200`: • If the input value equals `-1`, it is set to the default value. • If the input value is greater than `200`, it is set to `200`. • If the input value is less than `1` (except `-1`), it is set to `1`. • The default value is `200`.
deleteSObjects		
ids	String	Required. An array of one or more IDs associated with the objects to be deleted.
delete_Optional (All fields in this section are optional.)		
_configData		
timeout	Integer	Specifies the number of milliseconds an internal API call waits before the data is returned. The default value is `15000` milliseconds. You can also change the default timeout value by setting the properties. See Default Timeout Value Setting on page 103 for detailed information.

Table 9 Salesforce Delete All Input Tab (Sheet 3 of 4)

Input Items	Data Type	Description
headers		
DebuggingHeader		
debugLevel	String	Specifies the level of detail in the debug header. See *Apex Developer's Guide* for detailed information. The response of the debugging information can be found in the SOAP message log. You might have to enable the debug role log for tracing the debugging errors.
AllowFieldTruncationHeader		
allowFieldTruncation	Boolean	Specifies whether to truncate field values that are too long (`true`) or not (`false`). The default value is `false`: no change in behavior. If a string or text area value is too large, the operation fails and the error code `STRING_TOO_LONG` is returned.
DisableFeedTrackingHeader		
disableFeedTracking	Boolean	If the value of this field is set to `true`, the changes made in the current call are not tracked in feeds. The default value is `false`.
StreamingEnabledHeader		
streamingEnabled		Specifies whether you want to receive streaming notifications for changes to Salesforce data.
PackageVersionHeader		
PackageVersion		
majorNumber	Integer	The major version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
minorNumber	Integer	The minor version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
namespace	String	The unique namespace of the managed package.

Table 9 Salesforce Delete All Input Tab (Sheet 4 of 4)

Input Items	Data Type	Description
EmailHeader		
triggerAuto ResponseEmail	Boolean	Specifies whether to trigger auto-response rules (`true`) or not (`false`), for leads and cases. In the Salesforce.com user interface, this email can be automatically triggered by a number of events, for example, resetting a user password.
triggerOtherEmail	Boolean	Specifies whether to trigger an email outside the organization (`true`) or not (`false`). In the Salesforce.com user interface, this email can be automatically triggered by creating, editing, or deleting a contact for a case.
triggerUserEmail	Boolean	Specifies whether to send an auto-response email to the owner specified in the owner ID (`true`) or not (`false`).
UserTerritoryDeleteHeader		
transferToUserId	String	The ID of the user to whom open opportunities in that user's territory are assigned when the owner (user) of an opportunity is removed from a territory.
CallOptions		
client	String	A string that identifies a particular client.
defaultNamespace	String	A string that identifies a developer namespace prefix. Use this field to resolve field names in managed packages without having to fully specify the field name everywhere.
AllOrNoneHeader		
allOrNone	Boolean	If the value of the **allOrNone** field is set to `true`, any failed records in a call cause all changes for the call to be rolled back. Record changes are not committed unless all records are processed successfully. The default value is `false`. Some records can be processed successfully although others are marked as failed in the call results. **Note:** When processing large amounts of data, the activity internally invokes several SOAP calls. However, this `AllOrNoneHeader` only applies to each internal SOAP call. If the value of the **allOrNone** field is set to `true`, the records in each internal SOAP call will all succeed or be rolled back.

Output Tab

Table 10 lists and explains fields in the **Output** tab.

Table 10 Salesforce Delete All Output Tab

Output Item	Data Type	Description
deleteAllResponse		
result		
errors	Complex	If errors occur during the activity, an array of Error objects with the error code and description, is returned.
id	String	ID of an sObject that you attempted to delete.
success	Boolean	Indicates whether the delete activity succeeds (`true`) or not (`false`).

Error Output Tab

Table 11 lists and explains the possible exceptions in the **Error Output** tab.

Table 11 Salesforce Delete All Error Output Tab

Exception	Thrown when
SalesforceExecuteSOAP MethodException	An error occurs when a SOAP method is called. For example, a wrong value is set in the **Input** field or the Salesforce session times out.
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Get Session

Activity

The Salesforce Get Session activity retrieves an object reference for the specified salesforce connection and obtains an existing session. This session can be used within salesforce activities to access the specified database.

Configuration Tab

Table 12 lists and explains the fields in the **Configuration** tab.

Table 12 Salesforce Get Session Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the Salesforce connection information. Click the **Browse** button to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 13 lists and explains the fields in the **Input** tab.

Table 13 Salesforce Get Session Input Tab

Input Item	Data Type	Description
login		
salesforceConnection	String	Optional. Path to the shared configuration resource containing the salesforce connection information. The priority of this field is higher than the **Salesforce Connection** field in the **Configuration** tab. If you want to change the referenced salesforce connection resource at run time, you can set the **salesforceConnection** field.
refreshSession	Boolean	Optional. Specifies whether a new session can be initiated. The value is set to be `true` if you always want to obtain a new session. The value is set to `false` if the existing session is used. The obtained session might not be usable if it has timed out. But the performance time in this situation is faster.

Output Tab

Table 14 lists and explains the fields in the **Output** tab.

Table 14 Salesforce Get Session Output Tab

Output Item	Data Type	Description
salesforceConnection	String	Path to the shared configuration resource containing the salesforce connection information. Indicates that the Salesforce Get Session activity uses this salesforce connection resource at run time.
loginResponse		
result		

Table 14 Salesforce Get Session Output Tab (Cont'd)

Output Item	Data Type	Description
metadataServerUrl	String	URL of the endpoint that processes subsequent metadata API calls.
passwordExpired	Boolean	Indicates whether the password used during the login attempt has expired (`true`) or not (`false`).
sandbox	Boolean	Specifies whether the Salesforce environment is a sandbox or not.
serverUrl	String	URL of the endpoint that processes subsequent API calls.
sessionId	String	Unique ID associated with this session.
userId	String	ID of the user associated with the specified user name and password.
userInfo	Complex	User information fields.

Error Output Tab

Table 15 lists and explains the exceptions that can be thrown by this activity.

Table 15 Salesforce Get Session Error Output Tab

Exception	Thrown when
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Query All

Activity

The Salesforce Query All activity performs the specified SOQL SELECT statement.

The Salesforce Query All activity executes a query against the specified object and returns data that matches the specified criteria.

Configuration Tab

Table 16 lists and explains the fields in the **Configuration** tab.

Table 16 Salesforce Query All Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the Salesforce connection information. Click the **Browse** button to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.
Operations	No	Select a query operation from the Operations drop-down list. The default operation is Query. If you select **Query** from the drop-down list, the operation retrieves existing records only. If you select **QueryAll**, the operation retrieves all archived and deleted records.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 17 lists and explains the fields in the **Input** tab.

Table 17 Salesforce Query All Input Tab (Sheet 1 of 4)

Input Items	Data Type	Description
connectionInfo (All fields in this section are optional.)		

Table 17 Salesforce Query All Input Tab (Sheet 2 of 4)

Input Items	Data Type	Description
serverUrl	String	URL of the endpoint that is used by this operation.
sessionId	String	Unique ID associated with this session.
externalSessionIdUsed	Boolean	Specifies whether an external session ID is used (`true`) or not (`false`). If the value is set to `true`, an external session ID is filled in the **sessionId** field. When the session has to be refreshed, the refresh operation cannot be performed, and an exception is thrown.
query/queryAll		
batchSize	Integer	Optional. When processing large amounts of data, the activity internally invokes several SOAP calls. This field is used to set the batch size for the number of records returned through a SOAP call. The value ranges from `200` to `2000`: • If the input value equals `-1`, it is set to the default value. • If the input value is greater than `2000`, it is set to `2000`. • If the input value is less than `200` (except `-1`), it is set to `200`. • The default value is `500`.
queryMain		
queryString	String	Required. A query string follows the SOQL syntax. The **queryString** field specifies the object to query, the fields to return, and any condition for including a specific object in the query.
query_Optional (All fields in this section are optional.)		
_configData		

Table 17 Salesforce Query All Input Tab (Sheet 3 of 4)

Input Items	Data Type	Description
timeout	Integer	The timeout value specifies the number of milliseconds an internal API call waits before the data is returned. The default value is `15000` milliseconds. You can also change the default timeout value by setting the properties. See Default Timeout Value Setting on page 103 for detailed information.
headers		
MruHeader		
updateMru	Boolean	Specifies whether to update the list of most recently used items (`true`) or not (`false`), which is on the sidebar in the Salesforce.com user interface.
PackageVersionHeader		
PackageVersion		
majorNumber	Integer	The major version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
minorNumber	Integer	The minor version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
namespace	String	The unique namespace of the managed package.
CallOptions		
client	String	A string that identifies a particular client.
defaultNamespace	String	A string that identifies a developer namespace prefix. Use this field to resolve field names in managed packages without having to fully specify the fieldName everywhere.

Table 17 Salesforce Query All Input Tab (Sheet 4 of 4)

Input Items	Data Type	Description
SubsetSetting		
ProcessInSubsets	Boolean	Optional. Specifies whether you can process smaller batches of rows instead of retrieving one large result set (`true`) or not (`false`). This element must be used in conjunction with a Repeat Until True loop group for processing the result sets. See Guidelines for Retrieving Data in Subset Mode on page 37 for more information. The default value is `false`.
subsetSize	Integer	Optional. This element is available only when the **ProcessInSubsets** field is set to `true`. When that field is set to `true`, records are processed in batches and the returned data will be passed out from the activity when completing the activity in a `subsetSize` batch. This element specifies the maximum number of messages that are picked up for each execution loop. The value ranges from `1` to `10`. By setting the **subsetSize** field, you can process smaller batches of rows instead of retrieving one large result set. This element must be used in conjunction with a Repeat Until True loop group for processing the result sets. See Guidelines for Retrieving Data in Subset Mode on page 37 for more information. The default value is `1`.

Guidelines for Retrieving Data in Subset Mode

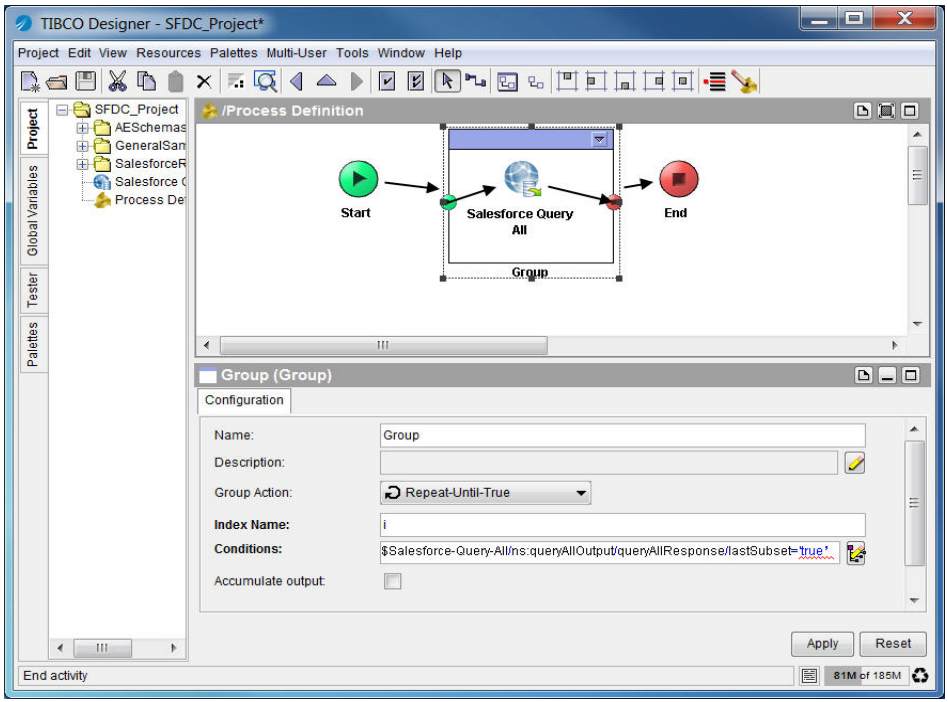
When the result set of a query is very large, you can retrieve subsets of the result set and iterate until the entire result set is processed. To retrieve subsets, you must use a Repeat Until True loop group to iterate through the entire result set.

1. Create a Salesforce Query All activity.
2. Specify the fields in the **Configuration** tab and create a query that returns multiple rows.
3. Set the value of the **ProcessInSubsets** field to `true` in the **Input** tab.
4. Set the **subsetSize** field to the maximum number of messages of batch size you want to process for each execution loop.

5. Select the **Salesforce Query All** activity, and then click the **Create a group** icon  on the tool bar to create a group containing this activity. See *TIBCO BusinessWorks Process Design Guide* for more information about working with groups.
6. Select **Repeat-Until-True** from the **Group Action** list, and specify an index name, for example, i.
7. The loop exits when the entire result set has been consumed. The condition for the loop can be set to the following:

```
$Salesforce-Query-All/ns:queryAllOutput/queryAllResponse/lastSubset='true'
```

Figure 8 Configuring the Group



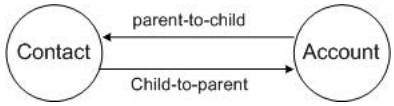
The previous procedure is a general guideline for creating a loop group to process a large set of records. You might want to modify the procedure to include additional processing of the records, or you might want to change the XPath expressions to suit your business process.

Relationship Query

Relationship query can be used to query multiple sObjects at a time in the Salesforce.com database. A relationship is created between those sObjects. SOQL provides the syntax to support relationship queries.

Parent-to-children and child-to-parent are the two possible relationships between sObjects. In the Salesforce.com database, some sOjects with a relationship are predefined. For example, `Account` is a parent of `Contact`. You can use relationship queries to search for sObjects of one type based on the criteria that applies to sObjects of another type. For example, "return all accounts created by Bob Jones and the contacts associated with those accounts." A parent-to-children or child-to-parent relationship must be created to connect the sObjects. See Figure 9.

Figure 9 Parent-to-children and Child-to-parent Relationships



For more information about relationship queries, See *Force.com Web Services API Developer's Guide*.

To learn how to do relationship queries in the Salesforce Query All activity, see Relationship Query Sample Project on page 78.

Output Tab

Table 18 lists and explains the fields in the **Output** tab.

Table 18 Salesforce Query All Output Tab

Output Item	Data Type	Description
queryAllResponse		
result		
done	Boolean	Indicates whether additional rows have to be retrieved from the query results (`false`) using another query activity, or not (`true`). Your client application can use this value as a loop condition when iterating through the query results.
queryLocator	String	Used in subsequent query activities for retrieving sets of objects from the query results, if applicable.
records	Complex	An array of sObjects representing individual objects of the specified object and containing data defined in the field list specified in the query string. Those sObjects can be converted to the specified type defined in the metadata schema, for example, the Salesforce_Metadata schema, retrieved from the Salesforce.com server.
size	Integer	Total number of rows retrieved in the query. Your client application can use this value to determine whether the query retrieved any rows (`size>0`) or not (`size=0`).
lastSubset	Boolean	Indicates whether the current output is the last subset (`true`) or not (`false`).

Error Output Tab

Table 19 lists and explains the possible exceptions that can be thrown by this activity.

Table 19 Salesforce Query All Error Output Tab

Exception	Thrown when
SalesforceExecuteSOAP MethodException	An error occurs when a SOAP method is called. For example, a wrong value is set in the **Input** field or the Salesforce session times out.
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.

Table 19 Salesforce Query All Error Output Tab (Cont'd)

Exception	Thrown when
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Retrieve All

Activity

The Salesforce Retrieve All activity retrieves one or more individual objects from the data of your organization. This activity is based on the specified object IDs.

Configuration Tab

Table 20 lists and explains the fields in the **Configuration** tab.

Table 20 Salesforce Retrieve All Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the Salesforce connection information. Click the **Browse** button to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 21 lists and explains the fields in the **Input** tab.

Table 21 Salesforce Retrieve All Input Tab (Sheet 1 of 4)

Input Items	Data Type	Description
connectionInfo (All fields in this section are optional.)		
serverUrl	String	URL of the endpoint that is used by this operation.
sessionId	String	Unique ID associated with this session.

Table 21 Salesforce Retrieve All Input Tab (Sheet 2 of 4)

Input Items	Data Type	Description
externalSessionIdUsed	Boolean	Specifies whether an external session ID is used (`true`) or not (`false`). If the value is set to `true`, an external session ID is filled in the **sessionId** field. When the session has to be refreshed, the refresh operation cannot be performed, and an exception is thrown.
retrieve		
batchSize	Integer	Optional. When processing large amounts of data, the activity internally invokes several SOAP calls. This field is used to set the batch size for the number of records returned through a SOAP call. The value ranges from `200` to `2000`: • If the input value equals `-1`, it is set to the default value. • If the input value is greater than `2000`, it is set to `2000`. • If the input value is less than `200` (except `-1`), it is set to `200`. • The default value is `500`.
retrieveMain		
fieldList	String	Required. List of one or more fields in the specified object, separated by commas.You must specify valid field names and must have read-level permissions to each specified field. The **fieldList** field defines the ordering of fields in the result. Because using the wildcard (*) character might return a very large result set that can slow client application performance, use it only when necessary.
sObjectType	String	Required. The specified value must be a valid object for your organization.
ids	String	Required. An array of one or more IDs of the objects to be retrieved. You can pass a maximum of `2000` object IDs to the activity.

