

**Oracle Customer Data Synchronization Integration  
Pack for Oracle Utilities Customer Care and Billing  
and Siebel Energy 11.1 -**

Implementation Guide

Release 11.1

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Oracle Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing and Siebel Energy 11.1 - Implementation Guide, Release 11.1

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# Preface

Welcome to the Oracle Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing and Siebel Energy.

Oracle Application Integration Architecture (AIA) provides the guides and resources indicated in this section.

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## Oracle Application Integration Architecture Guides

- Oracle Fusion Middleware Infrastructure Components and Utilities User's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 (11.1.1.5.0)
- Oracle Fusion Middleware Installation and Upgrade Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 (11.1.1.5.0)
- Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 (11.1.1.5.0)
- Oracle Fusion Middleware Reference Process Models User's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 (11.1.1.5.0)
- Oracle Fusion Middleware Migration Guide for Oracle Application Integration Architecture 11g Release 1 (11.1.1.5.0)
- Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 (11.1.1.5.0)

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## Additional Resources

Additional documentation provided that is specific to this release.

- Oracle Application Integration Architecture: Product-to-Guide Index
- Known Issues and Workarounds
- Release Notes
- Documentation Updates Guide
- Functional Diagrams

**Note:** Please refer to the Oracle Technology Network (OTN) site for the most recent version of this documentation.



# Part 1: Understanding the Delivered Integrations

[Chapter 1: Overview](#)

[Chapter 2: Customer Data Synchronization](#)

[Chapter 3: Understanding Integration Interfaces and Components](#)





# Chapter 1: Customer Data Synchronization Overview

This chapter provides information regarding:

- [Overview](#)
- [Participating Applications](#)
- [References](#)

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## Overview

The Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing and Siebel Energy enables the synchronization of customer information between Siebel Energy and Oracle Utilities Customer Care and Billing (CC&B) to support the Order-to-Bill process.

Siebel Energy is the customer master. Customers are created in Siebel Energy and send to Oracle Utilities Customer Care and Billing.

Customer information updates are allowed on both Siebel Energy and Oracle Utilities Customer Care and Billing systems. Customer information updates in Siebel Energy are synchronized to Oracle Customer Care and Billing through the customer management process integrations; however, customer information updates in Oracle Utilities Customer Care and Billing are not synchronized back to Siebel Energy.

It is assumed that Utility companies will maintain a set of primary customer information in Siebel to allow Order Capture in Siebel and that this information will always be maintained in Siebel and passed to Oracle Utilities Customer Care and Billing may, however, augment customer information with data elements that are not relevant to Siebel.

---

## Participating Applications

This chapter provides a general description of each of the edge applications that are participating in the integration process.

The Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing and Siebel Energy is an integration involving the following products:

- [Oracle Utilities Customer Care and Billing \(CC&B\)](#)
- [Siebel Energy \(Siebel\)](#)

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## Oracle Utilities Customer Care and Billing

Oracle Utilities Customer Care and Billing (CC&B) is a customer and billing system that manages all aspects of customer service needed by most utilities to operate their business. Basic objects form the core of the system with Person, Account, Premise, Service Agreement, and Service Point. These objects hold demographic, geographic, and financial information about a company's customers and properties. Related to these objects are the processes that they manage, for example, bills, payments, meter readings, field activities, and so forth.

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## Siebel Energy

Siebel Energy is designed to meet the sales, marketing, call center, and customer field service requirements of regulated electric, gas, and water Distribution Companies, as well as unregulated Energy Service Providers (ESPs). Siebel Energy serves residential, commercial, and industrial customers. Siebel Energy can support large or small call center operations and integrates with legacy and packaged Customer Information Systems (CIS) and billing solutions. It supports account hierarchy and premises records with their service points. It enables efficient customer order and contract management. It also allows the tracking, sharing, and reporting of usage, billing, and other service details.

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## References

Please refer to the following references regarding Application Integration Architecture (AIA) terms and concepts described in this document:

**For more information** on AIA terms and concepts please refer to the *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 guide*.

**For more information** on the terms and entities related to the integration, see [Appendix B: Cross-References](#).

# Chapter 2: Customer Data Synchronization

This chapter provides an overview of Customer Data Synchronization and discusses:

- [Overview](#)
- [Conceptual Design](#)
- [Supported Functionality](#)
- [Data Requirements](#)
- [Assumptions and Constraints](#)

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## Customer Data Synchronization Overview

Clients do not want to overburden the billing systems with customer information in their CRM systems. Rather, they want the ability to create the necessary customer data in the billing system only when the customer places an order and the order is submitted for fulfillment.

The Customer Data Synchronization enables the synchronization of required information between Siebel Energy and Oracle Utilities Customer Care and Billing. Customers are created in Siebel Energy and sent to Oracle Utilities Customer Care and Billing. Siebel Energy is the Customer master. Customer data updated in Siebel Energy is synchronized to Oracle Utilities Customer Care and Billing through the customer data synchronization process and is a one-way synchronization process.

Customer Data Synchronization involves the following:

- [Create Customer Business Flow](#)
- [Update Customer Business Flow](#)

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## Create Customer Business Flow

The Customer is initially created in Siebel Energy as part of a sales cycle. The Sales Representative captures customer account information including Name, Address, Contact, and Billing Profile. Additionally, the Sales Representative can capture a customer account hierarchy which represents a parent-child relationship between multiple customer accounts (that is, business with multiple locations), as well as other information that is not directly related to the Order Provisioning and Billing (for example, marketing information).

The customer information is initially synchronized from Siebel Energy to Oracle Utilities Customer Care and Billing during order processing. It is based on the billing account defined in the Siebel Order Line Item.

The following process flow diagram depicts the activities related to Create Customer process integration flow:

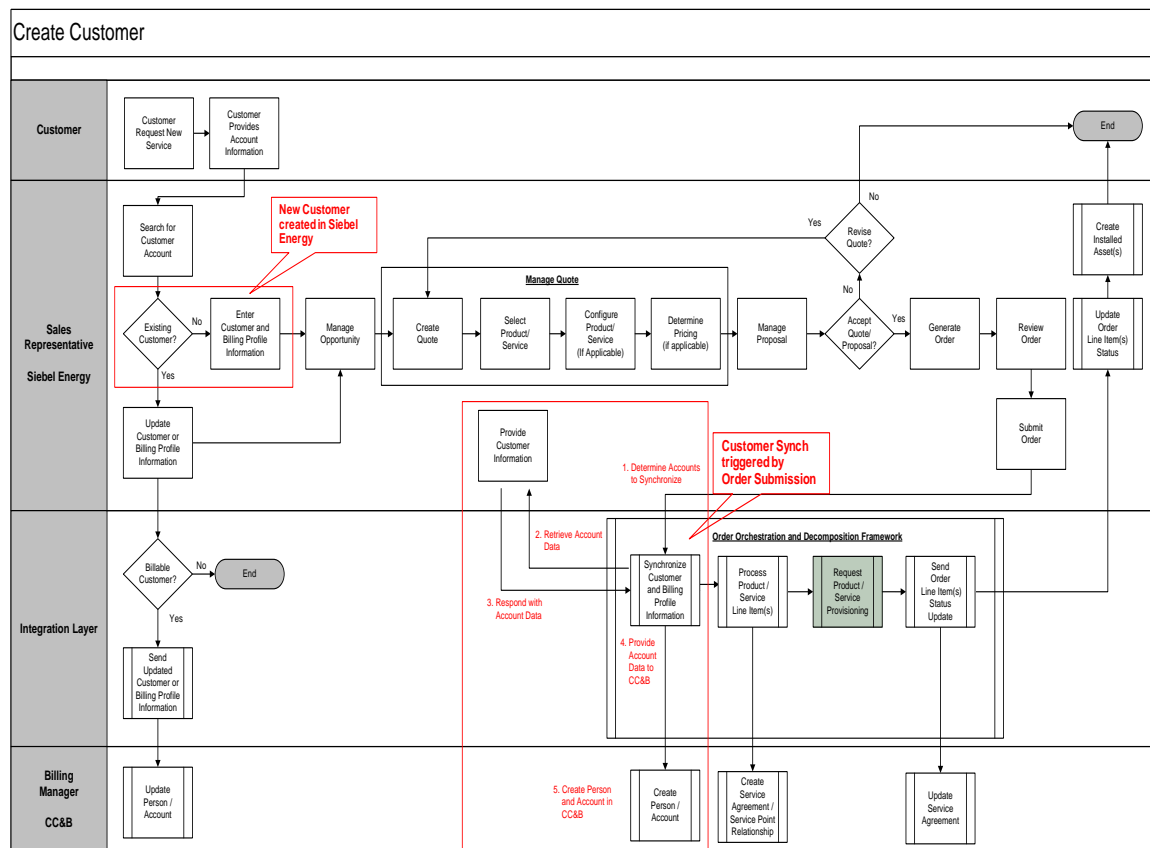


Figure 1: Create Customer Integration Flow Diagram

**Note:** The box highlighted in red in the diagram represents the activities related to the Create Customer Integration Flow.

If a Sales Representative needs to create a new customer in Siebel Energy as part of the sales cycle, the following activities need to be performed:

- Sales Representative navigates to the appropriate views in Siebel Energy and captures the appropriate data about the customer. This customer information typically includes name, address, contact, and billing profile information. Additionally, it can also include customer account hierarchy related information for Commercial and Industrial (B2B) customers as well as other information required for marketing or other similar purposes.
- The information about the new customer information captured in Siebel Energy is not sent to Oracle Utilities Customer Care and Billing (CC&B) until a new Order is submitted.
- Sales Representative manages the sales cycle using opportunities, quotes, and orders in Siebel Energy as appropriate based on the customer type.
- Sales Representative submits the order from Siebel Energy to the back-end system for processing (that is, billing setup and service provisioning).

- The Order Orchestration Process manages the sequence in which the information is sent to different fulfillment systems including the Create Customer integration flow to setup customer information for billing between Siebel Energy to Oracle Utilities Customer Care and Billing.

**Note:** The integration flow related to submit order and related orchestration process is not included with this integration. An implementation defined process invokes the Create Customer integration flow.

The following activities are performed by the Create Customer integration flow:

- The integration flow identifies the accounts to be synchronized from Siebel Energy to Oracle Utilities Customer Care and Billing (CC&B). These account records are determined by the various billing accounts captured on the order line items and whether they currently exist in Oracle Utilities Customer Care and Billing.
- The integration flow requests Siebel Energy for the appropriate customer information required to send to Oracle Utilities Customer Care and Billing.
- The integration flow then sends the appropriate customer information to Oracle Utilities Customer Care and Billing to create the person and account objects in it.

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## Update Customer Business Flow

Customers often update their account information (for example, a Name or Address). When the Customer Service Representative updates customer information (that is, Account, Address, Contact, or Billing Profile) in Siebel Energy, these changes are communicated to Oracle Utilities Customer Care and Billing (CC&B) in near realtime through the customer management process integration. However, this updated customer process takes place only for those customers that are synchronized from Siebel Energy to Oracle Utilities Customer Care and Billing through the order processing integration flow.

The following process flow diagram illustrates the activities related to Update Customer process integration flow:

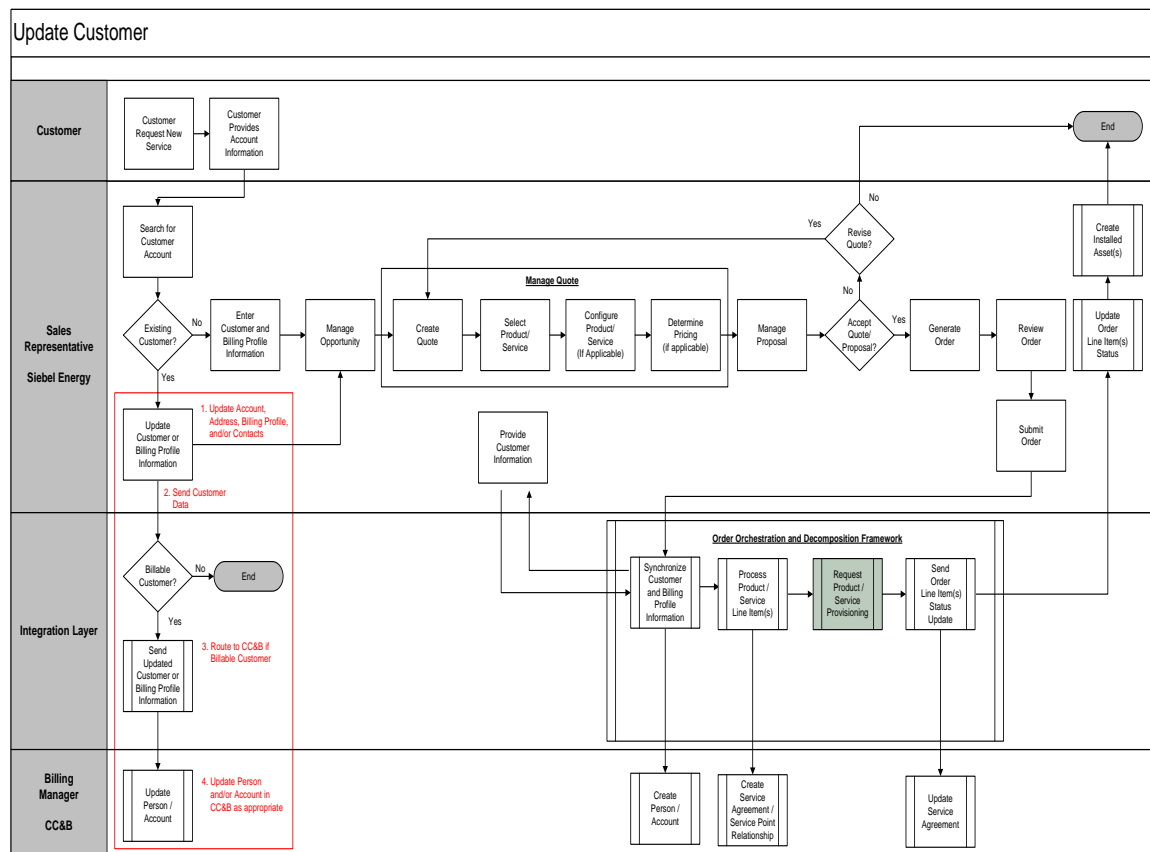


Figure 2: Update Customer Integration Flow Diagram

**Note:** The box highlighted in red in the diagram represents the activities covered by the Update Customer Integration Flow.