Table 21 Salesforce Retrieve All Input Tab (Sheet 3 of 4)

Input Items	Data Type	Description
retrieve_Optional		
_configData		
timeout	Integer	Specifies the number of milliseconds an internal API call waits before the data is returned. The default value is `15000` milliseconds. You can also change the default timeout value by setting the properties. See Default Timeout Value Setting on page 103 for detailed information.
headers		
MruHeader		
updateMru	Boolean	Specifies whether to update the list of most recently used items (`true`) or not (`false`), which is on the sidebar in the Salesforce.com user interface.
PackageVersionHeader		
PackageVersion		
majorNumber	Integer	The major version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
minorNumber	Integer	The minor version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
namespace	String	The unique namespace of the managed package.
CallOptions		
client	String	A string that identifies a particular client.
defaultNamespace	String	A string that identifies a developer namespace prefix. Use this field to resolve field names in managed packages without having to fully specify the fieldName everywhere.

Table 21 Salesforce Retrieve All Input Tab (Sheet 4 of 4)

Input Items	Data Type	Description
SubsetSetting		
ProcessInSubsets	Boolean	Optional. Specifies whether you can process smaller batches of rows instead of retrieving one large result set (`true`) or not (`false`). This element must be used in conjunction with a Repeat Until True loop group for processing the result sets. See Guidelines for Retrieving Data in Subset Mode on page 45 for more information. The default value is `false`.
subsetSize	Integer	Optional. This element is available only when the **ProcessInSubsets** field is set to be true. When that field is set to be `true`, records are processed in batches and the returned data will be passed out from the activity when completing the activity in a `subsetSize` batches. This element specifies the maximum number of messages that are picked up for each execution loop. Its range is from `1` to `10`. By setting the **subsetSize** field, you can process smaller batches of rows instead of retrieving one large result set. This element must be used in conjunction with a Repeat Until True loop group for processing the result sets. See Guidelines for Retrieving Data in Subset Mode on page 45 for more information. The default value is `1`.

Guidelines for Retrieving Data in Subset Mode

When the result set of a retrieve operation is very large, the result can be returned in subsets and iterate until the entire result set is processed. To retrieve subsets, you must use a Repeat Until True loop group to iterate through the entire result set.

1. Create a Salesforce Retrieve All activity.
2. Specify the fields in the **Configuration** tab and create a retrieve operation that returns multiple rows.
3. Set the value of the **ProcessInSubsets** field to `true` in the **Input** tab.
4. Set the value of the **subsetSize** field to the maximum number of messages of batch size you want to process for each execution loop.

5. Select the **Salesforce Retrieve All** activity, and then click the **Create a group** icon  on the tool bar to create a group containing this activity. See *TIBCO BusinessWorks Process Design Guide* for more information about working with groups.
6. Select **Repeat-Until-True** from the **Group Action** list, and specify an index name, for example, i. See Figure 8 on page 38.
7. The loop exits when the entire result set has been consumed. The condition for the loop can be set to the following:

```
$Salesforce-Retrieve-All/ns:retrieveAllOutput/retrieveAllRespon
se/lastSubset='true'
```

The previous procedure is a general guideline for creating a loop group to process a large set of records. You might want to modify the procedure to include additional processing of the records, or you might want to change the XPath expressions to suit your business process.

Output Tab

Table 22 lists and explains the fields in the **Output** tab.

Table 22 Salesforce Retrieve All Output Tab

Output Item	Data Type	Description
retrieveAllResponse		
result	Complex	An array of sObjects representing individual objects of the specified object and containing data defined in the field list specified in the IDs. Those sObjects can be converted to the specified type defined in the metadata schema, for example, the Salesforce_metadata schema, retrieved from the Salesforce.com server.
lastSubset	Boolean	Indicates whether the current output is the last subset (`true`) or not (`false`).

Error Output Tab

Table 23 lists and explains the possible exceptions that can be thrown by this activity.

Table 23 Salesforce Retrieve All Error Output Tab

Exception	Thrown when
SalesforceExecuteSOAP MethodException	An error occurs when a SOAP method is called. For example, a wrong value is set in the Input field or the Salesforce session times out.
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Update All

Activity

The Salesforce Update All activity updates one or more existing objects with the data of your organization.

Configuration Tab

Table 24 lists and explains the fields in the **Configuration** tab.

Table 24 Salesforce Update All Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the Salesforce connection information. Click the **Browse** button to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 25 lists and explains the fields in the **Input** tab.

Table 25 Salesforce Update All Input Tab (Sheet 1 of 6)

Input Items	Data Type	Description
connectionInfo (All fields in this section are optional.)		
serverUrl	String	URL of the endpoint that is used by this operation.
sessionId	String	Unique ID associated with this session.

Table 25 Salesforce Update All Input Tab (Sheet 2 of 6)

Input Items	Data Type	Description
externalSessionIdUsed	Boolean	Specifies whether an external session ID is used (`true`) or not (`false`). If the value is set to `true`, an external session ID is filled in the **sessionId** field. When the session has to be refreshed, the refresh operation cannot be performed, and an exception is thrown.
update		
batchSize	Integer	Optional. When processing large amounts of data, the activity internally invokes several SOAP calls. This field is used to set the batch size for the number of records updated through a SOAP call. The value ranges from `1` to `200`: • If the input value equals to `-1`, it is set to the default value. • If the input value is greater than `200`, it is set to `200`. • If the input value is less than `1` (except `-1`), it is set to `1`. • The default value is `200`.
updateSObjects		
sObjects	Complex	Required. An array of one or more objects to be updated. This sObject can be converted to the specified type defined in the metadata schema, for example, the Salesforce_Metadata schema, retrieved from the Salesforce.com server. To create a new relationship between a newly created sObject (sObject A) and an existing sObject (sObject B), where the sObject A schema includes the sObject B schema, set the value of the key field in sObject B while updating sObject A. If you modify the values of the fields in sObject B within the sObject A schema, the original sObject B is not modified. The key field in sObject B within the sObject A schema is only used to link sObject A with the original sObject B. **Note:** In this release, you can create up to 10 object types in one call. Click **type > Statement > Duplicate** to add multiple object types. See Figure 7 on page 24.
update_Optional		

Table 25 Salesforce Update All Input Tab (Sheet 3 of 6)

Input Items	Data Type	Description
_configData		
timeout	Integer	Specifies the number of milliseconds an internal API call waits before the data is returned. The default value is `15000` milliseconds. You can also change the default timeout value by setting the properties. See Default Timeout Value Setting on page 103 for detailed information.

Table 25 Salesforce Update All Input Tab (Sheet 4 of 6)

Input Items	Data Type	Description
headers		
DebuggingHeader		
debugLevel	String	Specifies the level of detail in the debug header. See *Apex Developer's Guide* for detailed information. The response of the debugging information can be found in the SOAP message log. You might have to enable the debug role log for tracing the debugging errors.
MruHeader		
updateMru	Boolean	Specifies whether to update the list of most recently used items (`true`) or not (`false`), which is on the sidebar in the Salesforce.com user interface.
EmailHeader		
triggerAuto ResponseEmail	Boolean	Specifies whether to trigger auto-response rules (`true`) or not (`false`), for leads and cases. In the Salesforce.com user interface, this email can be automatically triggered by a number of events, for example, resetting an user password.
triggerOtherEmail	Boolean	Specifies whether to trigger an email outside the organization (`true`) or not (`false`). In the Salesforce.com user interface, this email can be automatically triggered by creating, editing, or deleting a contact for a case.
triggerUserEmail	Boolean	Specifies whether to send an auto-response email to the owner specified in the owner ID (`true`) or not (`false`).
AllowFieldTruncationHeader		
allowFieldTruncation	Boolean	Specifies whether to truncate field values that are too long (`true`) or not (`false`). The default value is `false`: no change in behavior. If a string or text area value is too large, the operation fails and the error code `STRING_TOO_LONG` is returned.

Table 25 Salesforce Update All Input Tab (Sheet 5 of 6)

Input Items	Data Type	Description
PackageVersionHeader		
PackageVersion		
majorNumber	Integer	The major version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
minorNumber	Integer	The minor version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
namespace	String	The unique namespace of the managed package.
AssignmentRuleHeader		
assignmentRuleId	String	ID of a specific assignment rule to run for Case or Lead. It can be an inactive assignment rule. The ID can be retrieved by querying the AssignmentRule object. If this field is specified, set the value in the **useDefaultRule** field to `false`. This element is ignored for Account, because all territory assignment rules are applied. Case and Lead are two predefined Salesforce.com schema types. For more information about these two types, see *Force.com Web Service API Developer's Guide.*
useDefaultRule	Boolean	If the value of the **useDefaultRule** field is set to `true` for Case or Lead, the default (active) assignment rule for Case or Lead is used. If this field is specified, do not specify an assignmentRuleId and type an empty string in the **assignmentRuleId** field. If the value of the **useDefaultRule** field is set to `true` for Account, all territory assignment rules are applied; if the value is set to `false`, no territory assignment rules are applied.
CallOptions		
client	String	A string that identifies a particular client.
defaultNamespace	String	A string that identifies a developer namespace prefix. Use this field to resolve field names in managed packages without having to fully specify the fieldName everywhere.

Table 25 Salesforce Update All Input Tab (Sheet 6 of 6)

Input Items	Data Type	Description
AllOrNoneHeader		
allOrNone	Boolean	If the value of the **allOrNone** field is set to `true`, any failed records in a call cause all changes for the call to be rolled back. Record changes are not committed unless all records are processed successfully. The default value is `false`. Some records can be processed successfully although others are marked as failed in the call results. **Note:** When processing large amounts of data, the activity internally invokes several SOAP calls. However, this `AllOrNoneHeader` only applies to each internal SOAP call. If the value of the **allOrNone** field is set to `true`, the records in each internal SOAP call will all succeed or be rolled back.
DisableFeedTrackingHeader		
disableFeedTracking	Boolean	If the value of this item is set to `true`, the changes made in the current call are not tracked in feeds. The default value is `false`.
StreamingEnabledHeader		
streamingEnabled	Boolean	Specifies whether you want to receive streaming notifications for changes to Salesforce data.
OwnerChangeOptions		
transferAttachments	Boolean	If the value of this field is set to `true`, the record's, attachments are transferred to the new record owner. If the value is set to `false`, the original record owner retains ownership.The default is `false`.
transferOpenActivities	Boolean	If the value of this field is set to `true`, the open activities of the record are transferred to the new record owner. If the value is set to `false`, the original record owner retains the ownership. The default is `false`.

Output Tab

Table 26 lists and explains the fields in the **Output** tab.

Table 26 Salesforce Update All Output Tab

Output Item	Data Type	Description
updateAllResponse		
result		
errors	Complex	If errors occur during the activity, an array of Error objects with the error code and description, is returned.
id	String	ID of an sObject that you attempted to create.
success	Boolean	Indicates whether the create activity succeeded (`true`) or not (`false`).

Error Output Tab

Table 27 lists and explains the possible exceptions that can be thrown by this activity.

Table 27 Salesforce Update All Error Output Tab

Exception	Thrown when
SalesforceExecuteSOAP MethodException	An error occurs when a SOAP method is called. For example, a wrong value is set in the **Input** field or the Salesforce session times out.
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Upsert All

Activity

The Salesforce Upsert All activity creates new objects and updates existing objects; uses a custom field to determine the presence of existing objects.

This activity uses the external ID to determine whether it creates a new object or updates an existing one:

- If the external ID is not matched, a new object is created.
- If the external ID is matched once, the existing object is updated.
- If the external ID is matched multiple times, an error is reported.
- When the Salesforce Upsert All activity batches updating multiple objects where the external ID is the same for two or more objects in your batch call, those records are marked as errors in the UpsertResult. The objects will be neither created or updated.

Configuration Tab

Table 28 lists and explains the fields in the **Configuration** tab.

Table 28 Salesforce Upsert All Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
Salesforce Connection	Yes	Path to the shared configuration resource containing the Salesforce connection information. Click the **Browse** button to open the Select a Resource dialog. All usable connections are listed in the dialog. Select one to apply to your current activity.

Input Tab

The **Input** tab contains the Process Data panel and the Activity Input panel. The information in the Process Data panel gives an overview of all the processes. The Activity Input panel provides the parameters that you can specify or change for all activities. Table 29 lists and explains the fields in the **Input** tab.

Table 29 Salesforce Upsert All Input Tab (Sheet 1 of 5)

Input Items	Data Type	Description
connectionInfo (All fields in this section are optional.)		
serverUrl	String	URL of the endpoint that is used by this operation.
sessionId	String	Unique ID associated with this session.
externalSessionIdUsed	Boolean	Specifies whether an external session ID is used (`true`) or not (`false`). If the value is set to `true`, an external session ID is filled in the **sessionId** field. When the session has to be refreshed, the refresh operation cannot be performed, and an exception is thrown.
upsert		
batchSize	Integer	Optional. When processing large amounts of data, the activity internally invokes several SOAP calls. This field is used to set the batch size for the number of records created through a SOAP call. The value ranges from `1` and `200`: • If the input value equals to `-1`, it will be set to the default value. • If the input value is greater than `200`, it will be set to `200`. • If the input value is less than `1` (except `-1`), it will be set to `1`. • The default is `200`.

Table 29 Salesforce Upsert All Input Tab (Sheet 2 of 5)

Input Items	Data Type	Description
upsertSObjects		
externalIDFieldName	String	Required. This field contains the name of the field defined as a key field in the sObject.
sObjects	Complex	Required. An array of one or more objects to be created or updated. This sObject can be converted to the specified type defined in the metadata schema, for example, the Salesforce_metadata schema, retrieved from the Salesforce.com server. **Note:** You do not have to specify the **Id** field in the sObject. To create a new relationship between a newly created sObject (sObject A) and an existing sObject (sObject B), where the sObject A schema includes the sObject B schema, set the value of the key field in sObject B while upserting sObject A. If you modify the values of the fields in sObject B within the sObject A schema, the original sObject B is not modified. The key field in sObject B within the sObject A schema is only used to link sObject A with the original sObject B.
upsert_Optional (All fields in this section are optional.)		
_configData		
timeout	Integer	The timeout value specifies the number of milliseconds an internal API call waits before the data is returned. The default value is `15000` milliseconds. You can also change the default timeout value by setting the properties. See Default Timeout Value Setting on page 103 for detailed information.
headers		

Table 29 Salesforce Upsert All Input Tab (Sheet 3 of 5)

Input Items	Data Type	Description
DebuggingHeader		
debugLevel	String	Specifies the level of detail in the debug header. See *Apex Developer's Guide* for detailed information. The response of the debugging information can be found in the SOAP message log. You might have to enable the debug role log for tracing the debugging errors.
MruHeader		
updateMru	Boolean	Specifies whether to update the list of most recently used items (`true`) or not (`false`), which is on the sidebar in the Salesforce.com user interface.
AllowFieldTruncationHeader		
allowFieldTruncation	Boolean	Specifies whether to truncate field values that are too long (`true`) or not (`false`). The default value is `false`: no change in behavior. If a string or text area value is too large, the operation fails and the error code `STRING_TOO_LONG` is returned.
PackageVersionHeader		
PackageVersion		
majorNumber	Integer	The major version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
minorNumber	Integer	The minor version number of a package version. A package version is denoted by *majorNumber.minorNumber*, for example 2.1.
namespace	String	The unique namespace of the managed package.

Table 29 Salesforce Upsert All Input Tab (Sheet 4 of 5)

Input Items	Data Type	Description
EmailHeader		
triggerAuto ResponseEmail	Boolean	Specifies whether to trigger auto-response rules (`true`) or not (`false`), for leads and cases. In the Salesforce.com user interface, this email can be automatically triggered by a number of events, for example, resetting a user password.
triggerOtherEmail	Boolean	Specifies whether to trigger an email outside the organization (`true`) or not (`false`). In the Salesforce.com user interface, this email can be automatically triggered by creating, editing, or deleting a contact for a case.
triggerUserEmail	Boolean	Specifies whether to send an auto-response email to the owner specified in the owner ID (`true`) or not (`false`).
AssignmentRuleHeader		
assignmentRuleId	String	ID of a specific assignment rule to run for Case or Lead. It can be an inactive assignment rule. The ID can be retrieved by querying the AssignmentRule object. If this field is specified, set the value in the **useDefaultRule** field to `false`. This element is ignored for Account, because all territory assignment rules are applied. Case and Lead are two predefined Salesforce.com schema types. For more information about these two types, see *Force.com Web Service API Developer's Guide.*
useDefaultRule	Boolean	If the value of the **useDefaultRule** field is set to `true` for Case or Lead, the default (active) assignment rule for Case or Lead is used. If this field is specified, do not specify an assignmentRuleId and type an empty string in the **assignmentRuleId** field. If the value of the **useDefaultRule** field is set to `true` for Account, all territory assignment rules are applied; if the value is set to `false`, no territory assignment rules are applied.
CallOptions		
client	String	A string that identifies a particular client.
defaultNamespace	String	A string that identifies a developer namespace prefix. Use this field to resolve field names in managed packages without having to fully specify the fieldName everywhere.

Table 29 Salesforce Upsert All Input Tab (Sheet 5 of 5)

Input Items	Data Type	Description
AllOrNoneHeader		
allOrNone	Boolean	If the value of the **allOrNone** field is set to `true`, any failed records in a call cause all changes for the call to be rolled back. Record changes are not committed unless all records are processed successfully. The default value is `false`. Some records can be processed successfully although others are marked as failed in the call results. **Note:** When processing large amounts of data, the activity internally invokes several SOAP calls. However, this `AllOrNoneHeader` only applies to each internal SOAP call. If the value of the **allOrNone** field is set to `true`, the records in each internal SOAP call will all succeed or be rolled back.
DisableFeedTrackingHeader		
disableFeedTracking	Boolean	If the value of this field is set to `true`, the changes made in the current call are not tracked in feeds. The default value is `false`.
StreamingEnabledHeader		
streamingEnabled	Boolean	Specifies whether you want to receive streaming notifications for changes to Salesforce data.
OwnerChangeOptions		
transferAttachments	Boolean	If the value of this field is set to `true`, the record's, attachments are transferred to the new record owner. If the value is set to `false`, the original record owner retains ownership.The default is `false`
transferOpenActivities	Boolean	If the value of this field is set to `true`, the open activities of the record are transferred to the new record owner. If the value is set to `false`, the original record owner retains the ownership. The default is `false`.