If a Customer Service Representative needs to update the customer demographic or billing profile information for an existing customer based on customer interaction, then the following activities are performed:

- The Customer Service Representative searches for the Account based on the information provided by the customer.
- The Customer Service Representative selects the Account that needs to be updated.
- The Customer Service Representative navigates to the appropriate view in Siebel Energy and updates with appropriate data.
- If the customer is a billable customer, the changes are automatically sent in near realtime to the Oracle Utilities Customer Care and Billing and the Person or either the Account is updated accordingly.
- If the customer is not a billable customer, then the changes are not sent to any other system.

## Conceptual Overview

The following sections outline the conceptual design between Siebel Energy and Oracle Utilities Customer Care and Billing (CC&B) for various key entities related to customer information:

- [Account Synchronization from Siebel Energy to Oracle Utilities Customer Care and Billing](#)
- [Address Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing](#)
- [Contact Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing](#)
- [Primary Billing Profile Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing](#)
- [Statement Profile Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing](#)

## Account Synchronization from Siebel Energy to Oracle Utilities Customer Care and Billing

In Siebel Energy an account is any external organization doing business with a company. Accounts track agreements, receive service and bills and raise trouble tickets.

A single account per customer may probably meet a company's need to track the accounts of residential customers. However, for large commercial or industrial clients, end users might need to build a customer account hierarchy. The customer account hierarchy is a multi-level structure reflecting parent-child relationship within an organization.

An account class is a method for classifying an account according to its position and role in a customer account hierarchy.

There are three main types of account classes used in Siebel Energy:

- **Customer Class:** An account with this class represents the actual customer, person, or an organization that is receiving service. A customer account includes basic customer information, such as the company's name and headquarters address. It can receive both service and bills.
- **Service Class:** An account with this class can receive service but not bills. In the account hierarchy, it is the account level at which the physical delivery of the service or product occurs. It can represent a person or an organization with multiple service addresses.
- **Billing Class:** An account with this class is used to invoice the customer for products and services. In the account hierarchy, it is the account level at which the financial transactions for a service or product occur. It shows the collection of all charges applied to a customer in a given time frame for which the customer must submit payment.

The Customer Account hierarchy and Account Class plays an important role during the order capture process. The selection of billing account on the order line item is limited to account records within the Customer Account hierarchy and Account Class = "Customer" or "Billing". The selection of service accounts on the order line item is limited to accounts record within the Customer Account hierarchy and Account Class = "Customer" or "Service".

The customer information to be synchronized to Oracle Utilities Customer Care and Billing is driven by information captured at the order line item. In particular, it is driven based on the billing account on the order line item.

The following diagram depicts the key customer-related object mapping between Siebel Energy and Oracle Utilities Customer Care and Billing:

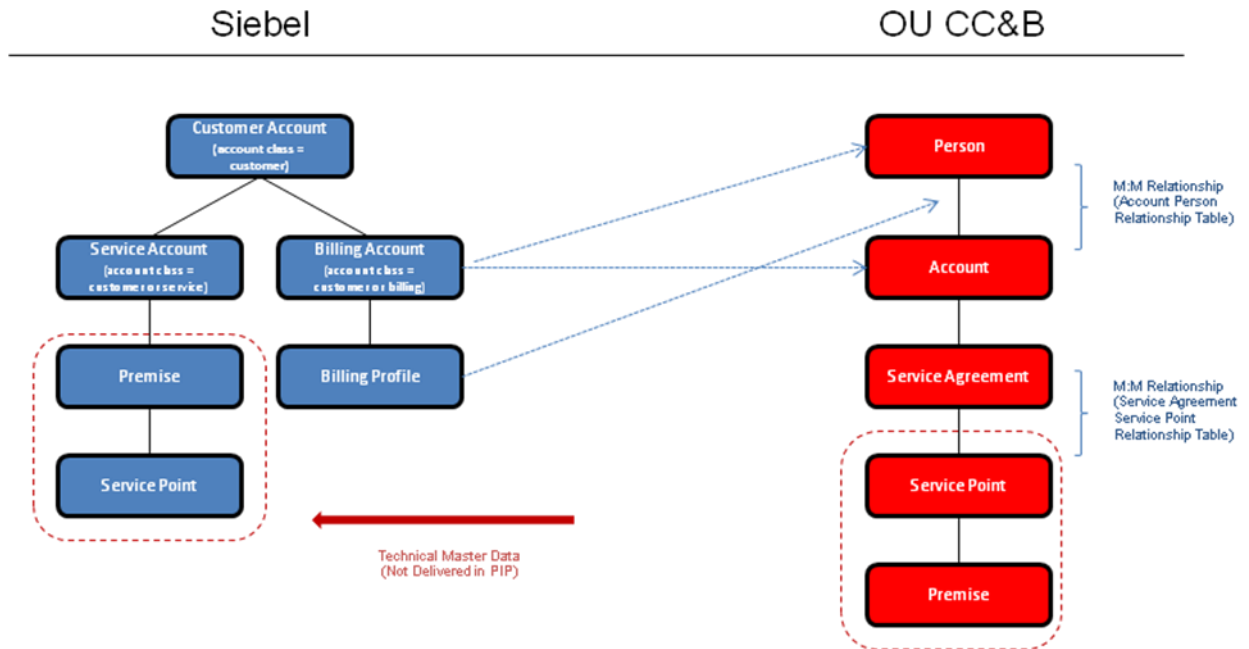


Figure 3: Key Customer-Related Object Mapping diagram

The following business rules define how the account records in Siebel Energy are mapped to the Person and Account in Oracle Utilities Customer Care and Billing (CC&B):

- Residential Customers are typically supported by a single account record in Siebel Energy with the Account Class = "Customer".
- Commercial or Industrial Customers typically have more than one account record in Siebel Energy. The Account Class defines how the account record can be used in the Order Process.
  - If the Account Class = "Customer", it can be used to define the billing account or service account on the order line item.
  - If the Account Class = "Billing", it can only be used to define the billing account on the order line item.
  - If the Account Class = "Service", it can only be used to define the service account on the order line item.

Billing Account defined on the order line item level is an account record in Siebel Energy with an Account Class = "Customer" or "Billing". It is used to create the Person, Account, and Account-Person relationship in Oracle Utilities Customer Care & Billing if they do not already exist. A Person will only have one account in Oracle Utilities Customer Care and Billing; however, each Account can have multiple Service Agreements.



Customer Account Hierarchy (based on parent account field) in Siebel Energy is not maintained in Oracle Utilities Customer Care and Billing; however, it will be possible to identify related accounts in Oracle Utilities Customer Care and Billing using a Master Account ID account characteristic. This account characteristic is populated from a Master Account ID (hidden field) captured on all account records in Siebel Energy based on the Customer Account hierarchy definition. If the Customer Account hierarchy is changed in Siebel Energy, the Master Account ID field is updated accordingly and the relevant accounts in Oracle Utilities Customer Care and Billing are updated in near realtime through the update customer integration flow.

The account number for the billing account in Siebel Energy is captured on the account in Oracle Utilities Customer Care and Billing to be included on the customer correspondences (for example, bill).

The account status in Siebel Energy is not sent to Oracle Utilities Customer Care and Billing. Status is not directly tracked in Oracle Utilities Customer Care and Billing at the Person or Account level. It is indirectly determined in Oracle Utilities Customer Care and Billing by the status of the Service Agreement. If all the Service Agreements for a particular account are closed, then the account is considered inactive.

Service Account in Siebel Energy is not used to define the Person and Account within Oracle Utilities Customer Care and Billing. It is used to indirectly identify the Service Point and related premise for a particular service on the order line item.

**Note:** It is assumed that the Premise and Service Point information is synchronized from Oracle Utilities Customer Care and Billing (or another data source) to Siebel Energy. The Premise is associated with a Service Account during service account creation in Siebel Energy. Additionally, this Service Account, Premise, and Service Point relationship is used during the order processing to define where the service is delivered (that is, service account and service point on the order line item).

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## Address Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing

Siebel Energy extracts all the addresses for the billing account; however, the integration only sends the relevant billing-related information to Oracle Utilities Customer Care and Billing (CC&B) as defined in this section.

Address information to be sent from Siebel Energy to Oracle Utilities Customer Care and Billing is based on the address information defined on the primary billing profile from the billing account. It is captured on the Person Address override in Oracle Utilities Customer Care and Billing and designated as the billing address source on the Account Person relationship. This integration process does not send all the addresses for the billing account from Siebel Energy to Oracle Utilities Customer Care and Billing.

Billing Address is required on the billing profile; hence, it is mandatory to mention at least one billing address.

If address information for the primary billing profile is updated in Siebel Energy and send to Oracle Utilities Customer Care and Billing, then it is updated in near realtime. If the address captured on the primary billing profile changes in Siebel Energy, the address on the Person Address override in Oracle Utilities Customer Care and Billing gets updated accordingly.

A Seasonal Address for the main bill recipient is captured using the Account Address in Siebel. The billing account in Siebel can have one or more account addresses. A new address type value “Seasonal” is added to Siebel which is used to identify the seasonal addresses. Each address with an address type of “Seasonal” is created as a person seasonal address in Oracle Utilities Customer Care and Billing.

There are three important design caveats about seasonal addresses for main bill recipients:

- The seasonal address can only be defined once per billing account; hence, you cannot use the same address for multiple periods.
- Siebel supports a complete date format (MM/DD/YYYY) for the start date and end date; however, Oracle Utilities Customer Care and Billing accepts only a partial date format (MM/DD). Integration strips out the year before invoking Oracle Utilities Customer Care and Billing.

**Note:** In Siebel, because of the date format of Seasonal Addresses, the dates apply to a specific year, but in Oracle Utilities Customer Care and Billing, the Seasonal Address dates apply to every year. Care should be taken to update Seasonal Address dates accordingly in Siebel.

- Oracle Utilities Customer Care and Billing has a restriction that prevents the overlap of seasonal addresses; however, Siebel does not have a similar logic as the start date and end date are in complete date formats. The implementation needs to add logic to prevent an integration issue.

**For more Information,** refer to [Appendix E](#) of this document. A sample Siebel script has been provided to prevent address overlap.

If the seasonal address information for the main bill recipient is updated in Siebel Energy and it has already been sent to Oracle Utilities Customer Care and Billing, then it is updated accordingly in near realtime.

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## Contact Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing

Siebel Energy extracts all the contacts for the billing account and sends only the relevant billing-related information to Oracle Utilities Customer Care and Billing as defined below.

Contact information to be sent from Siebel Energy to Oracle Utilities Customer Care and Billing is based on the contact information defined on the primary billing profile related to the billing account. The name of the billing contact is captured as the Override Mail Name on the person record in Oracle Utilities Customer Care and Billing. Billing Contact is not required on the billing profile and hence, sometimes an Override Mail Name may not exist on the person in Oracle Utilities Customer Care and Billing.

If Contact information for the primary billing profile is updated in Siebel Energy and it has already been sent to Oracle Utilities Customer Care and Billing, then it is updated in near realtime. If the contact captured on the primary billing profile changes in Siebel Energy, the Override Mail Name for the person in Oracle Utilities Customer Care and Billing is changed accordingly.

This integration process does not send all the contacts for billing account from Siebel Energy to Oracle Utilities Customer Care and Billing; however, additional contacts could be synchronized as outlined in the “Statement Profile Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing” section below.

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## Primary Billing Profile Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing

Billing Profile (for example, Billing Type, Bill Medium, Billing Address, Billing Contact, Payment details) information from Siebel Energy is primarily captured on the Person, Account, and Account Person relationship objects in Oracle Utilities Customer Care and Billing. Siebel Energy supports multiple billing profiles for a billing account and these billing profiles can be explicitly selected at the order line item (by product). Oracle Utilities Customer Care and Billing does not support different billing/payment information for a service agreement; hence, only the primary billing profile captured for a billing account in Siebel Energy is synchronized to Oracle Utilities Customer Care and Billing. If a Billing Profile is selected on the order line item in Siebel Energy, it is ignored by the create/sync customer integration process and is not updated by any subsequent changes if it is not the primary billing profile for the billing account.

If Billing Profile information for the Primary Billing Profile is updated in Siebel Energy and it has already been sent to Oracle Utilities Customer Care and Billing, it should be updated in near realtime. If the Primary Billing Profile changes in Siebel Energy, the new Billing Profile information is changed accordingly in Oracle Utilities Customer Care and Billing. These changes may include updating either the Address or override Mail Name in Oracle Utilities Customer Care and Billing as discussed in the Address and Contact section above.

Oracle Utilities Customer Care and Billing maintains history of the account automatic payment information; hence, payment information related changes in Siebel Energy result in a new account automatic payment record in Oracle Utilities Customer Care and Billing. If the payment information is changed in Siebel Energy, the prior account automatic payment record in Oracle Utilities Customer Care and Billing is updated with an end date and a new account automatic payment record is created in Oracle Utilities Customer Care and Billing.

**Note:** A Billing Profile must be defined in Siebel Energy for all accounts that are used as the billing account on the order line item.

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## Statement Profile Synchronization for Billing Account from Siebel Energy to Oracle Utilities Customer Care and Billing

Statement Profile is used to capture additional bill recipients for a particular billing account. The Statement Profile identifies the Billing Contact, billing contact's address, and bill characteristics. The Billing Contact creates the Person and Person Account relationship in Oracle Utilities Customer Care and Billing for the appropriate account. The billing contact's address can be any Contact Address (for example, Personal Address) for the Contact. It is stored on the Person Address override in Oracle Utilities Customer Care and Billing. There is no override Mail Name for the additional bill recipients.

One important change in Statement Profile is that the additional bill recipients are based on Contact and not Account in Siebel; hence, the additional bill recipient cannot be directly assigned to another billing account in Siebel. For example, if you want to send the main bill to the actual billing account and want to send another copy of the bill to someone at the corporate headquarters. The system user, in this case, needs to create the additional bill recipient as a Contact Person for actual billing account and provide the appropriate address for this user. The Account for the corporate headquarters cannot be designated as the additional bill recipient.

If Statement Profile information is updated in Siebel Energy and it has already been sent to Oracle Utilities Customer Care and Billing, it should be updated accordingly in near realtime.

Seasonal addresses can also be captured for the additional bill recipients using the Contact Address similar to the Account Address being used for the main bill recipient. The Contact in Siebel can have one or more Contact addresses. There is a new address type value added to Siebel called "Seasonal" that is used to identify the seasonal addresses. Each address with an address type of "Seasonal" is created as a person seasonal address in Oracle Utilities Customer Care and Billing.

There are four important design caveats about Seasonal address for additional bill recipients (first three are same design caveat as the Seasonal address for main bill recipient):

- The Seasonal address can only be defined once per Contact; therefore, you cannot have the same address used for multiple periods.
- Siebel supports a complete date format (MM/DD/YYYY) for the start date and end date; the year is stripped off in the transformation to Oracle Utilities Customer Care and Billing as the start date and end date using a partial date format (MM/DD).

**Note:** In Siebel, because of the date format of Seasonal Addresses, the dates apply to a specific year, but in Oracle Utilities Customer Care and Billing, the Seasonal Address dates apply to every year. Care should be taken to update Seasonal Address dates accordingly in Siebel.

- Oracle Utilities Customer Care and Billing (CC&B) has a restriction that prevents the overlap of Seasonal addresses; however, Siebel does not have a similar logic because the start date and end date are in complete date formats (MM/DD/YY). The implementation needs to add logic to prevent an integration issue.

**For more Information,** refer to [Appendix E](#) of this document. A sample Siebel script has been provided to avoid address overlap.

- If you define a Seasonal address for a Contact and this contact is defined to multiple billing accounts in Siebel, then the Seasonal address is applied to all related accounts since it is a single person record in Oracle Utilities Customer Care and Billing (CC&B).

If the Seasonal address information for the additional bill recipient is updated in Siebel Energy and it has already been sent to Oracle Utilities Customer Care and Billing, then it is updated accordingly in near realtime.

## Supported Functionality

The following integration flows are implemented as part of Customer Synchronization between Siebel Energy and Oracle Utilities Customer Care and Billing (CC&B):

- The Create Customer Integration Flow, which interfaces Siebel Orders to create customer data in Oracle Utilities Customer Care and Billing
- The Update Customer Account Integration Flow, which updates customer/account data from Siebel Energy to Oracle Utilities Customer Care and Billing

This diagram illustrates the integration points between Siebel and Oracle Utilities Customer Care and Billing.

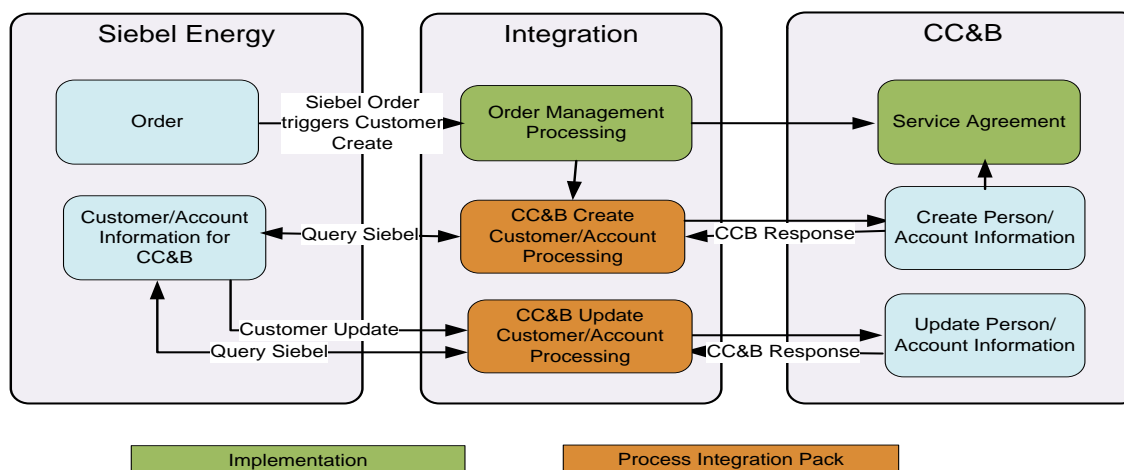


Figure 4: Integration points between Siebel and Oracle Utilities Customer Care and Billing diagram.

**Note:** For using this integration in a setup where customer data needs to be synchronized with multiple billing systems, refer to [Appendix D](#) of this document for setup and configuration related requirements.

## Data Requirements

The Customer Synchronization requires the following data in order to successfully create a customer data in Oracle Utilities Customer Care and Billing:

- Residential, Commercial, or Industrial are supported Account Types in the base integration. Additional Account Types can be added by the implementation.
- Only Primary Billing Profile on the Account is synchronized from Siebel.
- The Bill Route Type, Number of Bill Copies, and Bill Format is required on Primary Billing Profile
- The Bill Route Type, Number of Bill Copies, and Bill Format is required on each Statement

## Profile

- In Siebel Energy, accounts can have any number of contacts or addresses associated with them, but account creation in Oracle Utilities Customer Care and Billing synchronizes only the following:
  - Contact and Address for the Primary Billing Profile of the Account
  - All Seasonal addresses of the Account
  - Contact and Address of each Statement Profile of the Account
  - All Seasonal addresses of the Contacts on the Statement Profile of the Account
- Bill Me, Automatic Debit, and Credit Card are the supported Payment Methods in base integration. Additional Payment Methods can be added by the implementation.
- For a Credit Card Bill Profile, the Credit Card Number, expiration month and year, and cardholder name are required. For an Automatic Debit Bill Profile, the bank routing number and account number are required

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## Assumptions and Constraints

The following Solution Assumptions are described in this section:

- Siebel Energy is the customer information master.
- The customer information is synchronized one way from Siebel Energy to Oracle Utilities Customer Care and Billing (CC&B) to support the Order-to-Bill process. Any change in Oracle Utilities Customer Care and Billing is not synchronized back to Siebel Energy as it relates to the customer information master.
- The initial synchronization of customer information from Siebel Energy to Oracle Utilities Customer Care and Billing occurs only during the execution of the order management integration flow and not earlier. This is to avoid synchronization of prospect data from Siebel Energy to Oracle Utilities Customer Care and Billing.
- The integration sends customer data updates from Siebel Energy to Oracle Utilities Customer Care and Billing in near realtime if the customer is already created in Oracle Utilities Customer Care and Billing through the ordering process.
- If the customer information already exists in Oracle Utilities Customer Care and Billing, then the order integration flow can assume that the person and account are considered current and up-to-date in Oracle Utilities Customer Care and Billing, through the Update Customer Integration Flow.
- This integration supports synchronizing customer information from a single instance of Siebel Energy to a single instance of Oracle Utilities Customer Care and Billing.
- The initial loading of customer information from Siebel Energy to Oracle Utilities Customer Care and Billing is not supported.
- The merging and deleting of Account records in Siebel Energy is not supported through this integration flow. This action is manual due to the nature of the process.

- The Customer Account hierarchy (based on parent account field) is not synchronized from Siebel Energy to Oracle Utilities Customer Care and Billing (CC&B). The Master Account ID (hidden field on the account record) from Siebel is captured as an account characteristic on the corresponding account record in Oracle Utilities Customer Care and Billing. The Master Account ID account characteristic in Oracle Utilities Customer Care and Billing can be used to identify related accounts defined within a customer account hierarchy in Siebel.
- The Account types of Residential, Commercial, and Industrial in Siebel Energy are supported.
- The Account classes of Customer (in the context of billing account) and Billing in Siebel Energy are supported. These accounts are used to select the billing account on the order line item and also used to define the Person and Account objects in Oracle Utilities Customer Care and Billing.
- The Account class of Customer (in the context of service account) and Service in Siebel Energy is supported. These accounts are used to select the Service Account on the order line item and identify the Premise and Service Point information used to define the Service Agreement and Service Point relationship in Oracle Utilities Customer Care and Billing. Service Account in Siebel Energy is not used to define the Person and Account within Oracle Utilities Customer Care and Billing.
- The Account status can be made inactive in Siebel Energy; however, the account status is not synchronized back to Oracle Utilities Customer Care and Billing. The inactivation process is handled as part of the order management flow.
- A Billing Profile must be defined in Siebel Energy for all accounts that are used as the billing account on the order line item.
- The Payment Methods of Credit Card, Automatic Debit, and Bill Me (that is, all other payment methods) are supported. These payment methods are used in the payment profile mapping between Siebel Energy and Oracle Utilities Customer Care and Billing.
- The synchronization of Premise and Service Point between Siebel Energy from Oracle Utilities Customer Care and Billing is not supported in this release; however, it is assumed that this information is available in Siebel Energy to support the ordering process. The association of the Premise and possibly Service Point to the Service Account is required for the order-management process integration flow.
- No changes to application-level security (that is, read-only) is implemented in Siebel Energy or Oracle Utilities Customer Care and Billing as part of this integration product to restrict data updates. The order processing integration flow is not addressed as part of the Customer Data Management solution.

## Chapter 3: Understanding Integration Interfaces and Components

This chapter describes the Create Customer Account and Update Customer Account integration flows and discusses Siebel Energy and Oracle Utilities Customer Care and Billing interfaces, Industry Oracle Application Integration Architecture (AIA) components, and Integration services.

This chapter includes the following sections:

- [Create Customer Account Integration Flow](#)
- [Update Customer Account Integration Flow](#)
- [Technical Assumptions](#)
- [Oracle Utilities Customer Care and Billing Interfaces](#)
- [Siebel Energy Interfaces](#)
- [Industry Oracle Application Integration Architecture \(AIA\) Components](#)
- [Integration Services](#)

These entities do not require configuration; however, they can be helpful in understanding the integration as a whole.

**Note:** The Utilities EBO and EBM XSD files can be located by EBO within the \$AIA\_HOME/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/industry/Utilities/EBO/ parent folder. The core EBS WSDL files can be located by EBO within the \$AIA\_HOME/AIAMetaData/AIAComponents/EnterpriseBusinessServiceLibrary/industry/Utilities/EBO/ parent folder.

**For more information** about EBOs, see [Appendix B: Cross-References](#).



## Create Customer Account Integration Flow

The Create Customer Account Integration flow enables the synchronization of customer information from Siebel Energy to Oracle Utilities Customer Care and Billing. This flow is triggered by the Order Creation flow.