Output Tab

Table 30 lists and explains the fields in the **Output** tab.

Table 30 Salesforce Upsert All Output Tab

Output Item	Data Type	Description
upsertAllResponse		
result		
created	Boolean	Indicates whether the record is created (`true`) or updated (`false`).
errors	Complex	If errors occurred during the activity, an array of Error objects with the error code and description, is returned.
id	String	ID of an sObject that you attempted to create.
success	Boolean	Indicates whether the create activity succeeds (`true`) or not (`false`).

Error Output Tab

Table 31 lists and explains the possible exceptions that can be thrown by this activity.

Table 31 Salesforce Upsert All Error Output Tab

Exception	Thrown when
SalesforceExecuteSOAP MethodException	An error occurs when a SOAP method is called. For example, a wrong value is set in the **Input** field or the Salesforce session times out.
SalesforceLoginException	An error occurs when you logs on to the Salesforce.com server.
SalesforceConnection NotFoundException	An error occurs when the external session ID is not used and the Salesforce Connection shared resource is not configured correctly.

Salesforce Outbound Message Listener

Process Starter

The Salesforce Outbound Message Listener process starter creates a process instance for incoming salesforce outbound messages. Salesforce Outbound Message is part of the workflow rule functionality in salesforce. It uses the notifications call to send SOAP messages over HTTP(S) to a designated endpoint when triggered by a workflow rule.

Configuration Tab

Table 32 lists and explains the fields in the **Configuration** tab.

Table 32 Salesforce Outbound Message Listener Configuration Tab

Field	Global Var?	Description
Name	No	The name for the activity in the process definition.
Description	No	Short description of the activity.
WSDL	No	Path to the shared configuration resource containing the WSDL information. Click the **Browse** button to open the Select a Resource dialog. Select one WSDL related to the current Outbound Message Listener to apply to your activity.
Keystore File	Yes	The file to be used for SSL transport. Its data type is JKS format.
Keystore Password	Yes	The password to use the Keystore file.
Requires Client Authentication	No	Select this check box to enable the client authentication. When this check box is selected, the **Trusted Certificates Folder** option becomes enabled so that you can specify a location containing the list of trusted certificate authorities.
Trusted Certificates Folder	No	This field is enabled only when the **Requires Client Authentication** check box is selected. This field specifies a folder in the project containing one or more certificates from trusted certificate authorities. This folder is checked when a client connects to ensure that the client is trusted. This prevents connections from rogue clients.

Note the following conditions about the Salesforce Outbound Message Listener activity:

- If a Salesforce Outbound Message Listener activity is used in a process, the full path name of the process must be consistent with the one that is displayed in the Endpoint URL, which is used to configure the outbound message on the Salesforce.com website.

  For example, the Endpoint URL is `http://192.168.0.1:8443/listengroup/listenprocess`, in which `listengroup` is the name of the directory in which the process is defined in a TIBCO Designer project, and `listenprocess` is the name of the process.

- When using a Salesforce Outbound Message Listener activity with the specified WSDL file, the host and port of the Endpoint location are hard-coded in the WSDL file. To make configuring the Salesforce Outbound Message Listener activity more convenient, set the values to the following two global variables:

  — `salesforce.outbound.host`

  — `salesforce.outbound.port`

  After configuring the previous two global variables in TIBCO Administrator, you must redeploy the application for the global variables to take effect.

Making Authenticated Web Service Callouts Using SSL

Callouts is a powerful feature that you can connect to other web services to exchange data. You can use it to notify other services of changes to data in your environment or retrieve data from a remote system.

Callouts can be secured using SSL, in which both the client and the server present certificates to prove their identities to each other. The following section describes two SSL authentications.

- One-way SSL Authentication
- Two-way SSL Authentication

One-way SSL Authentication

For outbound messaging, one-way SSL authentication is enabled by default. Once you have defined an outbound message, you have to perform the following steps to configure the one-way SSL authentication:

1. Log on to the Salesforce.com server, click **App Setup > Workflow & Approvals > Outbound Messages** from the left panel, and then all outbound messages are displayed.

2. Click the one you want to use, and then the Workflow Outbound Message Detail panel is displayed.
3. Right-click the **Click for WSDL** link, and then click **Save Link As** to save the WSDL to your local directory.
4. Start TIBCO Designer and click **Project > Import Resources from File, Folder, URL** from the menu. The Import Resource or File dialog is displayed.
5. Select **File (.xsd,.xslt,.wsdl,.*)** item from the **Format** list. Click **Browse** to navigate to the directory where you stored the downloaded WSDL file, and then click **OK**.The WSDL file is displayed in the Project panel.
6. Click **Salesforce Outbound Message Listener** in the Design panel; click **Browse** next to the **WSDL** field in the **Configuration** tab; select the WSDL file you just imported, and click **OK**.
7. Specify the **Keystore File** and the **Keystore Password** fields in the **Configuration** tab, and then click **Apply**.

Two-way SSL Authentication

In two-way SSL authentication, the identities of the client and server are represented by digital certificates. Currently, Salesforce supports both self-signed and CA-signed certificates. To configure the two-way SSL authentication:

1. Perform step 1 to step 4 in the One-way SSL Authentication section.
2. Select **Folder** from the **Format** list. Click **Browse** to navigate to the directory that stores the certificate folder, and click **OK**. The certificate folder that contains the accepted certificates is displayed in the Project panel.
3. Click **Salesforce Outbound Message Listener** in the Design panel, and select the **Requires Client Authentication** check box. The **Trusted Certificates Folder** field is enabled.
4. Click **Browse** next to the **Trusted Certificates Folder** field in the **Configuration** tab, select the certificate folder you just imported, and click **OK**.

   Click **Apply**.

Misc Tab

Table 33 lists and explains the fields in the **Misc** tab:

Table 33 Salesforce Outbound Message Listener Misc Tab

Field	Description
Sequencing Key	This field contains an XPath expression that specifies which processes must be executed in order. Processes with the same sequencing key value are executed sequentially in the order the processes were created. See *TIBCO BusinessWorks Process Design Guide* for more information about controlling the execution order of process instances and about XPath expressions.
Customer Id	This field contains an XPath expression that specifies a custom ID for the process instance. This ID is displayed in the View Service dialog of TIBCO Administrator, and it is also available in the `$_processContext` process variable.

Chapter 4 Working with TIBCO ActiveMatrix BusinessWorks

This chapter describes the basic steps that are required to configure and run TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com in TIBCO Designer.

Topics

Overview of TIBCO ActiveMatrix BusinessWorks

TIBCO ActiveMatrix BusinessWorks is a scalable, extensible, and easy-to-use integration platform that you can develop and test integration projects. TIBCO ActiveMatrix BusinessWorks includes a graphical user interface, TIBCO Designer, to define business processes and an engine that executes the process. TIBCO Designer is also used to configure TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com instances.

See *TIBCO Designer User's Guide* and *TIBCO ActiveMatrix BusinessWorks Process Design* for detailed information on how to configure BusinessWorks processes.

Before starting work, you must ensure that all required software has been installed and is operating correctly. For a list of required software, see *TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com Installation*.

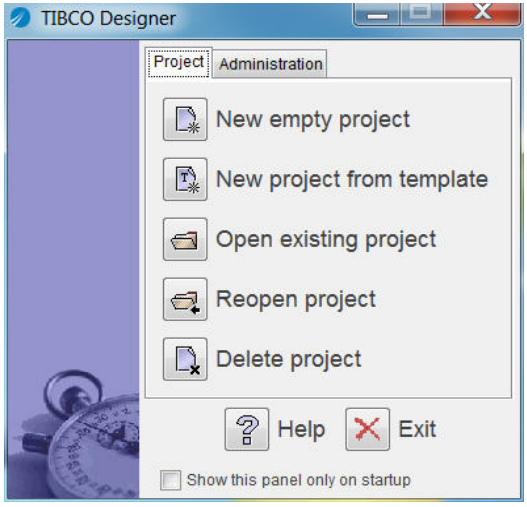
Creating a Project

The TIBCO Designer GUI is used to configure TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com instances. When starting TIBCO Designer, you must create or select a project. A project contains the configuration files that define options used by a runtime plug-in.

To create a project, perform the following steps:

1. Start TIBCO Designer by executing the following commands, depending on your operating system:
   - On Microsoft Windows, click **Start > All Programs > TIBCO > TIBCO_HOME > TIBCO Designer <*version_number*> TIBCO Designer**.
   - On UNIX, on a command line, run ***TIBCO_HOME*/designer/*version_number*/bin/designer**
2. Click **New empty project**. The Save Project dialog is displayed.

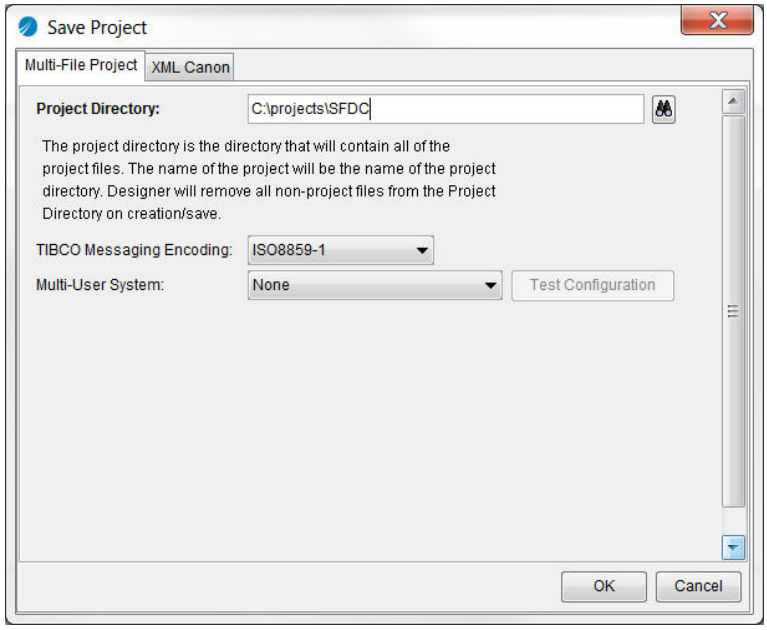
Figure 10 Creating a Project



3. Click **Browse** to save the new created project in the desired location or directly type the path in the **Project Directory** field.
   For example, type **C:\projects\SFDC** in the **Project Directory** field. See Figure 11.

   Click **OK**.

Figure 11 Saving the Project



Configuring a Plug-in Instance

To configure a plug-in instance, complete the following tasks:

Task A Selecting a WSDL

After creating a new project in TIBCO Designer, you have to select a WSDL for the project.

To select a WSDL for your project, perform the following steps:

1. Select the project you just created, and then click **Tools > Salesforce Tools > Select WSDL** from the TIBCO Designer menu. The Select WSDL dialog is displayed.
2. Select a WSDL you want to work with from the **Salesforce WSDL** list. The default WSDL is Partner WSDL. If you select **Other WSDLs** from the list, you have to locate the corresponding WSDL file in your computer.
3. Click **OK**, and the Importing Selected WSDL dialog is displayed.
    a. If you click **Yes**, the selected WSDL is imported, and the Server URL is substituted based on the selected WSDL.
    b. If you click **No**, only the selected WSDL is imported.

This manual uses the Partner 30.0 WSDL to describe the Salesforce activities. For each activity, the fields in the **Input**, **Output**, and **Error Output** tabs are generated from the Partner 30.0 WSDL. If you select a WSDL other than this WSDL in a project, the fields in the **Input**, **Output**, and **Error Output** tabs might be different from the fields explained in Chapter 3, Salesforce Palette.

Task B Creating a Salesforce Connection

Before creating or running a TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com instance, you have to create a salesforce connection in the existing project.

To create a salesforce connection, perform the following steps:

1. Select the project you just created in the Project panel, and then drag the **Salesforce Connection** icon from the Palettes panel to the Design panel.
2. Specify the fields in the **Configuration** tab, and then click **Test Connection** to verify whether the parameters you specified are correct. See Figure 2, Setting Up a Salesforce Connection Successfully, page 10. For more configuration information, see Chapter 3, Salesforce Palette.

   Click **Apply**.

When selecting a Partner WSDL for your project, you must fetch the salesforce metadata from the Salesforce.com server after creating the salesforce connection. The metadata is the key point of the database operations. For more information, see Get Metadata on page 9.

Task C Creating a Salesforce Process

After creating the salesforce connection, you must create a salesforce process to deal with certain workflows.

To create the salesforce process, perform the following steps:

1. Select the root directory in the Project panel, and then drag a **Process Definition** resource from the Palettes panel to the Design panel.
2. Specify the relevant fields, and then click **Apply** to save the configuration. For more information, see *TIBCO Designer User's Guide*.

Task D Adding Activities to the Process

To add activities to the process, perform the following steps:

1. Click the process you just created in the Project panel, and the **Start** and **End** activities are displayed in the Design panel.
2. Drag one or more activities from the Palettes panel to the Design panel, and then click the **Create Transition** icon  on the tool bar to create the transition between each two activities.
3. Configure each activity in the process. See Chapter 3, Salesforce Palette, on page 15 for more information.
4. Test the process in the Tester panel after adding all required activities in the process. See *TIBCO ActiveMatrix BusinessWorks Process Design* for detailed information about using test mode.

Deploying a Project

When you are ready to deploy your project, generate an Enterprise Archive file (EAR) that contains the information about the plug-in activities and processes to deploy. You can upload the archive to TIBCO Administrator to deploy the associated application. See *TIBCO ActiveMatrix BusinessWorks Administration* for more information.

To deploy a project, perform the following steps:

1. Select the root directory in the Project panel in TIBCO Designer, and then drag the **Enterprise Archive** icon from the Palettes panel to the Design panel.
2. Specify information in the **Configuration** tab, and then click **Apply**.
3. Click **Build Archive** to create the archive file.

You can also create an EAR file from **Tools** > **Create Project EAR** if you have an existing process or plug-in instance.

4. Start TIBCO Administrator and import the EAR file, and then create an application related to the project.
5. Deploy the application and start the process.

Chapter 5 Using the Sample Projects

This chapter describes four sample projects packaged with TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com. Working through the sample projects helps you understand how TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com operates.

To run the following sample projects smoothly, apply for a new developer edition account of Salesforce.com.

Topics

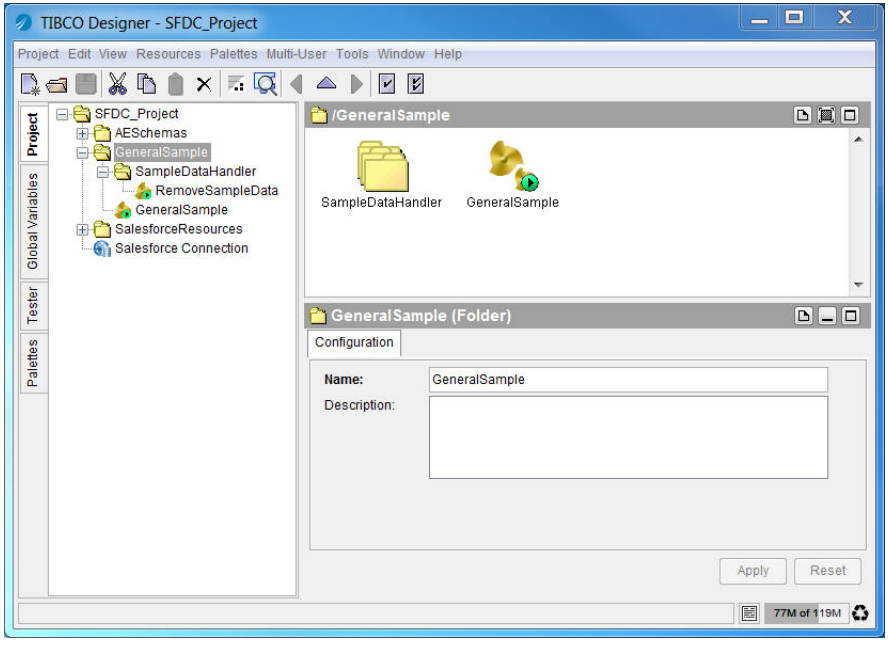
General Sample Project

General Sample Project gives you a quick overview of how to use TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

To run this project, perform the following steps:

1. Start TIBCO Designer, and then click **New empty project**. The Save Project dialog is displayed.
2. Click **Browse** and navigate to the project directory you created and specify a name for the project, and then click **OK**.
3. Click **Project > Import Full Project** from the menu, and click **Browse** to navigate to the *SFDC_HOME*`\examples\GeneralSample` folder. Then select the DAT file you want to import and click **OK**.
4. In the Import-Options dialog, click the **Replace existing global variables with those in import** and **Overwrite on name conflict** radio buttons, and then click **Apply**.

Figure 12 General Sample Project in TIBCO Designer



In this project, the following two processes are created.

— `RemoveSampleData` Process

After running the `GeneralSample` process, you can run this process to remove all the generated data from your Salesforce.com database.

— `GeneralSample` Process

This process is used to show the general configurations of Salesforce activities. Most Salesforce activities are included, such as Salesforce Create All, Salesforce Query All, Salesforce Retrieve All, and so on.