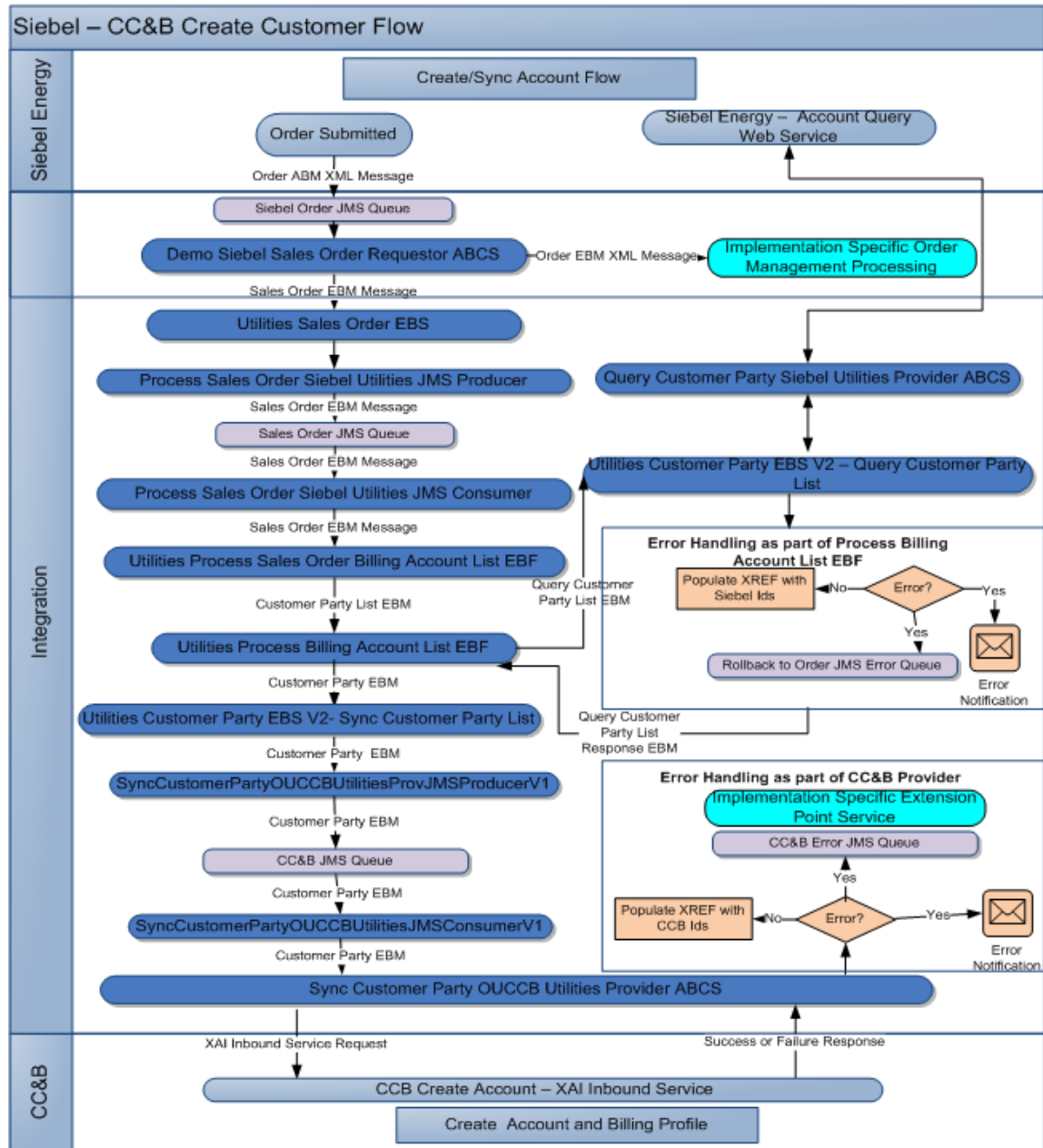


Figure 5: Detailed diagram of UtilitiesProcessBillingAccountListEBF

### Processing Details

The following Processing Details activities are described:

- **Order populated in queue:** In Siebel Energy, a user navigates to the Sales Order screen, creates a sales order for the account, and clicks the Submit Billing Order button to submit the order into an Order queue.
- **Order consumed from queue:** In Integration, ProcessSalesOrderSiebelUtilitiesJMSConsumer consumes message from the SalesOrder queue and invokes the Requester.
- **Demo Siebel Sales Order Requester:** ProcessSalesOrderSiebelUtilitiesReqABCImpl is a demo version of the Siebel Sales Order Requester ABCS which reads the messages from demo Order queue, translates Siebel Order ABM to EBM format and invokes the EBS. Customers should modify/replace this Requester as required.
- **Utilities Sales Order EBS:** The UtilitiesSalesOrderEBS2 routes the message to Utilities Process Sales Order Billing Account List Producer to put the Sales Order EBM into a queue.
- **Sales Order JMS Producer:** ProcessSalesOrderBillingAccountSiebelUtilitiesProducer puts the message into Sales Order JMS queue.
- **Sales Order JMS Consumer:** ProcessSalesOrderBillingAccountListSiebelUtilitiesConsumer reads the message from Sales Order JMS queue and invokes the Utilities Process Sales Order Billing Account List EBF.
- **Utilities Sales Order enterprise business flow (EBF):** The UtilitiesProcessSalesOrderBillingAccountListEBF parses the Order EBM message to generate the list of Billing Accounts in Customer Party EBM format. This EBF extracts the Customer Data from OrderEBM. The process loops through every order line and extracts any Billing Accounts that it encounters. This EBF invokes the Process Billing Account List EBF.
- **Utilities Billing Account EBF:** UtilitiesProcessBillingAccountListEBF reads the Billing Account List (ProcessCustomerPartyListEBM) containing one or more Billing Account IDs, invokes Customer Party EBS V2 with operation Query Customer Party List to query Siebel for Account data.
- **Utilities Customer Party EBS:** UtilitiesCustomerPartyEBSV2 with Query Customer Party List invokes the Query Customer Party Siebel Provider ABCS.
- **Query Customer Party Siebel Provider ABCS:** The QueryCustomerPartyListSiebelUtilitiesProvABCImplV1 invokes a Siebel web service 'SWI\_spcCustomer\_spcParty\_spcService' that queries the Siebel database and fetches the account data, which is then sent back as a response by means of the same Siebel ABM. The response message is then transformed to the response EBM, QueryCustomerPartyListResponseEBM by the Query Provider Application Business Connector Service (ABCS). The response is sent back to the service Process Customer Party List Utilities EBF through the UtilitiesCustomerPartyEBSV2.
- **Utilities Billing Account EBF:** If Siebel Query returns a Positive response back without errors to Step 8 of the flow, the UtilitiesProcessBillingAccountListEBF makes an entry into the XREF table. If Siebel Query returns an error message back, the EBF rolls the transaction back and so, the message goes into the Order Error Queue. The UtilitiesProcessBillingAccountListEBF splits the message into individual Accounts and then invokes the Customer Party EBS with SyncCustomerPartyList operation.

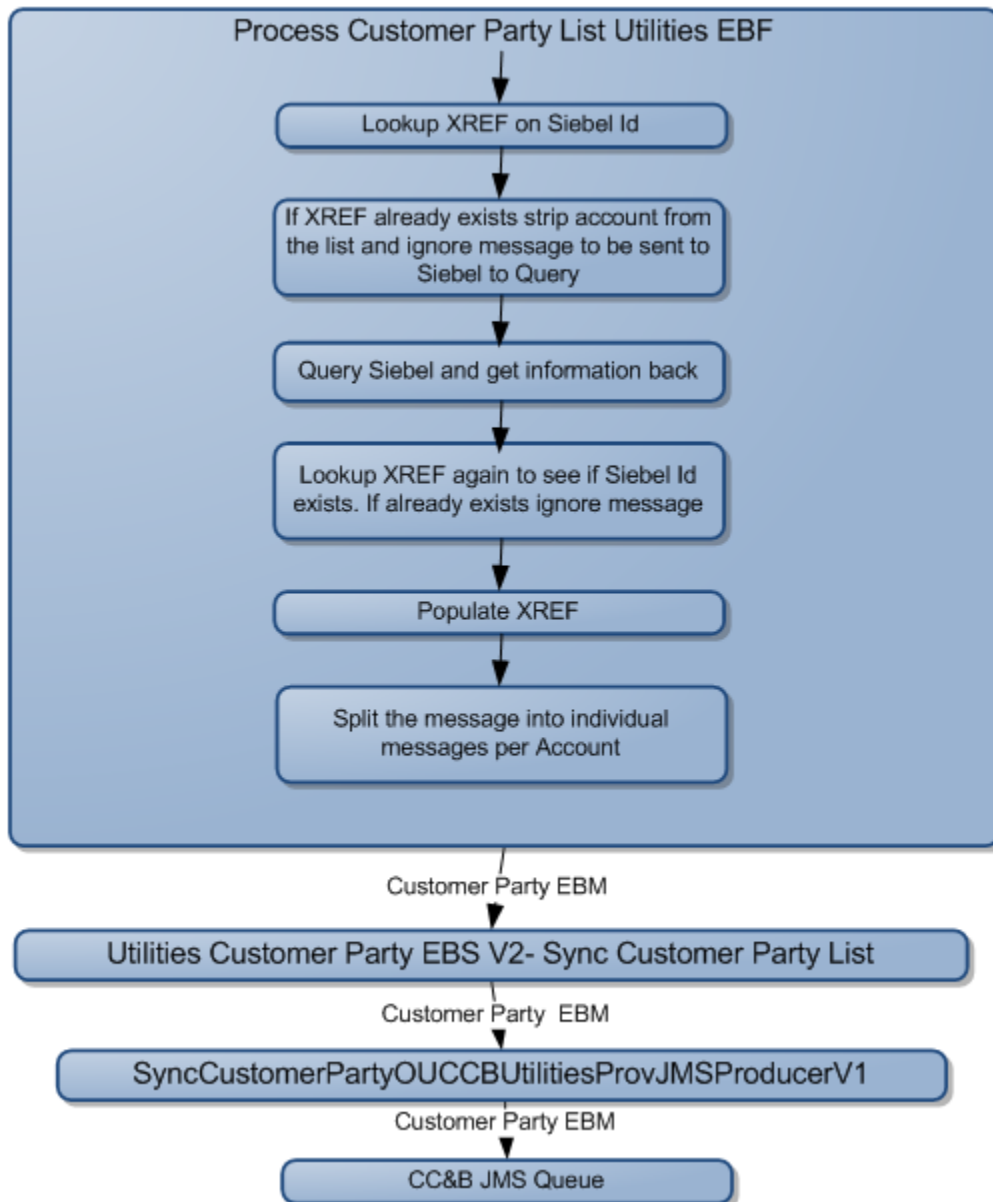


Figure 6: Diagram illustrating steps 8-11 for Utilities Billing Account EBF

- **Utilities Customer Party EBS:** The EBS, UtilitiesCustomerPartyEBSV2 with SyncCustomerPartyList operation then invokes the Producer Customer Party CCB JMS Producer to put the messages into Oracle Utilities Customer Care and Billing (CC&B) Queue.
- **Customer Party CCB JMS Producer:** The CCB Producer, SyncCustomerPartyOUCCBUtilitiesProvJMSProducerV1 puts the messages into a CCB JMS Queue.
- **Customer Party CCB JMS Consumer:** The CCB Consumer, SyncCustomerPartyOUCCBUtilitiesJMSConsumerV1, consumes the message and then invokes the Sync Customer Party CCB Provider ABCS.

- Sync Customer Party Utilities OUCCB Provider ABCS:** The SyncCustomerPartyOUCCBUtilitiesProvABCSEImpl converts the EBM message to ABM and invokes CCB web service 'C1-CustomerMaintenanceRequest' synchronously for each Account. The CCB web service processes the accounts to be synchronized and returns the Response back to the Provider. The provider checks if the customer synchronization was a "Success" or "Error" or "Duplicate" for each Account. If Success, it populates the XREF tables with CCB Person ID/Account ID/ Contact IDs information. If response is an Error, it sends error notifications out and rolls the message back to CCB JMS Error Queue. If response is a Duplicate, it means that the Account ID already exists in CCB and it returns the CCB Person ID/Account ID/Contact Ids for Integration to populate the XREF tables with CCB Person ID/Account ID/Contact Ids. In case of response indicating "Duplicate" message is not rolled back to JMS Error Queue.