5. Test and run the processes in the project.

GeneralSample Process

The `GeneralSample` process contains all Salesforce activities.

Figure 13 GeneralSample Process

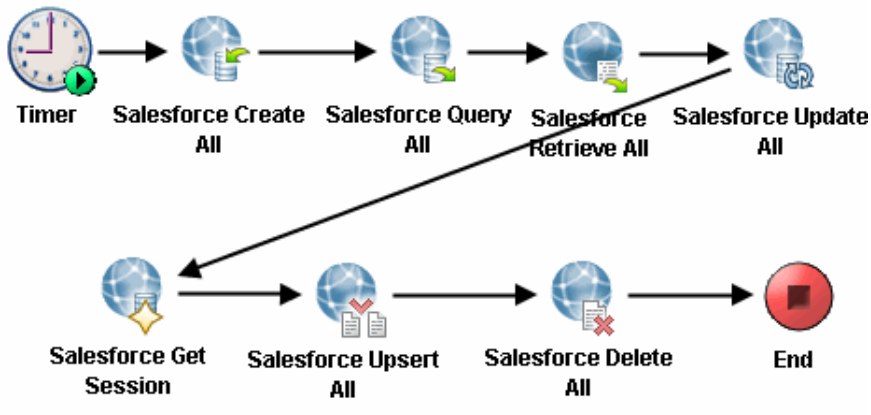


Table 34 lists and explains the activities in the process.

Table 34 GeneralSample Activities

Activity	Description
Timer	Starts the process.
Salesforce Create All	Salesforce Create All activity. Creates five sample `Contact` sObjects in your Salesforce.com database.

Table 34 GeneralSample Activities

Activity	Description
Salesforce Query All	Salesforce Query All activity. Executes a query to retrieve the five sample `contact` sObjects created by the Salesforce Create All activity.
Salesforce Retrieve All	Salesforce Retrieve All activity. Retrieves the five sample `contact` sObjects created by the Salesforce Create All activity.
Salesforce Update All	Salesforce Update All activity. Updates the information of the five sample `contact` sObjects.
Salesforce Get Session	Salesforce Get Session activity. Obtains a session from the session pool that is related to the specified salesforce connection. This session is used in the following Salesforce Upsert All activity.
Salesforce Upsert All	Salesforce Upsert All activity. Upserts the information of the five sample `contact` sObjects. When doing this activity, because ID is defined as the external ID, the five sample `contact` sObjects are updated.
Salesforce Delete All	Salesforce Delete All activity. Deletes all sample data from your Salesforce.com database.
End	Ends the process.

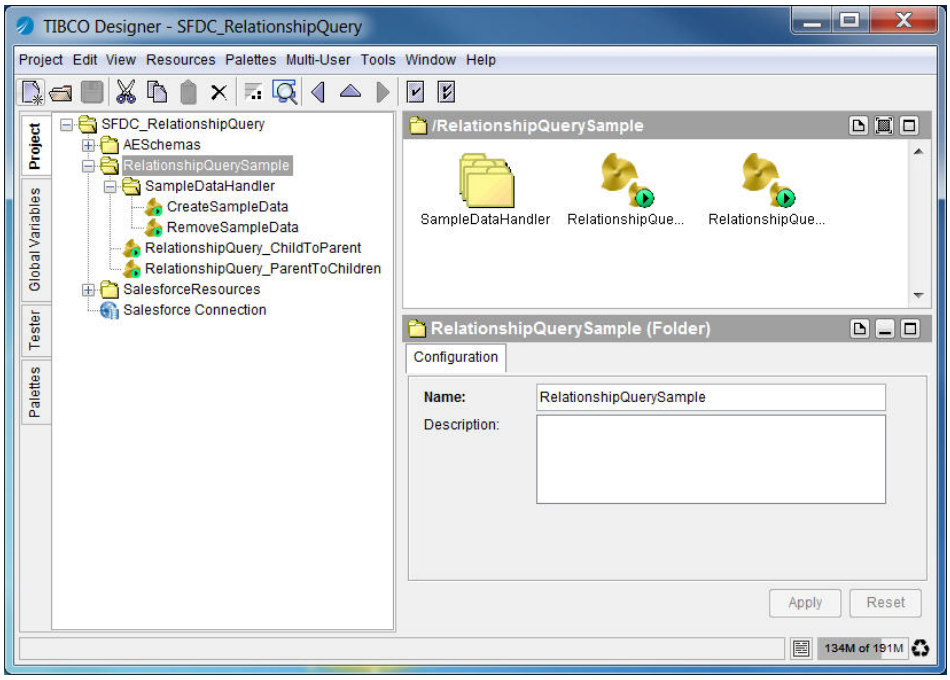
Relationship Query Sample Project

The RelationshipQuerySample Project shows how to do relationship queries in TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com. Two kinds of relationship queries are defined by Salesforce.com: parent-to-children and child-to-parent. For an introduction to relationship queries, see Relationship Query on page 39.

To run this project, perform the following steps:

1. Start TIBCO Designer, and then click **New empty project**. The Save Project dialog is displayed.
2. Click **Browse** and navigate to the project directory you created. Specify a name for the project, and then click **OK**.
3. Click **Project > Import Full Project** from the menu, and then click **Browse** to navigate to the *SFDC_HOME*`\examples\RelationshipQuerySample` folder. Select the DAT file you want to import and click **OK**.
4. In the Import-Options dialog, click the **Replace existing global variables with those in import** and **Overwrite on name conflict** radio buttons, and then click **Apply**.

Figure 14 RelationshipQuerySample Project in TIBCO Designer



In this project, the following four processes are created.

– `CreateSampleData`

  Before running the `RelationshipQuery_ChildToParent` process or the `RelationshipQuery_ParentToChildren` process, run this process to create sample sObjects with the relationship in your Salesforce.com database.

– `RemoveSampleData`

  After running the `RelationshipQuery_ChildToParent` process or the `RelationshipQuery_ParentToChildren` process, you can run this process to remove all the sample data from your Salesforce.com database.

– `RelationshipQuery_ChildToParent`

  This process shows how to do a child-to-parent relationship query and how to map the data to other activities. Detailed information about this process is provided in the RelationshipQuery_ChildToParent Process section.

– `RelationshipQuery_ParentToChildren`

  This process shows how to do a parent-to-children relationship query and how to map the data to other activities. Detailed information about this process is provided in the RelationshipQuery_ParentToChildren Process section.

5. Configure the salesforce connection by using one of the following methods:
   - Change the values of the `salesforce.username` and `salesforce.password` global variables to your user name and password.
   - Change the values in the **User Name** and **Password** fields in the **Configuration** tab of Salesforce Connection.
6. Test and run the processes in the project.

If some fields cannot be accessed when running the project, you might have to change the Field Accessibility configuration in the Salesforce.com database.

RelationshipQuery_ChildToParent Process

This process shows how to do a child-to-parent relationship query and how to map the data to other activities. See Figure 15.

Figure 15 RelationshipQuery_ChildToParent Process

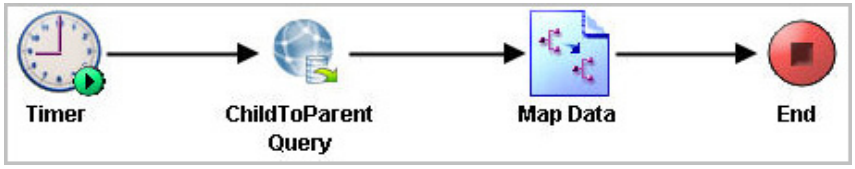


Table 35 lists and explains the fields in the activities in the process.

Table 35 RelationshipQuery_ChildToParent Activities

Activity	Description
Timer	Starts the process.
ChildToPrarent Query	Salesforce Query All activity. Processes the child-to-parent relationship query. The following statement is entered in the **queryString** field. `Select Id, FirstName, LastName, Account.Id, Account.Name, Account.BillingStreet from Contact where Account.Name='TIB_Sample_TIB' and Account.BillingStreet='TIB_Sample_TIB'`
Map Data	Receives the returned data from the ChildToParent Query activity, and then maps the data values. For detailed information, see Map Data in The ChildToParent Process.
End	Ends the process.

Map Data in The ChildToParent Process

Mapper is a general activity defined in TIBCO ActiveMatrix BusinessWorks. It is used as the data consumer of the ChildToParent Query activity.

To map data values in the `ChildToParent` process, perform the following steps:

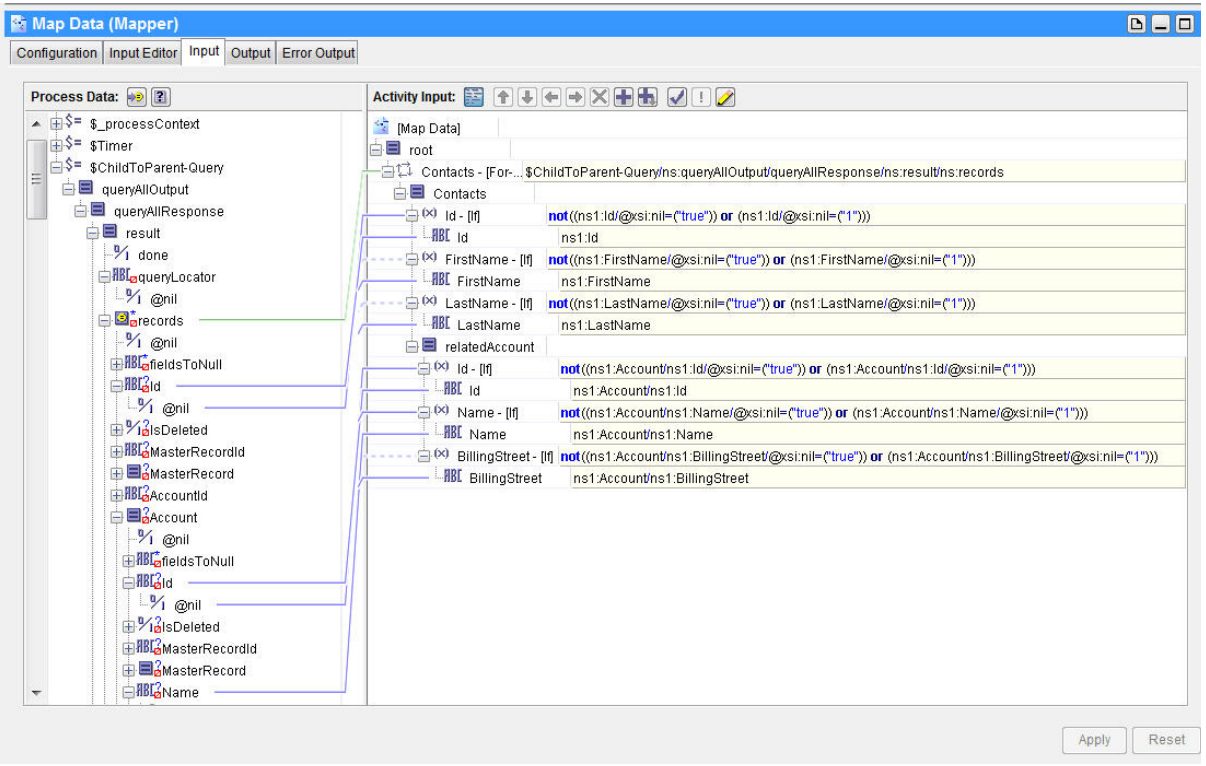
1. Click the Map Data activity in the `ChildToParent` process, and the Map Data (Mapper) panel is displayed.

   In the **Input** tab, you can see the available process data and the expected input of the activity. The process data and activity input are represented as schema trees.

2. Coerce the `records` element that is received from the ChildToParent Query activity into the data type of the `Contact` sObject, and then map the coerced `records` element to the `Contacts` element in the Activity Input area.

3. Map other elements to the corresponding elements in the Activity Input area, see Figure 16. See *TIBCO ActiveMatrix BusinessWorks Process Design* for more information about mapping and transforming input data.

Figure 16 Map Data in the ChildToParent Process



RelationshipQuery_ParentToChildren Process

This process shows how to do a parent-to-children relationship query and how to map the data to other activities, see Figure 17.

Figure 17 RelationshipQuery_ParentToChildren Process

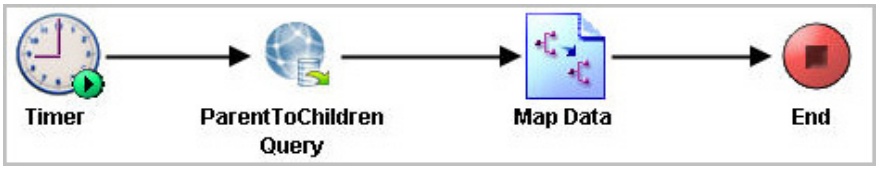


Table 36 lists and explains the fields in the activities in the process.

Table 36 RelationshipQuery_ParentToChildren Activities

Activity	Description
Timer	Starts the process.
ParentToChildren Query	Salesforce Query All activity. Processes the child-to-parent relationship query. The following statement is entered in the **queryString** field. `Select Id, Name,BillingStreet, (select Id, FirstName,LastName from Contacts) from Account a where a.Name='TIB_Sample_TIB' and a.BillingStreet='TIB_Sample_TIB'`
Map Data	Receives the returned data from the ParentToChildren Query activity, and then maps the data values. For detailed information, see Mapping Data in The ParentToChildren Process.
End	Ends the process.

Mapping Data in The ParentToChildren Process

Mapper is a general activity defined in TIBCO ActiveMatrix BusinessWorks. It is used as the data consumer of the ParentToChildren Query activity.

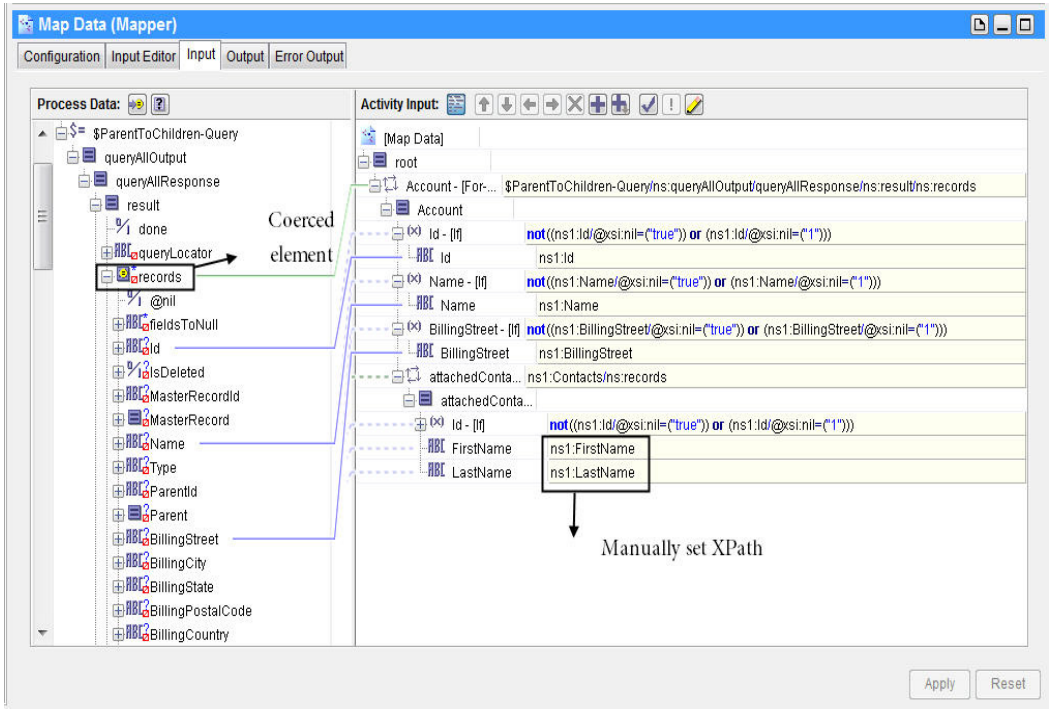
To map data values in the `ParentToChildren` process, perform the following steps:

1. Click the Map Data activity in the `ParentToChildren` process, and the Map Data (Mapper) panel is displayed.

   In the **Input** tab, you can see the available process data and the expected input of the activity. The process data and activity input are represented as schema trees.

2. Coerce the `records` element that is received from the ParentToChildren Query activity into the data type of the `Account` sObject and then map the coerced `records` element to the `Account` element in the Activity Input area.
3. Map other elements to the corresponding elements in the Activity Input area. If you want to map a complex element under the coerced element, you have to manually set XPath in the corresponding input field, see Figure 18. The XPath must be matched with the corresponding schema returned from the query process at run time. See *TIBCO ActiveMatrix BusinessWorks Process Design* for more information about mapping and transforming input data.

Figure 18 Mapping a Complex Element



Integration Project

Acme Inc. is a fictitious company that delivers computer systems and services to companies worldwide. Its enterprise sales department uses Salesforce.com CRM for Salesforce Automation (SFA), while the back office uses an Oracle-based ERP application for order management. Currently the handoff from sales department to finance department and fulfillment is a manual process requiring duplicate data entry. When orders enter the ERP system, the sales department has little visibility into their status. The executive management team of the company wants to integrate Salesforce.com CRM with the Oracle ERP system in order to improve order fulfillment times, minimize delivery problems that result from data entry errors, and provide customer order summary information to sales users.

Two integration scenarios are defined for the integration project to better illustrate this sample application:

- **Customer Master**
  The sales department of the company uses Salesforce.com CRM to manage the sales process and to monitor the pipeline. Sales users create new account records to represent prospects and opportunity records to track deals in progress. The account data entered by sales users is not accurate enough to satisfy the requirements for the back office fulfillment and finance departments, whereas the Oracle ERP data is tightly controlled and well maintained.
- **Opportunity to Order**
  During the selling process, a salesperson tracks the status of a deal as it moves through the sales pipeline using the Salesforce.com opportunity object. When a deal closes, a new order must be created in the ERP system to initiate the invoicing and shipment processes. The current manual entry process must be replaced by an automated data transfer from Salsforce.com into the ERP system.

How to Use Integration Project

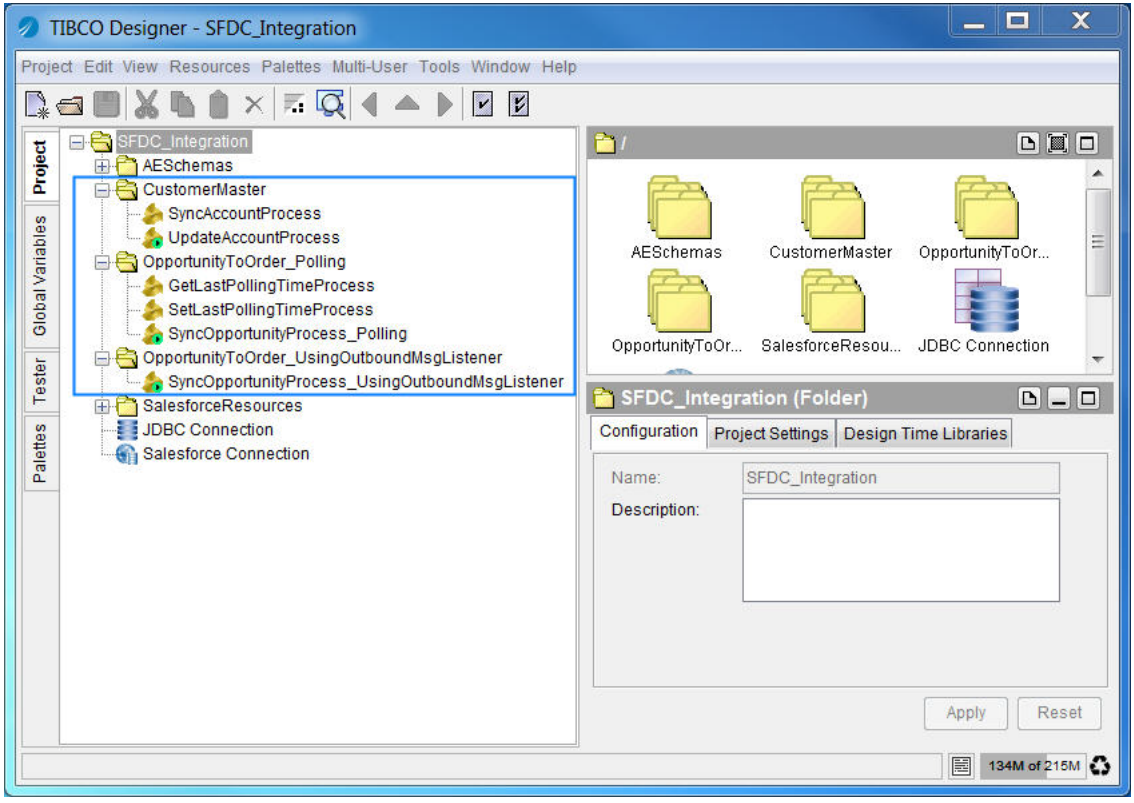
This sample application shows how to use a TIBCO ActiveMatrix BusinessWorks process to manipulate the TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com service.

To access the sample application, perform the followings steps:

1. Start TIBCO Designer, and then click **New empty project**. The Save Project dialog is displayed.
2. Click **Browse** and navigate to the project directory you created. Specify a name for the project and then click **OK**.

3. Click **Project** > **Import Full Project** from the menu, and then click **Browse** to navigate to the *SFDC_HOME*`\examples\IntegrationProject` folder. Select the DAT file you want to import and then click **OK**.
4. In the Import-Options dialog, click the **Replace existing global variables with those in import** and **Overwrite on name conflict** radio buttons, and then click **Apply**. See the section highlighted by the blue rectangle in Figure 19.

Figure 19 IntegrationProject in TIBCO Designer



5. Log on to the Salesforce.com website by using the new account information. Make sure that at least one product has been added to the price book, and this product has to be added as the line item for an opportunity whose state is `close won`.
6. Add a customized field named `ErpAccountId` in the account object on the Salesforce.com server.
7. If you want to run the `SyncOpporunityProcess_UsingOutboundMsgListener` process in TIBCO

Designer, create an outbound message on the Salesforce.com website. Make sure that the Endpoint URL is: `http://`*host:port/fullpath of the target BW process*. For example, the Endpoint URL is `http://192.168.0.1:8443/listengroup/listenprocess`, in which `listengroup` is the name of the directory in which the process is defined in a TIBCO Designer project and `listenprocess` is the name of the process.

If a Salesforce Outbound Message Listener activity is used in a process, the full path name of the process must be consistent with the one displayed in the Endpoint URL, which is used to configure the outbound message on the Salesforce.com website.

8. Generate an Outbound Message WSDL and configure the workflow rule to trigger the outbound message you just created.
9. Use the `CreateErpObjects.sql` file to build Oracle database tables and other necessary objects. `CreateErpObjects.sql` is available from the following directory:
   SFDC_HOME`\examples`

To run this sample application, a new user of Salesforce.com creates at least one product as the line item for an opportunity with the state of `close won`.

10. Change global variables if necessary in TIBCO Designer.
    - `db.username`: The user name of the ERP database.
    - `db.password`: The password of the ERP database related to the specified user name.
    - `salesforce.username`: The user name of the Salesforce.com server.
    - `salesforce.password`: The password of the Salesforce.com server related to the specified user name.
    - `BW_LastPollingTime_File`: The location of the file, in which the last polling time is recorded.
    - `BW_OpportunityStart_Time`: The time that the opportunities start to record. All opportunities occur before this time is ignored.
11. Configure the salesforce connection and the JDBC connection.
12. Test and run the processes in the sample application.

Customer Master

The Customer Master integration requires implementation of two unidirectional processes on the TIBCO ActiveMatrix BusinessWorks platform.

The first process, `SyncAccountProcess`, copies all accounts ready for promotion from the Salesforce.com server to the ERP system, writes back the **ERP Account ID** primary key field to the **ErpAccountId** field that has been created in the Salesforce.com account, and changes the account record type in the Salesforce.com server to the read-only `Integrated Account` type. This process is invoked from within the `Opportunity to Order` process as required.

The second process, `UpdateAccountProcess`, monitors accounts in the ERP system for changes and updates the Salesforce.com account accordingly.

SyncAccountProcess

The `SyncAccountProcess` process is shown in Figure 20.

Figure 20 SyncAccountProcess

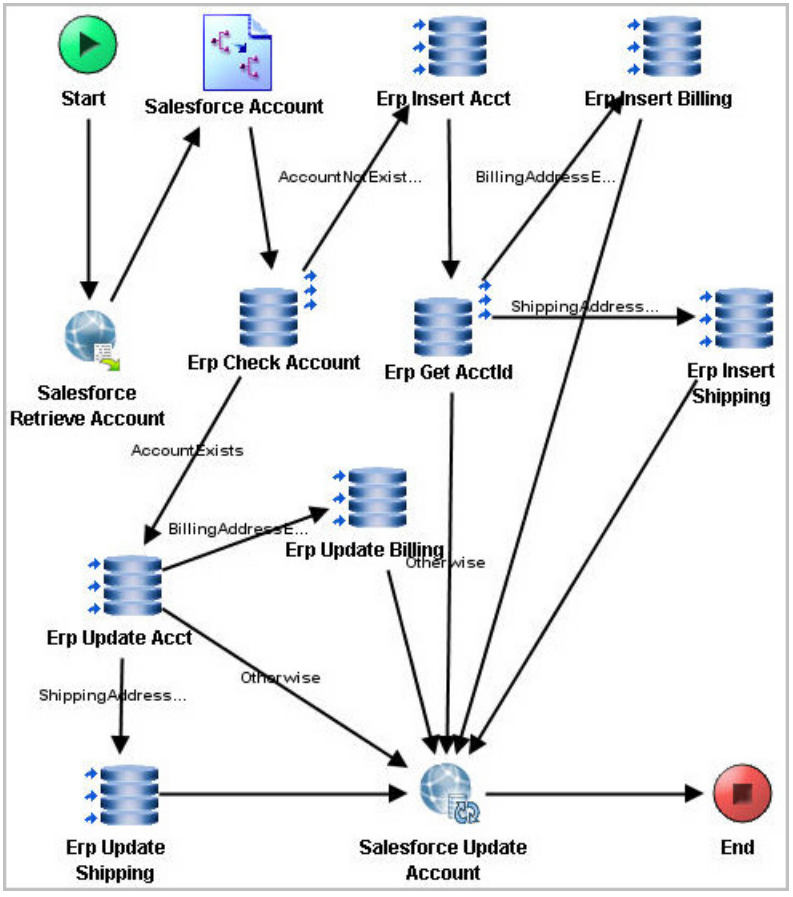


Table 37 lists and explains the activities in the process.

Table 37 SyncAccountProcess Activities

Activity	Description
Start	Starts the process.
Salesforce Retrieve Account	Salesforce Retrieve All activity. Retrieves a set of Salesforce.com Account sObjects by using the given sObject IDs.
Salesforce Account	Maps data from the Salesforce.com account to the ERP account.
Erp Check Account	Checks whether an account in the ERP_ACCT table with the same name as the account obtained from the Salesforce.com server.
Erp Update Acct	Updates the ERP_ACCT table when an account is found in the activity named `Erp Check Account`.
Erp Update Shipping	Updates the shipping information in the ERP_ADDR table after executing the activity named `Erp Update Acct`.
Erp Update Billing	Updates the billing information in the ERP_ADDR table after executing the activity named `Erp Update Acct`.
Erp Insert Acct	Creates an account in the ERP_ACCT table if an account is not found in the activity named `Erp Check Account`.
Erp Get AcctId	Obtains the Account ID from the ERP_ACCT table after executing the activity named `Erp Insert Acct`.
Erp Insert Shipping	Creates the shipping information in the ERP_ADDR table when required.
Erp Insert Billing	Creates the billing information in the ERP_ADDR table when required.
Salesforce Update Account	Salesforce Update All activity. Updates the **ACCT_ID** field value of the newly created records in the ERP_ACCT table to the **ErpAccountId** field value in the Salesforce.com account.
End	Ends the process.

UpdateAccountProcess

The `UpdateAccountProcess` process is shown in Figure 21.

Figure 21 UpdateAccountProces

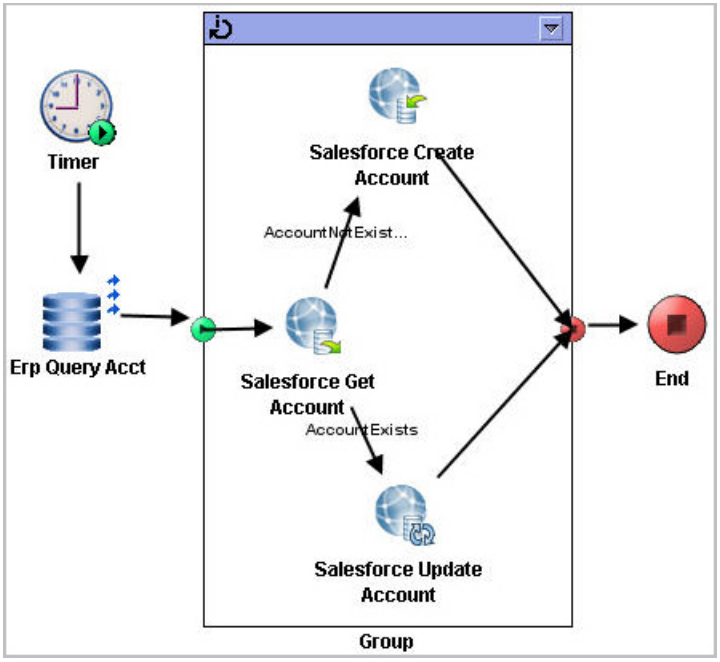


Table 38 lists and explains the activities in the process.

Table 38 UpdateAccountProcess Activities

Activity	Description
Timer	Starts the process.
Erp Query Acct	Obtains ERP accounts from the ERP_ACCT and ERP_ADDR tables.
Group	Repeats activities in the group.
Salesforce Get Account	Checks whether the ERP account exists in the Salesforce.com account.
Salesforce Create Account	If the ERP account does not exist in the Salesforce.com server, this activity creates a new account in the Salesforce.com server.
Salesforce Update Account	If the ERP account exists in the Salesforce.com server, this activity updates the account in the Salesforce.com server.
End	Ends the process.

Opportunity to Order - Polling

When a deal closes successfully, the owner of the Salesforce.com opportunity representing that deal changes its state to `Closed Won`. The `Opportunity to Order` process requires a process to be implemented on the BusinessWorks platform that will look for new closed opportunities on a regular basis and create a new order in the ERP system each time one is found. If the order account is not in the ERP system, the account record has to be migrated from the Salesforce.com CRM as well, according to the `Customer Master` process.

The process named `SyncOpportunityProcess_polling` takes the previous task in hand. Another two processes named `GetLastPollingTimeProcess` and `SetLastPollingTimeProcess` are called by the `SyncOpportunityProcess_Polling` process.

GetLastPollingTimeProcess

The `GetLastPollingTimeProcess` process is shown in Figure 22.

Figure 22 GetLastPollingTimeProcesss

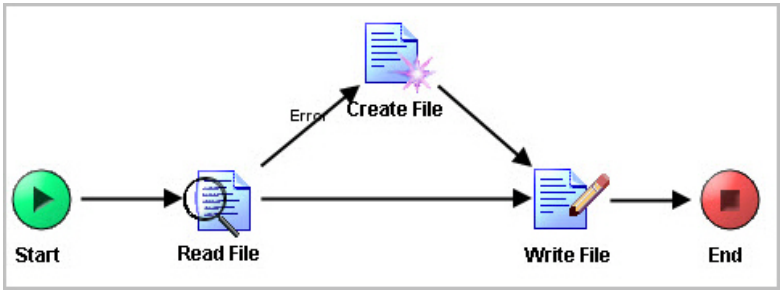


Table 39 lists and explains the activities in the process.

Table 39 GetLastPollingTimeProcess Activities

Activity	Description
Start	Starts the process.
Read File	Reads the file, in which the polling time is recorded.
Create File	Creates a file to record the polling time if such file does not exist before.
Write File	Adds a lock sign to the file, in which the polling time is recorded.
End	Ends the process. Returns the last polling time if it can be read from the file. Otherwise, returns the global variable `BW_OpportunityStart_Time`.

SetLastPollingTimeProcess

The `SetLastPollingTimeProcess` process is shown in Figure 23.

Figure 23 SetLastPollingTime Process

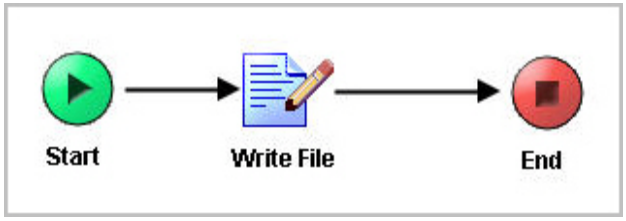


Table 40 lists and explains the activities in the process.

Table 40 SetLastPollingTimeProcess Activities

Activity	Description
Start	Starts the process. Retrieves an input variable as the current polling time.
Write File	Removes the lock sign from the file. Writes the current polling time in the file.
End	Ends the process.

SyncOpportunityProcess_Polling

The `SyncOpportunityProcess_Polling` process is shown in Figure 24.

Figure 24 SyncOpportunityProcess_Polling

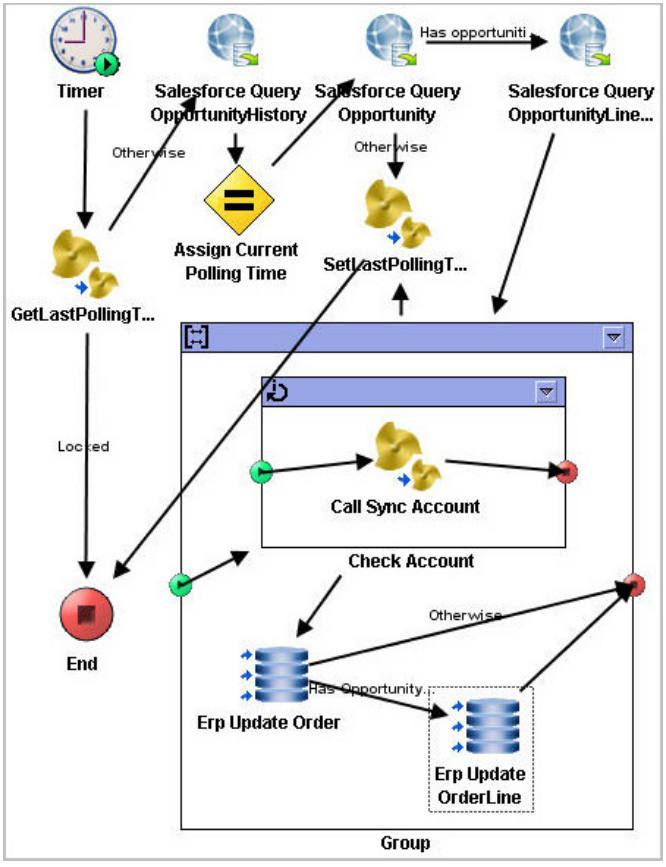


Table 41 lists and explains the activities in the process.