**Note:** Implementation handles the logic to process errors further through custom extension points.

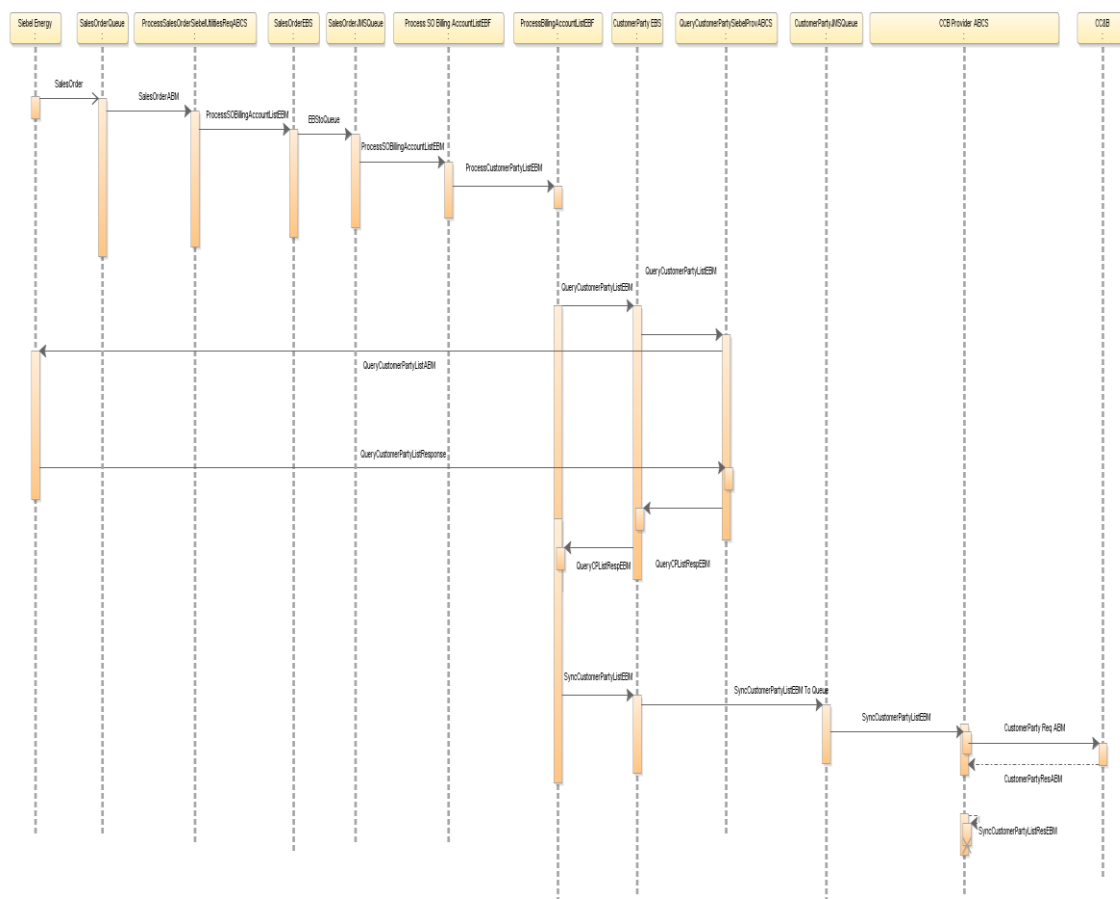


Figure 7: Sequence Diagram for Create Customer Integration flow

Following are the list of interface components used in this Integration flow:

- ProcessSalesOrderSiebelUtilitiesJMSConsumer
- ProcessSalesOrderSiebelUtilitiesReqABCSEImpl (Demo component)

- UtilitiesSalesOrderEBSV2
- ProcessSalesOrderBillingAccountListSiebelUtilitiesProducer
- ProcessSalesOrderBillingAccountListSiebelUtilitiesConsumer
- UtilitiesProcessSalesOrderBillingAccountListEBF
- UtilitiesProcessBillingAccountListEBF
- UtilitiesCustomerPartyEBSV2
- QueryCustomerPartyListSiebelUtilitiesProvABCSImplV1
- SyncCustomerPartyOUCCBUtilitiesProvJMSProducerV1
- SyncCustomerPartyOUCCBUtilitiesJMSPConsumerV1
- SyncCustomerPartyOUCCBUtilitiesProvABCSImpl

## Update Customer Account Integration Flow

The Customer Party EBO is used to transfer data between the two edge applications.

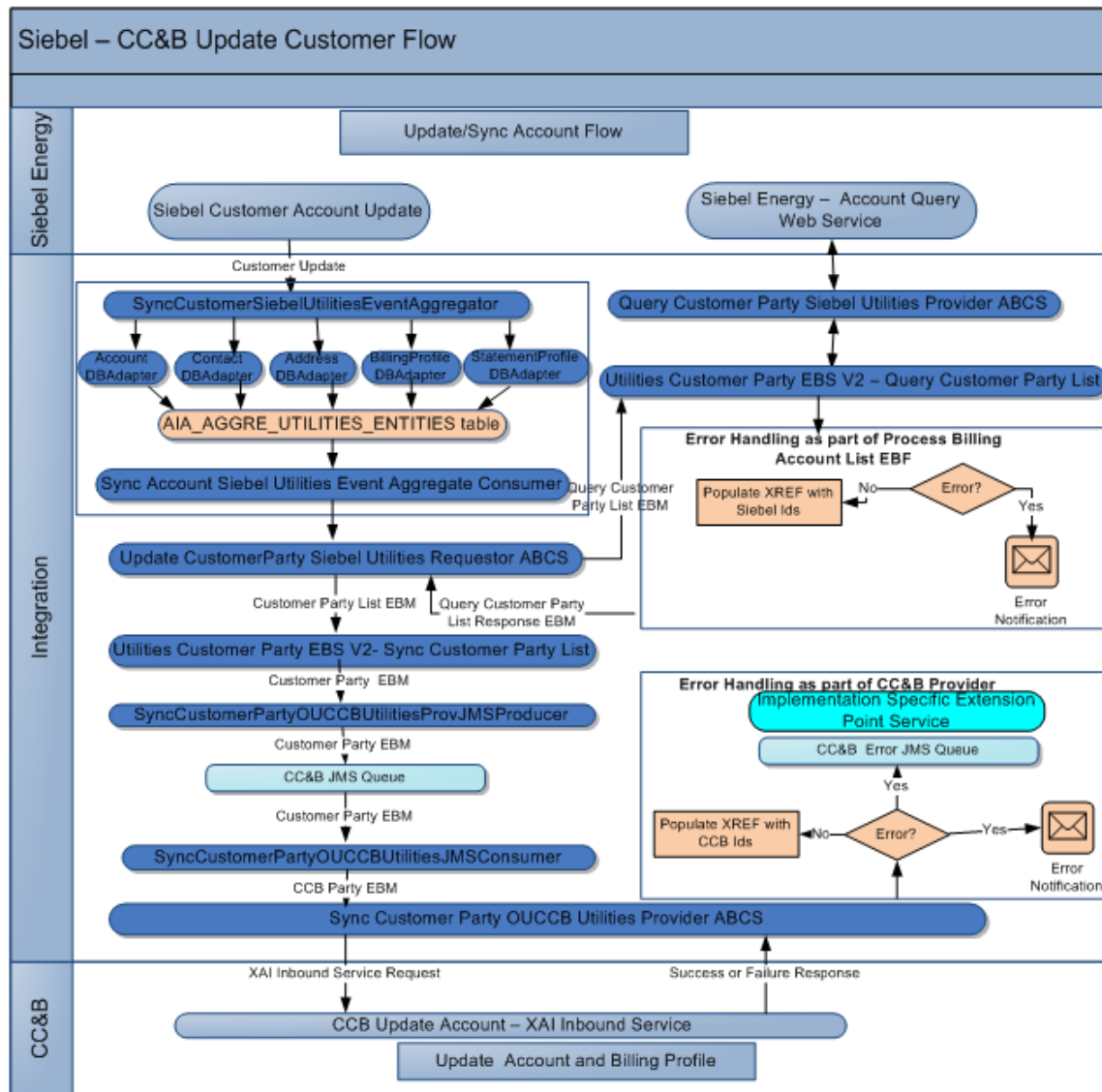


Figure 8: Siebel- Oracle Utilities Customer Care and Billing Update Customer Flow Diagram

1. **Account updated in Siebel:** In Siebel Energy, a user navigates to the Accounts screen, queries the account and updates the account attributes (for example, Address, Contact, the Primary Billing Profile, or Statement Profile). Siebel invokes the SyncCustomerSiebelUtilitiesEventAggregator with the SiebelUpdateABM message. The detail of the account is updated. Depending on the type of update, one of five Siebel messages can be generated: ListOfSWICustomerIO, ListOfSWIBillingProfileIO, ListOfSWIStatementProfileIO, ListOfSWIContactIO, or ListOfSWIAddressIO.

Note: For using this integration in a setup where customer data updates have to be synchronized with multiple billing systems, that is, co-deployment of Utilities and Communications PIP, refer to [Appendix D](#) of this document for setup and configuration changes that may be required.

## 2. **SyncCustomerSiebelUtilitiesEventAggregator:**

SyncCustomerSiebelUtilitiesEventAggregator will be directly invoked by Siebel Outbound web service, if only Utilities PIP is being used. The SyncCustomerSiebelUtilitiesEventAggregator then calls a database adapter that runs a pl/sql script that extracts and stores the relevant IDs (for example, Account, Contact, or Billing Profile) in a database table AIA\_AGGRE\_UTILITIES\_ENTITIES. The IDs in the database table are stored in the same manner as the hierarchy of IDs is maintained (for example, BillingProfileID is always a child of some Account ID).

This service provides five operations, one for each of the object types that are updated:

- **Aggregateaccountevent:** Receives the Account Updated Siebel message. Extracts the Account ID, Contact IDs, and Address IDs from the message. Invokes the SyncAccountSiebelUtilitiesAggregatorAdapter to store these IDs into the AIA\_AGGRE\_UTILITIES\_ENTITIES database table.
- **Aggregatecontactevent:** Receives the Contact Update Siebel message. Extracts the Account IDs, Bill Profile IDs, and Contact IDs from the message. Invokes the SyncContactSiebelUtilitiesAggregatorAdapter to store these IDs in the AIA\_AGGRE\_UTILITIES\_ENTITIES database table.
- **Aggregateaddressevent:** Receives the Address Update Siebel message. Extracts the Account IDs, Bill Profile IDs, and Address IDs from the message. Invokes the SyncAddressSiebelUtilitiesAggregatorAdapter to store these IDs into the AIA\_AGGRE\_UTILITIES\_ENTITIES database table.
- **Aggregatebpevent:** Receives the BillingProfile Updated Siebel message. Extracts the BillingProfile ID and the associated Account ID from the message. Invokes the SyncBPSiebelUtilitiesAggregatorAdapter to store these IDs in the AIA\_AGGRE\_UTILITIES\_ENTITIES database table.
- **Aggregatespevent:** Receives the StatementProfile Updated Siebel message. Extracts the StatementProfile ID and the associated account ID from the message. Invokes the SyncSPSiebelUtilitiesAggregatorAdapter to store these IDs in the AIA\_AGGRE\_UTILITIES\_ENTITIES database table.

Depending on the operation of update, one of the following Adapter services is invoked:

- **SyncAccountSiebelUtilitiesAggregatorAdapter:** This service aggregates the account events generated in Siebel CRM when an account is created or updated. This service invokes a PL/SQL procedure, AIA\_AGGREGATOR\_UTILITIES\_PUB.SIEBEL\_AGGREGATE\_ACCOUNT, which does the actual aggregation in the AIA aggregator table.
- **SyncContactSiebelUtilitiesAggregatorAdapter:** This service aggregates the account events generated in Siebel CRM when an account is created or updated. This service invokes a PL/SQL procedure, AIA\_AGGREGATOR\_UTILITIES\_PUB.SIEBEL\_AGGREGATE\_CONTACT, which does the actual aggregation in the AIA aggregator table.



- **SyncAddressSiebelUtilitiesAggregatorAdapter:** This service aggregates the account events generated in Siebel CRM when an account is created or updated. This service invokes a PL/SQL procedure, AIA\_AGGREGATOR\_UTILITIES\_PUB.SIEBEL\_AGGREGATE\_ADDRESS, which does the actual aggregation in the AIA aggregator table.
  - **SyncBPSiebelUtilitiesAggregatorAdapter:** This service aggregates the account events generated in Siebel CRM when an account is created or updated. This service invokes a PL/SQL procedure, AIA\_AGGREGATOR\_UTILITIES\_PUB.SIEBEL\_AGGREGATE\_BP, which does the actual aggregation in the AIA aggregator table.
  - **SyncSPSiebelUtilitiesAggregatorAdapter:** This service aggregates the account events generated in Siebel CRM when an account is created or updated. This service invokes a PL/SQL procedure, AIA\_AGGREGATOR\_UTILITIES\_PUB.SIEBEL\_AGGREGATE\_SP, which does the actual aggregation in the AIA aggregator table.
3. **SyncAcctSiebelUtilitiesEventAggrConsumer:** The Account ID along with its entire child IDs is picked up from the database table AIA\_AGGREGATOR\_UTILITIES\_ENTITIES by the SyncAcctSiebelUtilitiesEventAggrConsumer process. The Consumer process then calls the Update Customer Party Siebel Requester process.
  4. **Update Customer Party Siebel Utilities Requester:**  
UpdateCustomerPartySiebelUtilitiesReqABCSImplV1 takes all the Billing Account IDs, constructs a Query Customer Party EBM, and invokes Customer Party EBS V2 with operation Query Customer Party List to query Siebel for Account data.
  5. **Query Customer Party Siebel Provider ABCS:** The QueryCustomerPartyListSiebelUtilitiesProvABCSImplV1 invokes a Siebel web service 'SWICustomerPartyService' that queries the Siebel database and fetches the account data, which is then sent back as a response by means of the same Siebel ABM. The response message is then transformed to the response EBM, QueryCustomerPartyListResponseEBM by the Query Provider Application Business Connector Service (ABCS). The response message is then transformed to the response EBM, QueryCustomerPartyListResponseEBM by the Query Provider Application Business Connector Service (ABCS). The response is sent back to the Update Customer Party Siebel Requester process.
  6. **Update Customer Party Siebel Utilities Requester:** After getting the response from Query Customer Party Siebel Provider, the Siebel Query Input ABM is transformed into SyncCustomerPartyListEBM and the Customer Party EBS is invoked with operation SyncCustomerPartyList operation. At this point, it also marks the SyncCustomerPartyListEBM message with an Action of Update.
  7. **Customer Party EBS:** The EBS, UtilitiesCustomerPartyEBSV2 with SyncCustomerPartyList operation then invokes the Producer Customer Party CCB JMS Producer to put the messages into an Oracle Utilities Customer Care and Billing (CC&B) Queue.
    - **Customer Party CCB JMS Producer:** The CCB Producer, SyncCustomerPartyOUCCBUtilitiesProvJMSProducerV1 puts the messages into a CCB JMS Queue.
    - **Customer Party CCB JMS Consumer:** The CCB Consumer,



SyncCustomerPartyOUCCBUtilitiesJMSConsumerV1, consumes the message and then invokes the Sync Customer Party CCB Provider ABCS.