Table 41 SyncOpportunityProcess_Polling Activities

Activity	Description
Timer	Starts the process. You can use it to repeat the process.
Get Last Polling Time	Retrieves the last polling time and locks this process.

Salesforce Query OpportunityHistory	Salesforce Query All activity.
	Obtains the results of the opportunity history when the following conditions are met:
	`OpportunityHistory.State = 'Close Won'`
	`OpportunityHistory.CreateDate > the last polling time`

Table 41 SyncOpportunityProcess_Polling Activities (Cont'd)

Activity	Description
Assign Current Polling Time	Assigns the system date and time as the current polling time.

Salesforce Query Opportunity	Salesforce Query All activity.
	Obtains the results of the opportunities according to the following conditions:
	`Opportunity.Id in OpportunityHistory(Queried before).OpportunityId`
	`Opportunity.HasLineitem = true`

Salesforce Query OpportunityLineitem	Salesforce Query All activity. Obtains the results of the opportunity line items.
Set Last Polling Time	Sets the current polling time as the last polling time to the file and unlocks this process.
Transition Control	Group
Check Account	Calls `SyncAccount`Process shown in Figure 20 to check whether the account is synchronized between the Salesforce.com server and the ERP system.
Erp Update Order	Updates the ERP_ORDER table in the ERP system.
Erp Update Order Line	Updates the ERP_ORDERLINE table in the ERP system.
End	Ends the process.

Opportunity to Order - Using Outbound Message Listener

This process uses the Salesforce Outbound Message Listener activity to complete the same task as the task described in the Opportunity to Order - Polling section.

The process named `SyncOpportunityProcess_UsingOutboundMsgListener` takes the task in hand.

SyncOpportunityProcess_UsingOutboundMsgListener

The `SyncOpportunityProcess_UsingOutboundMsgListener` process is shown in Figure 25.

Figure 25 SyncOpportunityProcess_UsingOutboundMsgListener

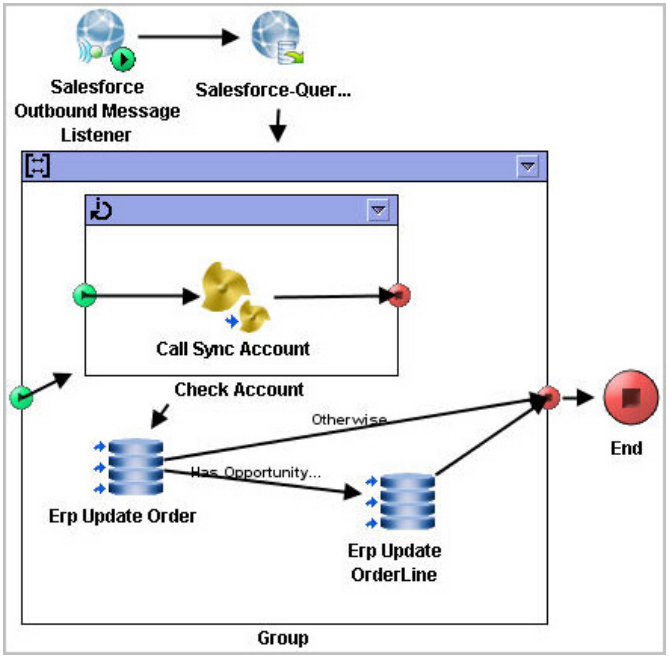


Table 42 lists and explains the activities in the process.

Table 42 SyncOpportunityProcess_UsingOutboundMsgListener Activities

Activity	Description
Salesforce Outbound Message Listener	Sets an Outbound Message Listener activity. You can use this activity to create a new job for processing the coming outbound message.
Salesforce Query OpportunityLineitem-1	Salesforce Query All activity. Obtains the results of the opportunity line items.
Transition Control	Group
Check Account	Calls the `SyncAccount` process, as shown in Figure 20, to check whether the account is synchronized between the Salesforce.com server and the ERP system.
Erp Update Order	Updates the ERP_ORDER table in the ERP system.
Erp Update Order Line	Updates the ERP_ORDERLINE table in the ERP system.
End	Ends the process.

Working with SOAP Activity Project

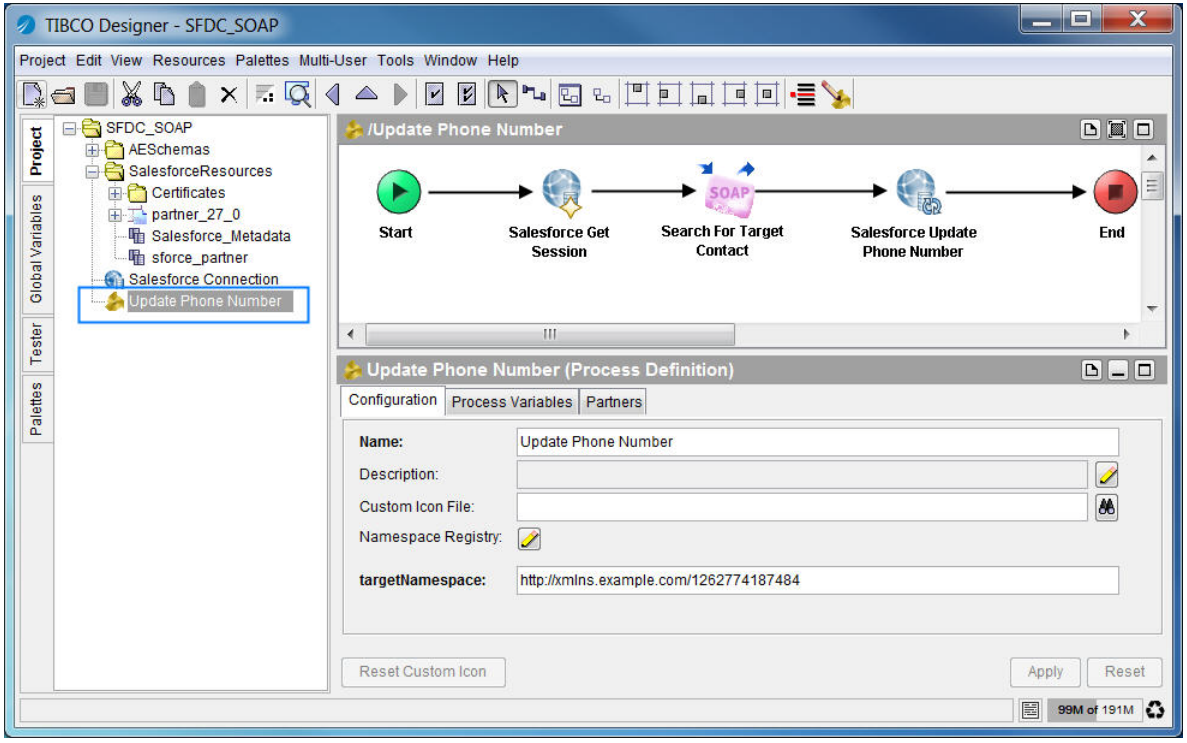
This sample application shows how to work with the SOAP activity in a TIBCO ActiveMatrix BusinessWorks process to manipulate the TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com service.

The sample process in the project updates the phone number in the specified Contact records. It searches the Contact records with a specified phone number from the Salesforce.com server by using the SOAP activity, and then updates those Contact records with the new phone number.

To access the sample application, perform the followings steps:

1. Start TIBCO Designer, and then click **New empty project**. The Save Project dialog is displayed.
2. Click **Browse** and navigate to the project directory you created. Specify a name for the project and then click **OK**.
3. Click **Project** > **Import Full Project** from the menu, and then click **Browse** to navigate to the *SFDC_HOME*`\examples\WorkWithSoapActivity` folder. Select the DAT file you want to import and then click **OK**.
4. In the Import-Options dialog, click the **Replace existing global variables with those in import** and **Overwrite on name conflict** radio buttons, and then click **Apply**. See the blue rectangle part in Figure 26.

Figure 26 WorkWithSoapActivity Project in TIBCO Designer



5. Log on to the Salesforce.com website by using the new account information. Make sure that at least one Contact record with the phone number `4159017000` used in the example process has been created.
6. Change global variables if necessary in TIBCO Designer.
   - `salesforce.username`: The user name of the Salesforce.com server.
   - `salesforce.password`: The password of the Salesforce.com server related to the specified user name.
7. Configure the Salesforce connection.
8. Test and run the processes in the sample application.

Update Phone Number

You can see the `Update Phone Number` process in Figure 26. Table 43 lists and explains the activities in the process.

Table 43 Update Phone Number Activities

Activity	Description
Start	Starts the process.
Salesforce Get Session	Obtains an existing session from the session pool that is related to the specified Salesforce connection.
Search For Target Contact	Searches the Contact records with the specified search string. This search operation has been defined in the Partner WSDL used in this sample project. When configuring a SOAP activity in a process, you might have to provide all SSL-related certificates. You can import the `Certificates` folder containing the certificates from the *SFDC_HOME*`\templates` directory. **Note:** For more information about the SSL configuration, see Chapter 16 in *TIBCO ActiveMatrix BusinessWorks Process Design.*
Salesforce Update Phone Number	Salesforce Update All activity. Updates the specified Contact records with the new phone number.
End	Ends the process.

Chapter 6 Miscellaneous

This chapter describes the property settings, the time zone construction, and other miscellaneous topics in TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

Topics

Properties Settings

This section explains the following property settings you might have to configure for the product, which are set in the configuration file. For more information about configuring the properties, see the *TIBCO ActiveMatrix BusinessWorks Administration* documentation.

When deploying the project, modify the definitions for log status settings, retrying function Settings, and proxy settings in the `bwengine.xml` file located in the *BW_HOME*`/lib/com/tibco/deployment` directory.

For detailed property settings information, see *TIBCO ActiveMatrix BusinessWorks Administration*.

Operating a Configuration File

When working with the TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com, you have to configure some properties for the product. Those properties are set in the configuration files.

- Change the contents in the configuration file when you configure and test the processes in TIBCO Designer.

  The default configuration file, `properties.cfg`, is available in *SFDC_HOME*`\templates`

  You can use the default configuration file or create your own configuration file, and then change the property lines in the configuration file if necessary.

  See Configuration Template of the properties.cfg File on page 130 to obtain the template of the default `properties.cfg` file.

- Change the contents in the TIBCO ActiveMatrix BusinessWorks configuration file before building the archive during the deployment. For detailed information about setting custom engine properties, see Chapter 8 in *TIBCO ActiveMatrix BusinessWorks Administration*.

  The default configuration file, `bwengine.xml`, is available in *BW_HOME*`\lib\com\tibco\deployment`

For contents related to TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com configuration, see Configuration Template of the bwengine.xml File on page 131.

During the deployment of the product, if the TIBCO ActiveMatrix BusinessWorks version selected here is other than the one you selected during the installation, you have to check the contents of the corresponding `bwengine.xml` file and make changes, if necessary.

The following comments at the beginning and end of the default `bwengine.xml` file must not be modified:

```
<!--startBWSalesForcePluginProperties-->
<!--endBWSalesForcePluginProperties-->
```

If you do not want to use the default configuration file, you can create your own configuration file for TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

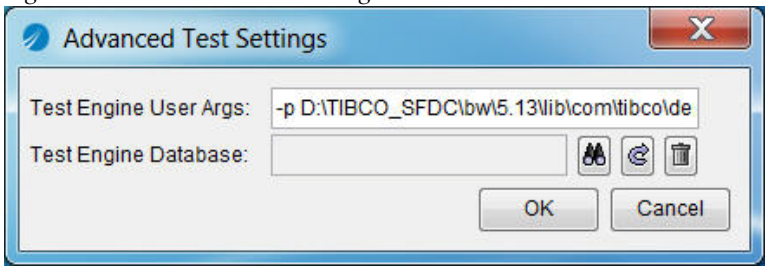
To operate a configuration file, perform the following steps:

1. Create a configuration file with the extension `.cfg`.
2. Copy and modify the property lines from the default configuration file `properties.cfg` to your `.cfg` file.
3. Specify a location to save your `.cfg` file.
4. Start TIBCO Designer, click **Tools > Tester > Start** from the menu bar when testing your process instance in the Tester panel. The Select Processes to Load dialog is displayed.
5. Click **Advanced**, and the Advanced Test Settings dialog is displayed. See Figure 27.

   Type `-p` *File_Location* in the **Test Engine User Args** field to finish the log status settings.

   Where, *File_Location* is the full path of the `.cfg` file specified in step 3.

Figure 27 Advanced Test Settings



Log Status Settings

Before running TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com, you have to write the following lines in your configuration file (`.cfg` file) to set the log status.

```
Trace.Info.*=true
Trace.Error.*=true
Trace.Warn.*=true
com.tibco.plugin.salesforce.debug=false
```

Table 44 Log Parameters

Property	Component	Description
`Trace.Info.*`	TIBCO ActiveMatrix BusinessWorks	Whether the general information is shown (`true`) or not (`false`) when running the application. The default value is `true`.
`Trace.Error.*`	TIBCO ActiveMatrix BusinessWorks	Whether the error message is shown (`true`) or not (`false`) when running the application. The default value is `true`.
`Trace.Warn.*`	TIBCO ActiveMatrix BusinessWorks	Whether the warning message is shown (`true`) or not (`false`) when running the application. The default value is `true`.
`com.tibco.plugin.salesforce.debug`	TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com	Whether the debug information is shown (`true`) or not (`false`) during running the application. The default value is `false`.

`Trace.Info.*`, `Trace.Error.*`, and `Trace.Warn.*` are three general properties in TIBCO ActiveMatrix BusinessWorks. They are not added in the default `bwengine.xml` configuration file. If you want to change the log levels, you have to manually add them to the file. For more details, see Changing Log Levels in the bwengine.xml File on page 134.

Retrying Function Setting

The retrying function is triggered when you retry connecting to the Salesforce.com server with the Salesforce Configuration resource in TIBCO BusinessWorks Salesforce.com Plug-in. The retrying function is also triggered when you retry the actions in the Salesforce activities which are introduced in Chapter 3, Salesforce Palette, such as the Salesforce Query All activity, the Salesforce Create All activity, and so on.

When you retry actions in the Salesforce activities, you have to write the following two property lines in your configuration file.

```
com.tibco.plugin.salesforce.retry.rotationPolicy=2,5,20
com.tibco.plugin.salesforce.retry.rotationNumber=1
```

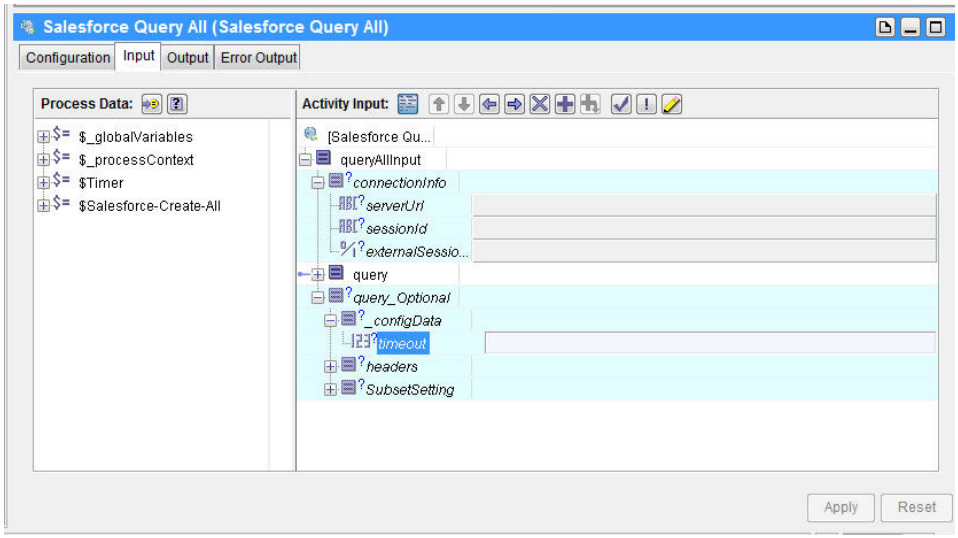
Table 45 Retrying Function Settings

Property	Description
`com.tibco.plugin.salesforce.retry.rotationPolicy`	This property is used to set a time interval between each two retrying operations. It is applied on both Salesforce activities and the Salesforce Get Session activity. The default value in seconds is `2, 5, 20`. If using this default value in a process, retrying operation will be triggered three times. The activity will wait for 2 seconds before the first retrying, 5 seconds before the second retrying, and 20 seconds for the third retrying.
`com.tibco.plugin.salesforce.retry.rotationNumber`	The property is used to set how many times the process defined in the `com.tibco.plugin.salesforce.retry.rotationPolicy` property will be executed.
`com.tibco.plugin.salesforce.update.continueOnError`	This property is used to identify, if the Update or Upsert activities should continue processing records when one or more records in a batch fail. By default the property is set to `true`. If you set the property to `false`, no more records will be processed.

Default Timeout Value Setting

When configuring the Salesforce activity used in a process, you have to set the timeout value for the activity. The timeout value specifies the number of milliseconds an internal API call waits before it is terminated. For example, for a Salesforce Query All activity, you have to set the timeout value as shown in Figure 28.

Figure 28 Setting the Timeout Value



To conveniently configure the timeout value for the Salesforce activities running in TIBCO Designer, you can write the following property line in your configuration (`.cfg`) file.

```
com.tibco.plugin.salesforce.invoke.timeout=15000
```

You can change the timeout value in the previous line. This value is the default timeout value for each Salesforce activity.

In TIBCO Designer,

- If the timeout value in your `.cfg` file is not set, the process retrieves the default timeout value from the `.cfg` file.
- If the timeout value in your `.cfg` file is set, it overrides the default timeout value written in the `.cfg` file.

Table 46 Default Timeout Value Setting

Property	Description
`com.tibco.plugin.salesforce. invoke.timeout`	This property is used to set the default timeout value for Salesforce activities. The default value in milliseconds is `15000`.

Proxy Settings

When using a proxy, you have to operate proxy settings at design time or run time.

Two groups of proxy properties, the Plug-in HTTP proxy properties and the JAVA HTTP proxy properties, are provided in TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com.

Proxy Setting at Design Time

At design time, you can set the values for the following proxy settings in the TIBCO Designer TRA file that is available in *TIBCO_HOME*\designer*version_number*\bin\

Table 47 Proxy Settings

Group	Property	Description
Plug-in HTTP Proxy Properties	java.property.com.tibco.plugin.salesforce.proxyHost	Required. The proxy host name or its IP address.
	java.property.com.tibco.plugin.salesforce.proxyPort	Required. The port on which the proxy service is listening.
	java.property.com.tibco.plugin.salesforce.proxyUser	Optional. The user name for logging on to the proxy server.
	java.property.com.tibco.plugin.salesforce.proxyPwd	Optional. The password for logging on to the proxy server.
	java.property.com.tibco.plugin.salesforce.proxyTimeout	Optional. The timeout value in minutes for an HTTP call. This property is to help avoid long wait times when attempting to retry through a proxy.

Table 47 Proxy Settings (Cont'd)

Group	Property	Description
JAVA HTTP Proxy Properties	`java.property.http.proxyHost`	Required. The proxy host name or its IP address.
	`java.property.http.proxyPort`	Required. The port on which the proxy service is listening.
	`java.property.http.proxyUser`	Optional. The user name for logging on to the proxy server.
	`java.property.http.proxyPassword`	Optional. The password for logging on to the proxy server.
	`java.property.http.timeout`	Optional. The timeout value in minutes for an HTTP call. This property is to help avoid long wait times when attempting to retry through a proxy.

The Plug-in HTTP proxy properties are newly created. You can choose either the Plug-in HTTP proxy properties or the JAVA HTTP proxy properties during the design time.

For example, you can set the value for each parameter using the Plug-in HTTP proxy properties:

```
java.property.com.tibco.plugin.salesforce.proxyHost=192.168.0.1
java.property.com.tibco.plugin.salesforce.proxyPort=8080
java.property.com.tibco.plugin.salesforce.proxyUser=username
java.property.com.tibco.plugin.salesforce.proxyPwd=password
java.property.com.tibco.plugin.salesforce.proxyTimeout=3
```

If some optional properties are not required for a customer's use case, for example, the confidential information is not required for logging on to the proxy server, then the related properties are not required to be written in the TRA file.

For example:

```
java.property.com.tibco.plugin.salesforce.proxyHost=192.168.0.1
java.property.com.tibco.plugin.salesforce.proxyPort=8080
java.property.com.tibco.plugin.salesforce.proxyTimeout=3
```

Proxy Settings at Run Time

At run time, you can set the values for the proxy settings in the `bwengine.xml` file that is available in *BW_HOME*`\lib\com\tibco\deployment`.

Table 48 Runtime Proxy Settings

Group	Property	Description
Plug-in HTTP Proxy properties	`com.tibco.plugin.salesforce.proxyHost`	Required. The proxy host name or its IP address.
	`com.tibco.plugin.salesforce.proxyPort`	Required. The port on which the proxy service is listening.
	`com.tibco.plugin.salesforce.proxyUser`	Optional. The user name for logging on to the proxy server.
	`com.tibco.plugin.salesforce.proxyPwd`	Optional. The password for logging on to the proxy server.
	`com.tibco.plugin.salesforce.proxyTimeout`	Optional. The timeout value in minutes for an HTTP call. This property is to help avoid long wait times when attempting to retry through a proxy.
JAVA HTTP Proxy properties	`java.property.http.proxyHost`	Required. The proxy host name or its IP address.
	`java.property.http.proxyPort`	Required. The port on which the proxy service is listening.
	`java.property.http.proxyUser`	Optional. The user name for logging on to the proxy server.
	`java.property.http.proxyPassword`	Optional. The password for logging on to the proxy server.
	`java.property.http.timeout`	Optional. The timeout value in minutes for an HTTP call. This property is to help avoid long wait times when attempting to retry through a proxy.

The Plug-in HTTP proxy properties are newly created and are the default for the runtime proxy settings. The JAVA HTTP proxy properties are commented in the default `bwengine.xml` file. For backward compatibility in standalone, if you want to run projects created in the previous Plug-in release version without modifying the proxy settings, you can open the JAVA HTTP proxy properties, and comment the Plug-in HTTP proxy properties.

In standalone, you can use either the Plug-in HTTP proxy properties or the JAVA HTTP proxy properties to deploy projects in TIBCO Administrator.

Processing the Time Zone Information

TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com contains three data types for defining the date or time data: `date`, `dateTime`, and `time`. Time zone information can be added to the `dateTime` and `time` data. Table 49 gives detailed information.

Table 49 Data Types for The Date or Time Data

Data Type	Data Format	Example	Description
date	*yyyy-MM-dd*	`2009-01-31`	Greenwich Mean Time (GMT) date. **Note:** If you add the time zone information in the `date` data, TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com accepts it, but the time zone portion cannot be processed. For example, if the `date` data is `2009-01-31+08:00`, it is truncated to `2009-01-31`.

dateTime	*yyyy-MM-dd*`T`*HH:mm:ss*
	or
	yyyy-MM-dd`T`*HH:mm:ss*`Z`
		`2009-01-31T16:16:16`
		or
		`2009-01-31T16:16:16Z`
			GMT datetime.

	yyyy-MM-dd`T`*HH:mm:ss+hh:mm* or *yyyy-MM-dd*`T`*HH:mm:ss-hh:mm*	`2009-01-31T16:16:16+08:00` or `2009-01-31T16:16:16-08:00`	The datetime data with the specified time zone.

time	*HH:mm:ss*
	or
	HH:mm:ss`Z`
		`16:16:16`
		or
		`16:16:16Z`
			GMT time.

	HH:mm:ss+hh:mm
	or
	HH:mm:ss-hh:mm
		`16:16:16+08:00`
		or
		`16:16:16-08:00`
			The time data with the specified time zone.

Processing 16 Digits Numeric Data

You can input numeric data of a length greater than 16 digits in the Salesforce.com database.

For an application that is written in the JAVA language, data with a length greater than 16 digits is defined as the double type and its precision is changed in the application.

TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com is implemented using the JAVA language. When data with a length greater than 16 digits is processed between the plug-in and the Salesforce.com database, you might encounter the following situations:

- If the data is retrieved from the Salesforce.com database, the precision is rounded to 16 digits in the plug-in.

  Affected Salesforce activities are Salesforce Query All, Salesforce Retrieve All, and Salesforce Outbound Message Listener.

- If the data has to be sent to the Salesforce.com database, the precision is rounded to 16 digits before being sent.

  Affected Salesforce activities are Salesforce Create All, Salesforce Update All, and Salesforce Upsert All.

Appendix A Trace Messages

This appendix lists the trace messages that are logged to a location specified at configuration time.

Topics

Overview of Trace Messages

Trace messages provide information about plug-in activities. The messages are logged to the console where the runtime plug-in is started.

Introduction to Trace Message Roles

The roles of trace messages in TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com are shown in Table 50.

Table 50 Trace Message Roles

Role Name	Description
Info	Indicates normal plug-in operation. No action is necessary. A trace message tagged with Info. indicates that a significant processing step is reached and logged for tracking or auditing purposes. Only info. messages preceding a tracking identifier are considered significant steps.
Warn	An abnormal condition is found. Processing continues, but it is good practice for an administrator to pay special attention.
Error	An unrecoverable error occurs. Depending on the error severity, the plug-in might continue with the next operation or stop.
Debug	A developer-defined trace message. In normal operating conditions, debug messages do not have to be displayed.

Status Messages

In an environment where multiple applications are used simultaneously, the possible status of messages increases as well. This section lists the various messages in numerical order.

Resolutions are provided wherever possible for error and warning messages. If no resolution is provided here, or if you want additional help, contact TIBCO Support at https://support.tibco.com.

Message	Role	Category	Resolution
BW-Salesforce-100001: Cannot find shared Salesforce configuration: %1			
	errorRole	BW-Plugin	Check the configuration of the Salesforce connection and reconfigure it.
BW-Salesforce-100002: Error occurred while logging in: %1			
	errorRole	BW-Plugin	Check whether the network is connected and the user name and password are correct.
BW-Salesforce-100003: FatalException: Failed to execute the operation after retrying [%1] time(s)			
	errorRole	BW-Plugin	Check the network configuration.
BW-Salesforce-100004: OperationException: Failed to execute the operation. Please check the input configuration. %1 Detailed information: [%2] Other information: [%3]			
	errorRole	BW-Plugin	Check the input configuration.
BW-Salesforce-100005: FatalException: Failed to renew the session in %1 activity			
	errorRole	BW-Plugin	Check the input of the **salesforceConnection** field.
BW-Salesforce-100006: Exception occurred while executing the operation. Exception type: [%1] Exception message: [%2] Exception detail: [%3] Other information: [%4]			
	errorRole	BW-Plugin	
BW-Salesforce-100007: Network problem occurred. The server is currently unavailable or the session has timed out			

Message	Role	Category	Resolution (Cont'd)
	errorRole	BW-Plugin	Check the network configuration.
BW-Salesforce-100008: The [%1] operation is temporarily unavailable			
	errorRole	BW-Plugin	Contact Salesforce.com support.
BW-Salesforce-100009: Unrecoverable error occurred while executing the [%1] operation			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100010: Unrecoverable error occurred while inputting the invalid data for the [%1] activity. Please check the input configuration of the activity			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100011: ConnectionException: Failed to execute the operation			
	errorRole	BW-Plugin	Check the network configuration.
BW-Salesforce-100012: The detailed information about this unknown exception: StackTrace: { %1 } Exception Message: [%2]. FullClass [%3]			
	errorRole	BW-Plugin	Check the input configuration of the activity or contact TIBCO support.
BW-Salesforce-100013: Data was not returned in limited operation time while executing [%1] operation			
	errorRole	BW-Plugin	Change the timeout value or check the connection of the network.
BW-Salesforce-100014: Application exception occurred while handling an error			
	errorRole	BW-Plugin	Check the input configuration of the activity or contact TIBCO support.
BW-Salesforce-100015: FatalException: Invalid session error occurred. Since an external seesion ID was used, the refreshing session mechanism cannot be performed. The external session ID is [%1]			
	errorRole	BW-Plugin	Make sure the external session ID is valid.
BW-Salesforce-100016: ApplicationException: The operation failed. %1 Detailed information: [%2]. Other information: [%3]			

Message	Role	Category	Resolution (Cont'd)
	errorRole	BW-Plugin	Check the input configuration of the activity or contact TIBCO support.
BW-Salesforce-100017: UnknownException: The operation failed. %1			
	errorRole	BW-Plugin	Check the input configuration of the activity or contact TIBCO support.
BW-Salesforce-100018: ConnectionException: The operation was failed %1 Detailed information: [%2] Other information: [%3]			
	errorRole	BW-Plugin	Check the network connection.
BW-Salesforce-100019: TimeoutException: The timeout value is [%1]. Exception Message: [%2]			
	errorRole	BW-Plugin	Change the timeout value or check the connection of the network.
BW-Salesforce-100020: The provided certification is invalid or the selected encryption strength may not match your policy file			
	errorRole	BW-Plugin	Make sure the `Salesforce Resources` folder has been imported and Java Cryptography Extension (JCE) has been installed.
BW-Salesforce-100021: ApplicationException: the required field [%1] is empty, please assign a valid value			
	errorRole	BW-Plugin	Make sure that a valid value is assigned in the required field.
BW-Salesforce-100022: OperationException: The returned sObject contained an error. statusCode: [%1] message: [%2] sObject ID in the returned data: [%3] fields: [%4] the sObject ID in the input: [%5]			
	errorRole	BW-Plugin	Check the input configuration of sObjects.
BW-Salesforce-100023: The operation can not be continued because some unrecoverable errors occurred. statusCode: [%1] message: [%2] Please check the error message that was generated from the activity output			
	errorRole	BW-Plugin	Check the error message that was generated from the activity output.

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-100024: OperationException: The returned sObject contains an error . statusCode: [%1] message: [%2] sObject ID in the returned data: [%3] fields: [%4]			
	errorRole	BW-Plugin	Check the input configuration of sObjects.
BW-Salesforce-100025: OperationException: the returned sObject has an error. statusCode: [%1]. message: [%2]. sObject id in the returned data: [%3]. fields: [%4]. value assigned for externalIDFieldName: [%5]			
	errorRole	BW-Plugin	Check the input configuration of sObjects.
BW-Salesforce-100026: Error occurred while executing the Salesforce SOAP method: The method is [%1], details - [%2]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100027: Could not find the WSDL file. Please select Tools -> Salesforce WSDL to import the WSDL file			
	errorRole	BW-Plugin	Click **Tools** > **Salesforce WSDL** to import a desired WSDL file.
BW-Salesforce-100028: Failed to retry the operation [%1]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100029: Failed to retry the operation in a rotation			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100030: Unrecoverable errors returned with the records. Please find the information of the related records in the log			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100031: The required field 'externaIIdFieldName' was empty. Could not do retrying for the Create All			
	errorRole	BW-Plugin	Fill in the value in the **externalIdFieldName** field.
BW-Salesforce-100032: Failed to retry the operation for all [%1] rotation(s)			
	errorRole	BW-Plugin	Check the input configuration of the activity.

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-100033: Error was kept in the returned sObject. The index number in the batch: [%1], statusCode: [%2], message: [%3], sObject ID in the returned data (if available): [%4], fields (if available): [%5]			
	errorRole	BW-Plugin	Check the error message that was generated from the activity output.
BW-Salesforce-100034: Error occurred on the Outbound Message Listener: [%1]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100035: Unrecoverable error was kept in the returned sObject. The index number in the batch: [%1], statusCode: [%2], message: [%3], sObject ID in the returned data (if available): [%4], fields (if available): [%5]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100036: Recoverable error was kept in the returned sObject. The index number in the batch: [%1], statusCode: [%2], message: [%3], sObject ID in the returned data (if available): [%4], fields (if available): [%5]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100037: Common error was kept in the returned sObject. The index number in the batch: [%1], statusCode: [%2], message: [%3], sObject ID in the returned data (if available): [%4], fields (if available): [%5]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100038: The operation failed. Error message: [%1]			
	errorRole	BW-Plugin	Check the input configuration of the activity.
BW-Salesforce-100039: Could not find an available session for the operation [%1]. Please check the configuration of the Salesforce Connection			
	errorRole	BW-Plugin	Check the configuration of the Salesforce connection.
BW-Salesforce-100040: The WSDL was NOT specified			
	errorRole	BW-Plugin	Configure an Outbound Message WSDL generated from the Salesforce.com server.
BW-Salesforce-100041: The Keystore File was NOT specified			

Message	Role	Category	Resolution (Cont'd)
	errorRole	BW-Plugin	Configure a Keystore file.
BW-Salesforce-100042: The Trusted Certificates Folder was NOT specified			
	errorRole	BW-Plugin	Configure a Trusted Certificates folder.
BW-Salesforce-100043: Cannot find any leaf certificate in the specified Trusted Certificates Folder [%1]			
	errorRole	BW-Plugin	Add the leaf certificate into the certificates folder to compose a trusted certificate chain.
BW-Salesforce-100044: Cannot authenticate the client. Please check the configured trusted certificates			
	errorRole	BW-Plugin	Check the configured trusted certificates.
BW-Salesforce-100045: No leaf certificate available in the incoming HTTP message			
	errorRole	BW-Plugin	Make sure that the leaf certificate has been added.
BW-Salesforce-100046: No leaf certificate CN generated during design-time for Client Authentication			
	errorRole	BW-Plugin	Make sure that the leaf certificate in the Trusted Certificates folder is available.
BW-Salesforce-100047: No CN available in the incoming HTTP message			
	errorRole	BW-Plugin	Make sure the leaf certificate is available.
BW-Salesforce-100048: Client Authentication failed. The following CN(s) is/are generated from the design-time configured leaf certificates: [%1]. The follow CN(s) is/are generated from the incoming HTTP message: [%2]			
	errorRole	BW-Plugin	Make sure that the leaf certificate provided is correct.
BW-Salesforce-100049: No ContentType is defined in the incoming HTTP message, so the message cannot be processed for Client Authentication			
	errorRole	BW-Plugin	
BW-Salesforce-100050: The incoming HTTP message is invalid for Client Authentication			