- **Sync Customer Party OUCCB Provider:** The SyncCustomerPartyOUCCBUtilitiesProvABCImpl invokes the CCB Web Service 'C1-CustomerMaintenanceRequest' with the appropriate Oracle Utilities Customer Care and Billing Person ID and Account ID. The CCB web service processes the accounts to be synchronized and returns the Response back to the Provider. The provider checks if the customer synchronization was a "Success" or "Failure" for each Account in the list. If Success, it populates the XREF table with CCB Auto Pay ID information if applicable. If Failure, it sends an error notification out and a rollback message to the CCB JMS Error Queue.

**Note:** Customer extension points can handle the logic to process errors further.

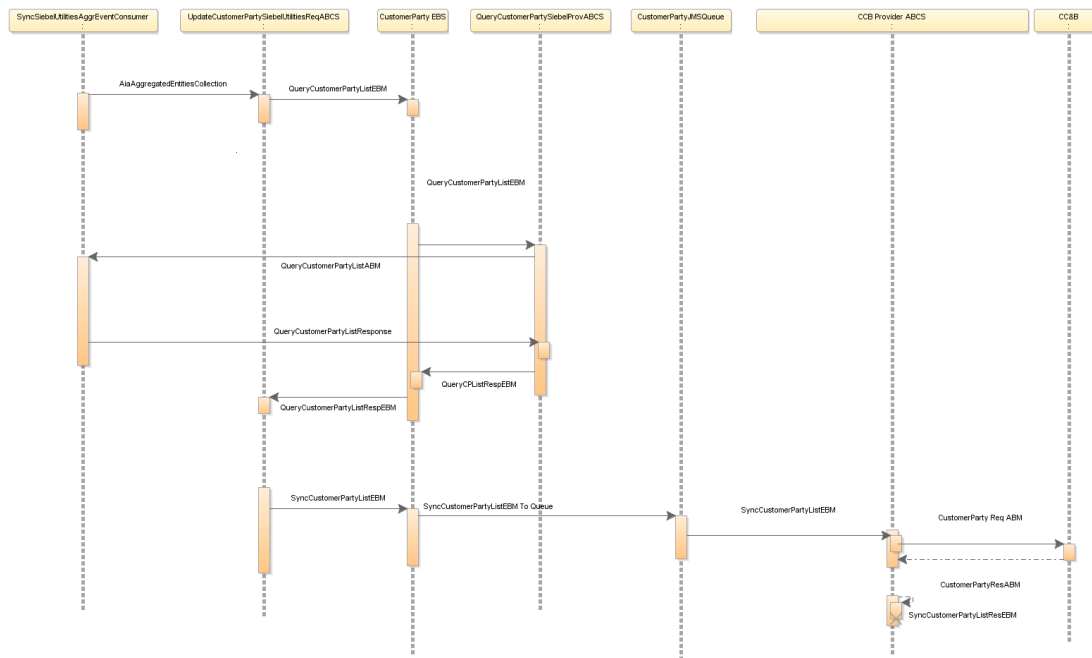


Figure 9: Sequence Diagram of the Update Customer Integration flow

Following are the list of interface components used in this Integration flow:

- SyncCustomerSiebelUtilitiesEventAggregator
- SyncAccountSiebelUtilitiesAggregatorAdapter
- SyncAddressSiebelUtilitiesAggregatorAdapter
- SyncBPSiebelUtilitiesAggregatorAdapter
- SyncContactSiebelUtilitiesAggregatorAdapter

- SyncSPSiebelUtilitiesAggregatorAdapter
- SyncSiebelUtilitiesAggrEventConsumer
- UpdateCustomerPartySiebelUtilitiesReqABCSImplV1
- UtilitiesCustomerPartyEBSV2
- QueryCustomerPartyListSiebelUtilitiesProvABCSImplV1
- SyncCustomerPartyOUCCBUtilitiesProvJMSProducerV1
- SyncCustomerPartyOUCCBUtilitiesJMSConsumerV1
- SyncCustomerPartyOUCCBUtilitiesProvABCSImpl
- SyncCustomerSiebelUtilitiesEventAggregatorRoutingService (Optional component required for co-deployment of both Utilities and Communications PIP)

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## Technical Assumptions

The following Technical Assumptions are described in this section:

- Siebel writes Order Data message to an Order JMS queue on the Service Oriented Architecture (SOA) server.
- When Siebel is queried with a list of Account IDs to retrieve customer information, it is an all or none operation. If an error occurs while retrieving any of the customer information based on the given list of input Account IDs, Siebel simply returns an error and does not return partial customer information.
- Oracle Utilities Customer Care and Billing (CC&B) interface to create/update customer data is invoked through a single XAI Inbound web service from the integration. The XAI Inbound Service is based on a Customer Maintenance Service Script created in Oracle Utilities Customer Care and Billing. The Service script processes one account at a time. It creates a new Service Task BO instance for each account. Maintenance object for this BO is service task (F1-STASKTYPE).
- The XAI Inbound Service -Web Service call to Oracle Utilities Customer Care and Billing to synchronize customer data is a Synchronous call.
- The Siebel Account ID/ Account Number is stored in Oracle Utilities Customer Care and Billing as a characteristic on Service Task/Account, so it is searchable in Oracle Utilities Customer Care and Billing.
- In Oracle Utilities Customer Care and Billing, the creation/update of Person/Account/Autopay is an all or none operation. If Oracle Utilities Customer Care and Billing Person Creation completes successfully but there are errors while creating the Account or setting up Autopay, the entire transaction is rolled back in Oracle Utilities Customer Care and Billing and an exceptionInfo message is sent to Integration.
- Every element in the ABM message is passed to Oracle Utilities Customer Care and Billing for the update process. This is needed, in case, if a particular node gets deleted from Siebel

Energy, then Oracle Utilities Customer Care and Billing needs to get an empty element for this node in order to overwrite the value.

- No Integration ID or Oracle Utilities Customer Care and Billing Customer Data IDs are stored in Siebel.
- For the Create Flow, Billing Accounts for all Order messages from Siebel is looked at and accounts is synchronized with Oracle Utilities Customer Care and Billing. This is done irrespective of the Product or Action fields on the Order Line Item.
- Create Customer Flow only handles creation of Customer Data in Oracle Utilities Customer Care and Billing but no updates. For example, if a Billing Account was processed as part of Order 1 and the same Billing Account comes into integration as part of Order 10, Create Customer Integration flow does not process the Billing Account further.
- Update Customer Flow handles any updates sent from Siebel. If the updated Siebel Billing account was not processed by the Create Customer flow previously, further processing of the update message will not happen and message is thus ignored.
- If the SOA server is down or unavailable when the Order is sent out from Siebel, Siebel marks the Order message in Error Status. A Call Service Representative must manually resubmit the order message to Integration when the SOA server is up and running again.
- If there is an error during creation or update process in Oracle Utilities Customer Care and Billing, no error message is sent back to Siebel. Errors are rolled back to the Error Queue and implementation can process them further through custom extension points.
- If the Oracle Utilities Customer Care and Billing application is down and integration cannot reach Oracle Utilities Customer Care and Billing, all messages are saved in an Error Queue in integration. When Oracle Utilities Customer Care and Billing application is up and running, messages must be manually submitted from integration to Oracle Utilities Customer Care and Billing.

## Oracle Utilities Customer Care and Billing (CC&B) Interfaces

This section describes the Oracle Utilities Customer Care and Billing (CC&B) Interfaces in detail.

### Inbound CC&B Web Service

Message Name	Invoked By	Web Service Description
C1-CustomerMaintenanceRequest	Sync Customer Party CC&B Provider ABCS	Create/Update Customer XAI Inbound Web service to Create/Update Customer in CCB

## Siebel Energy Interfaces

The following Siebel Energy Interfaces are described in this section.

**Inbound Siebel Web Services**

Web Service Name	Invoked By	Web service Description
SWICustomerParty	Query Customer Party Siebel Provider ABCS	Retrieves Account, Contact, Address, Bill Profile, Statement Profile from Siebel

**Outbound Siebel Messages**

Web Service Name	Populated By	Message Description
SWIOrderIO	Siebel Sales Order Requester ABCS	Populated in a queue and consumed by Create Customer flow.
SyncCustomerSiebelEventAggregator or	SyncCustomerSiebelUtilitiesEventAggregatorService	This is started whenever an account, contact, Address, Billing Profile, Statement Profile are updated in Siebel energy

**Siebel Workflow Event Interfaces**

Event Name	Consumed by	Description
SWI Account Updated	This event message is consumed by The SyncCustomerSiebelEventAggregator. aggregateaccountevent service, which extracts all the relevant IDs from the input payload and stores them in a database table (AIA_AGGRE_UTILITIES_ENTITIES).	This workflow event is started when an account is updated in Siebel
SWI Bill Profile Updated	The event message is consumed by the SyncCustomerSiebelEventAggregator. aggregatebpevent service, which extracts all the relevant IDs from the input payload and stores them in a database table (AIA_AGGRE_UTILITIES_ENTITIES).	This workflow event is started when a bill profile is updated in Siebel
SWI Statement Profile Updated	The event message is consumed by the SyncCustomerSiebelEventAggregator. aggregatespevent service, which extracts all the relevant IDs from the input payload and stores them in a database table	This workflow event is started when a statement profile is updated in Siebel

Event Name	Consumed by	Description
	(AIA_AGGRE_UTILITIES_ENTITIES).	
SWI Contact Updated	The event message is consumed by the SyncCustomerSiebelEventAggregator. aggregatecontactevent service, which extracts all the relevant IDs from the input payload and stores them in a database table (AIA_AGGRE_UTILITIES_ENTITIES).	This workflow event is started when a contact is updated in Siebel
SWI Address Updated	The event message is consumed by the SyncCustomerSiebelEventAggregator. aggregateaddressevent service, which extracts all the relevant IDs from the input payload and stores them in a database table (AIA_AGGRE_UTILITIES_ENTITIES).	This workflow event is started when an address is updated in Siebel

## Industry Oracle Application Integration Architecture (AIA) Components

The integration flow uses the following components:

EBO	EBM	File Locations
SalesOrderEBO	ProcessSalesOrderBillingAccountListEBM ProcessSalesOrderBillingAccountListResponseEBM	The Utilities EBO and EBM XSD files are in: \$AIA_HOME/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Industry/Utilities/EBO/SalesOrder folder.
CustomerPartyEBO	QueryCustomerPartyListEBM QueryCustomerPartyListResponseEBM - Used to get Customer information ProcessCustomerPartyListEBM ProcessCustomerPartyListResponseEBM SyncCustomerPartyListEBM – Used to synchronize customer information SyncCustomerPartyListResponseEBM ProcessBillingAccountListEBM – Used to get list of Billing Accounts from Sales Order to query Siebel	\$AIA_HOME/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Industry/Utilities/EBO/CustomerParty folder.

## Integration Services

This section describes the following Integration Services in detail:

### ABCS

These values are cross-referenced in the configuration guidelines section for the integration.