Message	Role	Category	Resolution (Cont'd)
	errorRole	BW-Plugin	
BW-Salesforce-100051: The defined process name [%1] is not consistent with the one set in the WSDL. The full address defined in the WSDL is [%2]			
	errorRole	BW-Plugin	Make sure that the path of the process is consistent with the path that is displayed in the Endpoint URL.
BW-Salesforce-100052: Cannot find a target server. The address in the incoming message is [%1]			
	errorRole	BW-Plugin	Check the EndPoint URL and make sure it is correct.
BW-Salesforce-200001: The session for User %1 timed out. Old sessionId is [%2]			
	infoRole	BW-Plugin	
BW-Salesforce-200002: The session for User %1 was refreshed. Old sessionId is [%2]			
	infoRole	BW-Plugin	
BW-Salesforce-200003: User %1 is logging in...			
	infoRole	BW-Plugin	
BW-Salesforce-200004: This is the %2 time(s) during the rotation %3 for user %1 trying to login			
	infoRole	BW-Plugin	
BW-Salesforce-200005: Login failed for User %1			
	infoRole	BW-Plugin	
BW-Salesforce-200006: Login succeeded for User %1. SessionId is [%2]			
	infoRole	BW-Plugin	
BW-Salesforce-200007: Get session for User %1 immediately. SessionId is [%2]			
	infoRole	BW-Plugin	
BW-Salesforce-200008: Mechanism Retry of Getting Session makes User %1 to sleep for %2 seconds			
	infoRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200009: Request SOAP Message Sent:\n%1			
	infoRole	BW-Plugin	
BW-Salesforce-200010: Response SOAP Message Received:\n%1			
	infoRole	BW-Plugin	
BW-Salesforce-200011: Start to operate %1. Process Id: [%2]. Engine Name: [%3]			
	infoRole	BW-Plugin	
BW-Salesforce-200012: Renewed session in %1 activity			
	infoRole	BW-Plugin	
BW-Salesforce-200013: Ready to execute the operation [%1]...			
	infoRole	BW-Plugin	
BW-Salesforce-200014: Ready to execute the operation [%1]. The related input count is [%2]...			
	infoRole	BW-Plugin	
BW-Salesforce-200015: Got the returned data of the operation [%1]. The related sObject(s) count is [%2]			
	infoRole	BW-Plugin	
BW-Salesforce-200016: Finished the [%1] operation execution			
	infoRole	BW-Plugin	
BW-Salesforce-200017: Entered the error generating process. The StackTrace: { %1 } Message: [%2]. FullClass: [%3]. ProcessStack: { %4 }. Data String: [%5]			
	debugRole	BW-Plugin	
BW-Salesforce-200018: End of the error generating process. ExceptionCode: [%1]. internalFaultcode: [%2]. ExceptionType: [%3]. ExceptionMsg: [%4]. DetaildInfo: [%5]			
	debugRole	BW-Plugin	
BW-Salesforce-200019: Detailed information for handling an Application Exception: [%1]			
	debugRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200020: Detailed information for executing the Create/Upsert operation: serverUrl: [%1]. sessionId: [%2]. isCreate: [%3]. externalIDFieldName: [%4]	debugRole	BW-Plugin	
BW-Salesforce-200021: Detailed information of the input data: Type: [%1]. Id: [%2]. otherData: [%3]	debugRole	BW-Plugin	
BW-Salesforce-200022: End of executing [%1]. Process Id: [%2]. Engine Name: [%3]	infoRole	BW-Plugin	
BW-Salesforce-200023: Trying to refresh the session...	infoRole	BW-Plugin	
BW-Salesforce-200024: Refreshed the session. Be ready to retry the operation...	infoRole	BW-Plugin	
BW-Salesforce-200025: The batchSize was not assigned with a valid value. It will be given a default value	warnRole	BW-Plugin	
BW-Salesforce-200026: A new operation batch will be performed. Batch size: [%1]	infoRole	BW-Plugin	
BW-Salesforce-200027: End of executing a batch of sObject(s). The related sObject(s) count is: [%1]	infoRole	BW-Plugin	
BW-Salesforce-200028: Retry to execute the [%1] operation after [%2] milliseconds	infoRole	BW-Plugin	
BW-Salesforce-200029: Retry to execute the [%1] operation immediately	infoRole	BW-Plugin	
BW-Salesforce-200030: Detailed information for executing the Delete operation: serverUrl: [%1]. sessionId: [%2]. count of the input IDs: [%3]			

Message	Role	Category	Resolution (Cont'd)
	debugRole	BW-Plugin	
BW-Salesforce-200031: Detailed information for executing the Query/QueryMore operation: serverUrl: [%1]. sessionId: [%2]. queryString: [%3]. queryLocator: [%4]			
	debugRole	BW-Plugin	
BW-Salesforce-200032: Be ready to execute the operation [Query], the query string is [%1]...			
	infoRole	BW-Plugin	
BW-Salesforce-200033: Be ready to execute the operation [QueryMore], the query locator is [%1]...			
	infoRole	BW-Plugin	
BW-Salesforce-200034: The input of 'salesforceConnection' is empty. The operation can not be retried when an invalid session exception occurred			
	warnRole	BW-Plugin	
BW-Salesforce-200035: All the data has been returned from the server. The count of the returned sObject(s) is: [%1]			
	infoRole	BW-Plugin	
BW-Salesforce-200036: All the data has not been returned yet from the server. Be ready to process the next subset...			
	infoRole	BW-Plugin	
BW-Salesforce-200037: Set the shared variable for processing the next subset. firstQuery: [%1]. queryMoreLocation: [%2]. sessionRenewed: [%3]. salesforceConnection: [%4]			
	debugRole	BW-Plugin	
BW-Salesforce-200038: The session has been renewed. Set the shared variable for processing the next subset. serverUrl: [%1]. sessionId: [%2]			
	debugRole	BW-Plugin	
BW-Salesforce-200039: The shared variable used by subsets has been refreshed			
	debugRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200040: Detailed information for executing the Update operation: serverUrl: [%1]. sessionId: [%2]. count of the input sObject(s): [%3]	debugRole	BW-Plugin	
BW-Salesforce-200041: Detailed information for executing the Upsert operation: serverUrl: [%1]. sessionId: [%2]. externalIdFieldName: [%3]	debugRole	BW-Plugin	
BW-Salesforce-200042: The operation [%1] returned [%2] results, including [%3] results with errors	infoRole	BW-Plugin	
BW-Salesforce-200043: No Information	infoRole	BW-Plugin	
BW-Salesforce-200044: The configured BatchSize is [%1] that will be fixed to the minimum (200)or maximum (2000) BatchSize	warnRole	BW-Plugin	
BW-Salesforce-200045: The configured SubsetSize is [%1] that will be fixed to the minimum (1)or maximum (10) SubsetSize	warnRole	BW-Plugin	
BW-Salesforce-200046: Processing in subsets. Batch size is [%1], subset size is [%2]	infoRole	BW-Plugin	
BW-Salesforce-200047: The configured BatchSize for [%1] operation is [%2] that will be fixed to the minimum (200) or maximum (2000) BatchSize	warnRole	BW-Plugin	
BW-Salesforce-200048: The configured SubsetSize for [%1] operation is [%2] that will be fixed to the minimum (1) or maximum (10) SubsetSize	warnRole	BW-Plugin	
BW-Salesforce-200049: The configured BatchSize is [%1]	infoRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200050: Be ready to process the operation in subsets for [%1] activity. The configured BatchSize is [%2], and the SubsetSize is [%3]	infoRole	BW-Plugin	
BW-Salesforce-200051: The end of the [%1] activity	infoRole	BW-Plugin	
BW-Salesforce-200052: Retry to execute the [%1] operation in [%2] seconds	infoRole	BW-Plugin	
BW-Salesforce-200053: This is the [%2] time(s) during the rotation [%3] for trying [%1] operation	infoRole	BW-Plugin	
BW-Salesforce-200054: Processing in subsets is finished for [%1] activity	infoRole	BW-Plugin	
BW-Salesforce-200055: Be ready to process the operation for [%1] activity	warnRole	BW-Plugin	
BW-Salesforce-200056: Processing the operation is finished for [%1] activity	infoRole	BW-Plugin	
BW-Salesforce-200057: Recoverable errors returned with the records. Please find the information of the related records in the log	infoRole	BW-Plugin	
BW-Salesforce-200058: ----------	infoRole	BW-Plugin	
BW-Salesforce-200059: The [%1] activity ends up with the error(s)	warnRole	BW-Plugin	
BW-Salesforce-200060: No error information is available in the returned data	warnRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200061: The results have been returned successfully. There is no error in the returned data	infoRole	BW-Plugin	
BW-Salesforce-200062: End of executing a batch of the operation for [%1] activity. [%2] sObject(s) have been returned	infoRole	BW-Plugin	
BW-Salesforce-200063: End of executing a batch of operation for activity [%1], but no sObject returned	warnRole	BW-Plugin	
BW-Salesforce-200064: Salesforce Outbound Message Listener on [%1] was initialized successfully	infoRole	BW-Plugin	
BW-Salesforce-200065: No input data under the node [%1] at the run-time for activity [%2] is available. An empty result will be returned directly	warnRole	BW-Plugin	
BW-Salesforce-200066: The operation name has been changed from [%1] to [%2]	debugRole	BW-Plugin	
BW-Salesforce-200067: The session refreshing operation could not be performed since the external session configuration has been used	warnRole	BW-Plugin	
BW-Salesforce-200068: The Salesforce Outbound Message Listener on [%1] received a message	infoRole	BW-Plugin	
BW-Salesforce-200069: The Salesforce Outbound Message Listener on [%1] sent an Ack: [%2]	infoRole	BW-Plugin	
BW-Salesforce-200070: The Salesforce Outbound Message Listener on [%1] enabled SSL. The Keystore File [%2] was used	infoRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200071: The Salesforce Outbound Message Listener on [%1] required Client Authentication. The Trusted Certificates Folder [%2] was used	infoRole	BW-Plugin	
BW-Salesforce-200072: Be ready to execute the operation [QueryMore] if any nested sObject exists...	infoRole	BW-Plugin	
BW-Salesforce-200073: Be ready to execute the operation [QueryMore] for the node [%2] with the query locator [%1]...	infoRole	BW-Plugin	
BW-Salesforce-200074: End of executing a batch of operation for the node [%2] of [%1] activity, but no sObject is returned	warnRole	BW-Plugin	
BW-Salesforce-200075: End of executing a batch of the operation for the nested node [%3] of [%1] activity. [%2] sObject(s) have been returned	infoRole	BW-Plugin	
BW-Salesforce-200076: Using the 'timeout' property. The timeout value is: [%1]ms	infoRole	BW-Plugin	
BW-Salesforce-200077: The following Request SOAP Message will be sent \n %1	debugRole	BW-Plugin	
BW-Salesforce-200078: Set the default host to [%1]	infoRole	BW-Plugin	
BW-Salesforce-200079: Set the default binding host to NULL	infoRole	BW-Plugin	
BW-Salesforce-200080: An HTTP message with the error code [%1] has been returned to the client	infoRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200081: More than one CN are generated from the incoming HTTP message. Current CN list contains [%1] items	warnRole	BW-Plugin	
BW-Salesforce-200082: Client Authentication passed. The following CN(s) is/are in the incoming HTTP message: [%1]	infoRole	BW-Plugin	
BW-Salesforce-200083: The following CN(s) is/are generated from the design-time configured leaf certificates: [%1]	debugRole	BW-Plugin	
BW-Salesforce-200084: At run-time, the following CN(s) generated from the design-time configured leaf certificates is/are fetched: [%1]	debugRole	BW-Plugin	
BW-Salesforce-200085: Doing client CN verification...	debugRole	BW-Plugin	
BW-Salesforce-200086: The timeout value for this call are [%1] milliseconds	infoRole	BW-Plugin	
BW-Salesforce-200087: The Salesforce Outbound Message Listener received a message whose ServiceEntry URL is [%1]. Sending an Ack: [%2]	infoRole	BW-Plugin	
BW-Salesforce-200088: A certificate is expired. This certificate will be ignored. The Subject DN: [%1]	warnRole	BW-Plugin	
BW-Salesforce-200089: A certificate is not valid for the moment. This certificate will be ignored. The Subject DN: [%1]	warnRole	BW-Plugin	
BW-Salesforce-200090: Validating the certificate defined at design-time...	infoRole	BW-Plugin	

Message	Role	Category	Resolution (Cont'd)
BW-Salesforce-200091: Validating the certificate received at run-time...	infoRole	BW-Plugin	
BW-Salesforce-200092: The Salesforce Outbound Message Listener received a message whose ServiceEntry URL is [%1]	infoRole	BW-Plugin	
BW-Salesforce-200093: Proxy setting in use, the proxyHost:[%1], proxyPort:[%2], proxyUser:[%3], proxyPwd:[%4], proxyTimeout(min): [%5]	infoRole	BW-Plugin	
BW-Salesforce-200094: End of executing a batch of operation for activity [%1], but no sObject returned	infoRole	BW-Plugin	
BW-Salesforce-200095: End of executing a batch of operation for the node [%2] of [%1] activity, but no sObject is returned	infoRole	BW-Plugin	
BW-Salesforce-200096: Can't generate the global variables [%1] and [%2] for the OutboundMessageListener, please manually add them if needed	warnRole	BW-Plugin	Manually add these two global variables.

Appendix B Configuration Templates for Properties Setting

This appendix provides the configuration templates contents for the properties setting.

Topics

Configuration Template of the properties.cfg File

The `properties.cfg` file is available in the *SFDC_HOME*`\templates` directory.

The content of the default file shows below:

```
## Log status settings. The first three properties are generic
properties provided by TIBCO BusinessWorks.
Trace.Info.*=true
Trace.Error.*=true
Trace.Warn.*=true
com.tibco.plugin.salesforce.debug=false

## Retrying function settings
com.tibco.plugin.salesforce.retry.rotationPolicy=2,5,20
com.tibco.plugin.salesforce.retry.rotationNumber=1

## Timeout value in millisecond for each SOAP operation call
com.tibco.plugin.salesforce.invoke.timeout=15000
```

Configuration Template of the bwengine.xml File

The `bwengine.xml` file is available in the *BW_HOME*`\lib\com\tibco\deployment` directory.

The following content in the file is related to the configuration of TIBCO ActiveMatrix BusinessWorks Plug-in for Salesforce.com:

```
<!--startBWSalesForcePluginProperties-->
<property>
   <name>Trace Debug Control for BW Salesforce Plug-in</name>
   <option>com.tibco.plugin.salesforce.debug</option>
   <default>false</default>
   <description>Turn the log in Debug role ON or OFF for the
BusinessWorks Salesforce Plug-in only</description>
</property>

<property>
   <name>BW Salesforce Plug-in rotation policy</name>
   <option>com.tibco.plugin.salesforce.retry.rotationPolicy
   </option>
   <default>2,5,20</default>
   <description>Define the rotation policy for BusinessWorks
Salesforce Plug-in used in the retrying function    </description>
</property>

<property>
   <name>BW Salesforce Plug-in rotation number</name>
   <option>com.tibco.plugin.salesforce.retry.rotationNumber
   </option>
   <default>1</default>
   <description>Define the rotation policy for BusinessWorks
Salesforce used in the retrying function
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in default proxy host</name>
   <option>com.tibco.plugin.salesforce.proxyHost</option>
   <default></default>
   <description>Define the default proxy host for BusinessWorks
Salesforce Plug-in
```

```
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in default proxy port</name>
   <option>com.tibco.plugin.salesforce.proxyPort</option>
   <default></default>
   <description>Define the default proxy port for BusinessWorks
Salesforce Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in default proxy user</name>
   <option>com.tibco.plugin.salesforce.proxyUser</option>
   <default></default>
   <description>Define the default proxy user for BusinessWorks
Salesforce Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in default proxy password</name>
   <option>com.tibco.plugin.salesforce.proxyPwd</option>
   <default></default>
  <description>Define the default proxy password for BusinessWorks
Salesforce Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in default proxy timeout</name>
   <option>com.tibco.plugin.salesforce.proxyTimeout</option>
   <default></default>
   <description>Define the default http request timeout value for
BusinessWorks Salesforce Plug-in
   </description>
</property>

<!--
<property>
```

```
   <name>BW Salesforce Plug-in proxy host</name>
   <option>java.property.http.proxyHost</option>
   <default></default>
   <description>Define the proxy host for BusinessWorks Salesforce
Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in proxy port</name>
   <option>java.property.http.proxyPort</option>
   <default></default>
   <description>Define the proxy port for BusinessWorks Salesforce
Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in proxy user</name>
   <option>java.property.http.proxyUser</option>
   <default></default>
   <description>Define the proxy user for BusinessWorks Salesforce
Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in proxy password</name>
   <option>java.property.http.proxyPassword</option>
   <default></default>
   <description>Define the proxy password for BusinessWorks
Salesforce Plug-in
   </description>
</property>

<property>
   <name>BW Salesforce Plug-in proxy timeout</name>
   <option>java.property.http.timeout</option>
   <default>3</default>
   <description>Define the http request timeout value for
BusinessWorks Salesforce Plug-in
```

```
   </description>
</property>
   -->

<property>
   <name>BW Salesforce Plug-in invoke timeout</name>
   <option>com.tibco.plugin.salesforce.invoke.timeout</option>
   <default>15000</default>
   <description>Define the invoke timeout for BusinessWorks
Salesforce Plug-in used in invoking web service
   </description>
</property>
<!--endBWSalesForcePluginProperties-->
```

The comments at the beginning and end of the above content must not be modified.
`<!--startBWSalesForcePluginProperties-->`
`<!--endBWSalesForcePluginProperties-->`

Changing Log Levels in the bwengine.xml File

If you want to manually add the `Trace.Info.*`, `Trace.Error.*`, and `Trace.Warn.*` properties for the log levels, add the following lines in the `bwengine.xml` file.

```
<property>
   <name>Trace Info Control</name>
   <option>Trace.Info.*</option>
   <default>true</default>
   <description>Turn the log in Info role ON or OFF</description>
</property>

<property>
   <name>Trace Error Control</name>
   <option>Trace.Error.*</option>
   <default>true</default>
   <description>Turn the log in Error role ON or OFF</description>
</property>

<property>
   <name>Trace Warn Control</name>
   <option>Trace.Warn.*</option>
   <default>true</default>
```

```
    <description>Turn the log in Warn role ON or OFF</description>
</property>
```

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