ABCS Name	Description
QueryCustomerPartyListSiebelUtilitiesProvABCSImplV1	Siebel Query Customer Party Provider ABCS
SyncCustomerPartyOUCCBUtilitiesProvABCSImpl	Oracle Utilities Customer Care and Billing Customer Party Provider ABCS
UpdateCustomerPartySiebelUtilitiesReqABCSImplV1	Siebel Customer Party Requester ABCS
ProcessSalesOrderSiebelUtilitiesReqABCSImpl	Demo Siebel Sales Order Requester ABCS

QueryCustomerPartyListSiebelUtilitiesProvABCSImplV1 uses AIA Session Pool Manager

**For more information** on AIA Session Pool Manager, see [Appendix C: Using Session Pool Manager](#).

## Enterprise Business Services

EBS Name	Description
UtilitiesSalesOrderEBSV2	Enterprise Business Service to Route the Sales Order Message
UtilitiesCustomerPartyEBSV2	Enterprise Business Service to Route the Customer Party Message The UtilitiesCustomerPartyEBSV2 exposes all of the enterprise operations that can be performed with a CustomerParty enterprise object. The integration uses the following operations: -QueryCustomerPartyList -SyncCustomerPartyList
The EBS WSDL files are located in: \$AIA_HOME/AIAMetaData/AIAComponents/EnterpriseBusinessServiceLibrary/Industry/Utilities/EBO/ folder	

## Adapter Services

Adapter Service Name	Description
ProcessSalesOrderSiebelUtilitiesJMSConsumer	JMS consumer service that listens to the Siebel Sales Order JMS Queue (SalesOrderQueue) and sends the messages to Siebel Sales Order Requester ABCS
ProcessSalesOrderBillingAccountListSiebelUtilities Producer	JMS producer service that is invoked by EBS to put the Siebel Order EBM with list of Billing Accounts in a queue. This service is responsible for posting the message to the Sales Order Billing Account List JMS Queue for EBF to consume
ProcessSalesOrderBillingAccountListSiebelUtilities Consumer	JMS consumer service that listens to the Sales Order Billing Account List JMS Queue and sends the messages to UtilitiesProcessSalesOrderBillingAccountListEBF.
SyncCustomerPartyOUCCBUilitiesJMSConsumer V1	JMS producer service that is invoked when the Customer Party message is routed to CC&B. This service is responsible for posting the message to the Customer Party JMS Queue for CC&B.
SyncCustomerPartyOUCCBUilitiesProvJMSProdu cerV1	JMS consumer service that listens to the CC&B Customer Party JMS Queue and sends the messages to CC&B Customer Party Provider ABCS.
SyncSiebelUtilitiesAggrEventConsumer	This service extracts the account IDs stored in the AIA_AGGRE_UTILITIES_ENTITIES database table and sends them forward to the UpdateCustomerPartySiebelUtilitiesReqABCSEmpV1 Service.

**EBF**

Adapter Service Name	Description
UtilitiesProcessSalesOrderBillingAccountListEBF	This Enterprise Business Flow (EBF) extracts the Customer Data from OrderEBM. The process loops through every order line and extracts any Billing Account that it encounters.
UtilitiesProcessBillingAccountListEBF	This EBF service creates or synchronizes all the Customer data to synchronize to an appropriate billing system.

**Aggregator Services**

Adapter Service Name	Description
SyncCustomerSiebelUtilitiesAggregatorRoutingService	<p>This service is responsible for receiving Siebel update account events and routing them either only to SyncCustomerSiebelUtilitiesEventAggregator (For Oracle Utilities Customer Care and Billing) or both SyncCustomerSiebelUtilitiesEventAggregator (For Oracle Utilities Customer Care and Billing) and SyncCustomerSiebelEventAggregator (For BRM).</p> <p>Note: This service is used only when both Utilities Process Integration Pack (PIP) and Communications BRM PIP are used at the same time.</p> <p>For more Information, refer to <a href="#">Appendix D</a> of this document for further details about co-deployment.</p>
SyncCustomerSiebelUtilitiesEventAggregator	This service is responsible for receiving Siebel update account events and collating them into an Oracle AIA database table.
SyncAccountSiebelUtilitiesAggregatorAdapter	This service aggregates the account events generated in Siebel when an account is created or updated.
SyncContactSiebelUtilitiesAggregatorAdapter	This service aggregates the account events generated in Siebel when an Account contact is created or updated.
SyncSPSiebelUtilitiesAggregatorAdapter	This service aggregates the account events generated in Siebel when an Account Statement Profile is created or updated.
SyncAddressSiebelUtilitiesAggregatorAdapter	This service aggregates the account events generated in Siebel when an account Address is created or updated.
SyncBPSiebelUtilitiesAggregatorAdapter	This service aggregates the account events generated in Siebel when an Account Billing Profile is created or updated.

**Queues**

Adapter Service Name	Description
SalesOrderQueue	Order messages from Siebel are put into the SalesOrderQueue
AIA_OUSEBLSalesOrderJMSQueue	Messages converted to SalesOrder EBM are put into the AIA_OUSEBLSalesOrderJMSQueue



Adapter Service Name	Description
AIA_OUCCBSalesOrderJMSQueue	Messages in CustomerParty EBM format are put into the AIA_OUCCBSalesOrderJMSQueue
SalesOrderQueue_ErrorQ	Siebel Sales Order Error Queue
AIA_OUSEBLSalesOrderJMSQueue_ErrorQ	Integration specific Siebel Sales Order JMS Error Queue
AIA_OUCCBSalesOrderJMSQueue_ErrorQ	Integration specific CCB JMS Error Queue

**Note:** Process Integration Pack (PIP) creates an error queue for each main queue in integration with the name of the main queue followed by \_ErrorQ.

# Part 2: Implementing the Delivered Integrations

[Chapter 4: Configuration Guidelines](#)

[Chapter 5: Monitoring, Error Handling and Troubleshooting](#)

[Chapter 6: Extensibility Options](#)

[Chapter 7: Security](#)

## Chapter 4: Configuration Guidelines

This chapter provides details on the required configuration settings for the integration, and provides post-install configuration instructions. It discusses how to:

- [Set up Oracle Utilities Customer Care and Billing](#)
- [Set up Siebel Energy](#)
- [Set up the Customer Data Synchronization Integration Pack](#)

**For more information** about installation and deployment of your PIP, see *Oracle Fusion Middleware Installation and Upgrade Guide* for Oracle Application Integration Architecture Foundation Pack.

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### Setting up Oracle Utilities Customer Care and Billing

To set up Oracle Utilities Customer Care and Billing (CC&B) for the integration, configure the following:

- [Admin Data Setup](#)
- [System Data Setup](#)

**For more information** on configuring and working with Oracle Utilities Customer Care and Billing, see the Oracle Utilities Customer Care and Billing user documentation.

The following sections provide details about how to configure these items.

**Note:** Some configurations described may be required for general functionality and do not necessarily relate directly to the integration; however, these are called out as particularly significant configuration items. The inclusion of such items does not mean that other general items that are not mentioned do not need to be configured.

## Configure Admin Data Tables

This section describes the unique setup issues specifically related to configuring your system for the integration.

**For more information** about configuring Oracle Utilities Customer Care and Billing, see the Oracle Utilities Customer Care and Billing User Guide.

### Installation Options

By default, Integration does not pass person identifier when a new Person record is added, hence **Person ID Usage** indicator on **Installation Options** must be set to **Optional**.

Navigation	Guideline
Admin Menu → Installation Options → Person	Setup Person ID Usage to be Optional

### Account Relationship Types

Setup account relationship types for the customer maintenance task. Ensure that the main customer and Siebel billing contacts relationship types are defined on the Schema Constants feature configuration.

Navigation	Guideline
Admin Menu → Account Relationship Type	Setup account relationship types for the main customer and Siebel billing contacts

### Bill Route Type

Set up your bill route types to define the method used to route bills to accounts. Ensure that the default bill route type is defined on the Schema Constants feature configuration.

Navigation	Guideline
Admin Menu → Bill Route Type	Setup a bill route type for the customer maintenance task

## Phone Type

Set up your phone types to define the format for entering and displaying phone numbers. Ensure that the fax and main phone types are defined on the Schema Constants feature configuration.

Navigation	Guideline
Admin Menu → Phone Type	Setup phone types for the customer maintenance task

## Service Task Types

Create a new Service Task Type for customer maintenance. Ensure that this Task Type is defined on the Siebel master configuration. The Task Type must reference the following:

- The Person and Account business objects to use when adding or updating person/account instances. See the System Data section below for business objects included in the base product.
- Define the Payment Types your implementation supports for automatic payments. Additional payment types may be defined by adding values for the lookup field EXT\_TYPE\_FLG. The external payment type is included in a Siebel customer maintenance request when a customer enrolls in an automatic payment plan. For checking and savings withdrawal, the corresponding Tender Type is used to retrieve the auto pay source code for the account.
- Define the Credit Card Types that your implementation supports for automatic payments. Additional credit card types may be setup by adding values for lookup field CARD\_TYPE\_FLG. A credit card type may be included in a Siebel customer maintenance request. The Auto Pay Source associated with the Credit Card Type is used when a customer enrolls in an automatic payment plan

Navigation	Guideline
Admin Menu → Service Task Type	Create a service task type for customer maintenance.

Refer to the demo environment for a sample Service Task Type. Embedded help is available to guide you through the setup process

## Master Configuration

Your implementation must configure an instance of the Siebel integration master configuration in Oracle Utilities Customer Care and Billing (CC&B). The master configuration contains pertinent information needed for a Siebel integration, including the service task type to be used for customer maintenance.

Navigation	Guideline
Admin Menu → Master Configuration	Create a master configuration to be used Siebel integration.

Refer to the demo environment for a sample Siebel Integration master configuration. Embedded help is available on the master configuration to guide you through the setup process.

## Feature Configuration

A Schema Constants feature configuration must be set up. This should include the following option types and corresponding values that are used in the integration:

- Main Account and Billing Contact Relationship Types
- Bill Route Type
- Fax and Main Phone Types

Navigation	Guideline
Admin Menu > Feature Configuration	Ensure that a Schema Constants feature configuration has been setup.

## XAI Inbound Services

**Note:** For more information on configuration, please see the online help provided in Oracle Utilities Customer Care and Billing.

The following are the base XAI Inbound Services used in the Siebel integration.

Name	Description
C1-CustomerMaintenanceRequest	This inbound service is used in the Siebel integration. It creates a service task for a customer maintenance request. The service task type to use is retrieved from the Siebel integration master configuration.

## Auto Pay Source Code

The Auto Pay Source Code should be setup to capture Bank and Credit Card information used for Auto Pay. This should include the following setup:

- Source Name captures the Bank and Credit Card name
- Description
- Tender Type
- External Source ID captures the Bank Routing Number
- Auto Pay Route Type
- Work Calendar

Navigation	Guideline
Admin Menu > Auto Pay Source Type	Setup the Banking and Credit Card Information used for Auto Pay.

**Note:** Auto Pay Source Code details related to Banks should be manually synchronized in Siebel Energy. See the “Setting up Bank Information” section for additional details on the setup required for Siebel Energy. When invoking Inbound Service in Oracle Utilities Customer Care and Billing, only the Bank Routing Number is passed in, Auto Pay Source Code is deduced from the External Source ID and Tender Type.

## Configure System Data Tables

This section describes configuring the System Data Tables to facilitate integration.

### BO Algorithms

The following BO Algorithms are explained in this table:

Algorithm Type	Description
C1-FMTPERNAM	If your implementation uses an installation person name validation algorithm, then ensure that a Format Person Name (C1-FMTPERNAM) algorithm is configured and plugged-in on the Pre-Process state of the C1-CustomerMaintenanceTask BO. This ensures that the name in the request is formatted if necessary before a person is added in Oracle Utilities Customer Care and Billing.
F1-TDCREATE	This enter algorithm can be used if your implementation requires a to-do entry to be created when a customer maintenance request fails. At a minimum your implementation must define the To Do Type to use in creating the To Do entry and the Characteristic Type For Log Entry used in linking the To Do entry to the service task via its logs. The base product provides characteristic type F1-TODO for this purpose. Ensure that the algorithm configured is plugged-in on Error state of the C1-CustomerMaintenanceTask BO  For details on the other parameters used by this algorithm, see the algorithm type description.

### Business Object

The following Business Object components and its related description are described in detail in this table:

Business Object	Description
C1-CustomerMaintenancePerson	<p>This business object is used in the Siebel integration. When a customer maintenance request is received from Siebel, an inbound service (C1-CustomerMaintenanceRequest) determines the Service Task Type to use for the event. This is done by finding the Service Task Type defined on the Siebel integration master configuration for the customer maintenance integration event. The inbound service then instantiates a service task for this type, and a Person and Account are subsequently added or updated within the task's lifecycle.</p> <p>If your implementation wishes to use this BO for Siebel customer maintenance, ensure that it's specified as the Person BO on the customer maintenance Service Task Type that you configure for the integration.</p>

Business Object	Description
C1-CustomerMaintenanceAccount	<p>This business object is used in the Siebel integration. When a customer maintenance request is received from Siebel, an inbound service (C1-CustomerMaintenanceRequest) determines the Service Task Type to use for the event. It does this by finding the Service Task Type defined on the Siebel integration master configuration for the customer maintenance integration event. The inbound service then instantiates a Service Task for this type, and a Person and Account are subsequently added or updated within the task's lifecycle.</p> <p>If your implementation wishes to use this BO for Siebel customer maintenance, ensure that it's specified as the Person BO on the customer maintenance Service Task Type that you configure for the integration.</p>
C1-CustomerMaintenanceTaskType	<p>This business object is used in the Siebel integration. When a customer maintenance request is received from Siebel, an inbound service (C1-CustomerMaintenanceRequest) determines the service task type to use for the event. This is done by finding the service task type defined on the Siebel integration master configuration for the customer maintenance integration event. The inbound service then instantiates a service task for this type, and a Person and Account are subsequently added or updated within the task's lifecycle.</p> <p>If your implementation receives Siebel customer maintenance requests, ensure that a Schema Constants feature configuration has been set up. This should include the following option types and corresponding values that are used in the integration:</p> <ul style="list-style-type: none"> <li>- Main Account and Billing Contact Relationship Types</li> <li>- Bill Route Type</li> <li>- Fax and Main Phone Types</li> </ul>



Business Object	Description
C1-CustomerMaintenanceTask	<p>This business object defines the behavior of a customer maintenance request in the Siebel Integration. When a customer maintenance request is received from Siebel, an inbound service (C1-CustomerMaintenanceRequest) determines the Service Task Type to use for the event. This is done by finding the service task type defined on the Siebel integration master configuration for the customer maintenance integration event. The inbound service then instantiates a Service Task for this type, and a Person and Account are subsequently added or updated within the task's lifecycle.</p> <p>To configure your system for customer maintenance requests using this business object, ensure that a Schema Constants feature configuration has been set up. This should include the following option types and corresponding values that are used in the integration:</p> <ul style="list-style-type: none"> <li>- Main Account and Billing Contact Relationship Types</li> <li>- Bill Route Type</li> <li>- Fax and Main Phone Types</li> </ul> <p>If your implementation uses an installation person name validation algorithm, then ensure that a Format Person Name (C1-FMTPERNAM) algorithm is configured and plugged-in on the Pre-Process state. This ensures that the name in the request is formatted if necessary before a person is added in Oracle Utilities Customer Care and Billing.</p> <p>All errors encountered while processing a customer maintenance request are returned to the integration layer. If your implementation wishes to create a to do entry when an error is encountered, the following setup is required:</p> <ul style="list-style-type: none"> <li>- Add a To Do Type for these errors</li> <li>- Create a Generic To Do Entry Creation (F1-TDCREATE) algorithm and specify the To Do Type to use</li> <li>- Update the Error state of this BO to reference the algorithm</li> </ul>

## Batch Scheduling

The following Batch Scheduling batch process is explained in this section:

Batch Code	Description
C1-PRGST	This batch process can be used to purge Service Tasks in a final state. The parameters outlined below may be used to purge a subset of Service Tasks.

Batch Parameters	Parameter Description
serviceTaskClass	Enter a Service Task class code to limit the purge process to Service Tasks associated with Service Task Types that belong to a specific class.
serviceTaskType	Enter a Service Task Type code to limit the purge process to Service Tasks associated with that Service Task Type.

Batch Parameters	Parameter Description
numberOfDays	Specify the age (in number of days) of the Service Tasks that need to be purged. The Service Task creation date must be equal to or less than the process date minus this parameter value.
maxErrors	Enter a value here to override the maximum number of errors allowed before the run is terminated.

## Setting up Siebel Energy

The following sections provide details into the Siebel Energy configurations needed to facilitate the integration.

**Note:** Some configurations described may be required for general functionality and do not necessarily relate directly to the integration; however, these are called out as particularly significant configuration items. The inclusion of such items does not mean that other general items that are not mentioned do not need to be configured.

Following ACR need to be setup in the Siebel environment for this integration:

- Configurations specified in ACR474 have to be made prior to making configuration changes required for this PIP.
- Configurations specified in ACR756 covers all the changes required for the Utilities PIP. Refer to Documentation specified in ACR756 for the following changes in Siebel required for Utilities PIP
  - Pre-Install Changes,
  - Siebel Tool Changes
  - Seed Data Changes

## Other Configurations in Siebel

This section describes configuration settings that may be required in Siebel Energy.

**For more information** on configuring and working with Siebel Energy, see the *Siebel Energy User Guide and Configuration Guide*.

## Configuring Outbound Web Services

Outbound Web services allow Siebel applications to make requests of external applications. Complete the following steps for defining the end point URL (Outbound Web services)

### Web Service Changes for Statement Profile Update

1. Navigate to Site Map > Administration – Web Services > Outbound Web Service

2. Query for “SyncCustomerSiebelEventAggregator” in Name Field
3. In the Service Port Applet, modify the Address Field with following value:  
<http://sdc60024sems.us.oracle.com:8056/soa-infra/services/default/SyncCustomerSiebelUtilitiesEventAggregator/Client>
4. Query for “SWISubmitOrder” on the Name field of the Web Services applet.
5. Change the Address field for outbound Web service to point  
<jms://jms/aia/SalesOrderQueue@jms/aia/AIAOUSEBLCF>

**Note:** For using this integration in a setup where customer data updates have to be synchronized with multiple billing systems, that is, co-deployment of Utilities and Communications PIP, refer to Appendix D of this document for Siebel configuration related changes that may be required.

## Configuring Inbound Web Services

Inbound Web services allow external clients to access Siebel functionality.

The Inbound Web Services can be configured as shown in the following steps:

### To Configure Inbound Web Services:

1. Navigate to Administration - Web Services > Inbound Web Services, and make sure that the corresponding Web Services are active. If they are not, change the status from "Inactive" to "Active" and click the Clear Cache button.
2. Query for these inbound web services – \* ISS \*, \* Update Order \*, \* SWI Update \*, SWI\*
3. Update the address of SWI Customer Party Service, SWI Contact Service, SWIProduct\* services accordingly.

## Enabling Required System Preferences

The system preferences control how the application operates and what functionality is enabled in the Siebel environment.

To enable the required system preferences for this integration, the following steps are described:

### To Enable the Required System Preferences

1. Navigate to Administration - Application > System Preferences in the application, query for the following list of PIPs, and Enable AIA Utility - > TRUE
2. Restart the Siebel Server.

## Setting up Banking Information

The Banking information in Siebel environment needs to be manually synchronized based on the Auto Pay Source Type details in Oracle Utilities Customer Care and Billing.

### To Configure Banks

1. Navigate to Administration - Data > Banks, and make sure the Bank Name and Bank Routing Number are configured correctly.
2. To add new Banking Information, Click on New and add the Bank Name and Bank Routing Number.

**Note:** Bank Name in Siebel Energy maps to Source Name in Oracle Utilities Customer Care and Billing. Bank Routing Number maps to External Source Id in Oracle Utilities Customer Care and Billing. When invoking Inbound Service in Oracle Utilities Customer Care and Billing, only the Bank Routing Number is passed in, Bank Name is not passed into Oracle Utilities Customer Care and Billing.

### Preventing Seasonal Address Overlap

Oracle Utilities Customer Care and Billing has a restriction that prevents the overlap of Seasonal addresses. In order to avoid overlap of Seasonal Address dates in Siebel, the implementation adds some logic to prevent integration issues.

**For more information**, refer [to Appendix E](#) of this document. A sample Siebel script is provided to avoid address overlap.

## Setting up the Customer Data Synchronization Integration Pack

The following area needs to be setup to configure Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing and Siebel Energy Integration:

- [AIAConfigurationProperties.xml](#)
- [Domain Value Maps](#)
- [Error Handling](#)
- [SOA Infrastructure Common Properties](#)

### Setting the Application Integration Architecture (AIA) Configuration Properties

Various configurations that apply to the entire Oracle Application Integration Architecture (AIA) system, Core Infrastructure Components, and specific process integration services are stored in the AIAConfigurationProperties.xml file located in <AIA.HOME>/aia\_instance/<INSTANCE\_NAME>/AIAMetadata/config/ and the AIAConfigurationProperties.xml is stored in Metadata Service (MDS).

This section lists the configurations in this file that are used by the Customer Data Synchronization Integration Pack. These configurations hold several configurable values that are picked up by the integration at runtime to:

- Default some business entity value sent to the target edge applications when the data is moved from one system to another. These configuration values may need to be updated with your implementation specific values for the integration to work correctly. These properties are described in this section in detail.
- Activate custom implemented extension points available inside the ABCS. By default, these properties are set not to invoke any of the extension points as the extension points need to be implemented using the AIA ABCS Extension guidelines before being activated. These properties need to be changed only if you decide to extend the core functionality provided by this Customer Data Synchronization Integration Pack, using the predefined ABCS extension points. These properties are not listed in this section but can be identified in the AIAConfigurationProperties.xml file as the name of these Service Configuration properties start with ABCSExtension and are available in the file under each ABCS Name.

**For more information** on extending the ABCS using extension points, see [Extensibility Options](#).

- Get the endpoint URLs for Provider ABCS. These properties are set to appropriate values during the installation of Customer Data Synchronization Integration Pack, based on the information specified during the installation. You need not modify the values.

**For more information** about requirements for working with AIAConfigurationProperties.xml, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Building AIA Integration Flows," How to Set Up AIA Workstation."

## Settings for System Properties

Two sets of configuration properties are described in this section:

- Module Configurations are the properties that are shared by multiple integration flows within this Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing (CC&B) and Siebel Energy.

**Note:** The only module configuration properties needed for this integration are those required for Shared Services Session Pool Manager. Refer to [Appendix C](#) for further details about Session Pool Manager

- Service Configurations are the properties that are used by a specific ABCS.

## Service Configurations

ABCS Name	Property Name	Default / Shipped Value	Description
ProcessSalesOrderSiebelUtilitiesReqABCImpl	SendSalesOrder	false	This property can be set to true if Implementation wants to invoke the processing of Sales Order as a web service call from the Requester.
ProcessSalesOrderSiebelUtilitiesReqABCImpl	OrderWebServiceName	DemoSalesOrderService	Name of the Web Service call to invoke when the SendSalesOrder property specified above is set to true.
SyncCustomerSiebelUtilitiesEventAggregator	aggregatecontactevent.EnableExtension	false	This property is set to true if any extension is required on the Aggregator for a Contact update from Siebel
SyncCustomerSiebelUtilitiesEventAggregator	aggregateaddressevent.EnableExtension	false	This property is set to true if any extension is required on the Aggregator for a Contact update from Siebel
SyncCustomerPartyOUCCBUtilitiesProvABCImpl	MainCustomerBillAddressSource	ACOV	This is set to Account Override. Cannot be changed
SyncCustomerPartyOUCCBUtilitiesProvABCImpl	MultipleBillRecipientBillAddressSource	ACOV	This can be changed as required.

**Note:** If this integration is used in a setup where customer data updates have to be synchronized with multiple billing systems, that is, co-deployment of Utilities and Communications PIP is required, refer to [Appendix D](#) about the setup and configuration changes required.

## Domain Value Maps

Domain value maps (DVMs) are a standard feature of the Oracle Service-Oriented Architecture (SOA) Suite which maps codes and other static values across applications. The DVMs are stored in Metadata Service (MDS). For example, **FOOT** and **FT** or **US** and **USA**.

DVMs are static in nature, though administrators can add additional maps as needed. Transactional business processes never update DVMs—they only read from them. They are stored in XML files and cached in memory at runtime.

### To Maintain the Information within the Domain Value Maps

1. Open a browser and access the SOA Composer (<http://soa-server:soa-port/soa/composer>) for your installation

2. On the SOA Composer application open DVM.
3. Search and select the relevant DVM you wish to maintain.
4. Set up the required values for each integrated application.

The Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing (CC&B) and Siebel Energy consist of the following DVMs described in this table:

DVM	Description	Siebel Field	CC&B Field
CUSTOMERPARTY_STATUSCODE	Maps Siebel Status to Common Layer. This value is not mapped to Oracle Utilities Customer Care and Billing.	Account Status	None
CUSTOMERPARTY_ACCOUNTCLASSCODE	Maps Siebel Account Type to Common Layer. This value is not mapped to Oracle Utilities Customer Care and Billing	Account Type Code	None
CUSTOMERPARTY_CURRENCY_CODE	Maps Account Currency Code from Siebel to Common to Oracle Utilities Customer Care and Billing	Currency Code	Currency Code
CUSTOMERPARTY_TYPECODE	Maps Type under Account from Siebel to Common to Oracle Utilities Customer Care and Billing Person Or Business Flag	Type	Person/Business Flag
CUSTOMERPARTY_ACCOUNTTYPECODE	Maps Type under Account from Siebel to Common to Oracle Utilities Customer Care and Billing Customer Class	Type	Customer Class
CUSTOMERPARTY_ORGANIZATIONUNIT	Maps from Siebel Primary Organization of Account to Common to Oracle Utilities Customer Care and Billing CIS Division	Organization	CIS Division
CUSTOMERPARTY_PAYMENTPROFILE_PAYMENTMETHODCODE	Maps from Siebel Primary Billing Profile Payment Method Code to Common to Oracle Utilities Customer Care and Billing Autopay Details – Payment Type	Payment Method	Payment Type
CUSTOMERPARTY_BILLINGPROFILE_FREQUENCYCODE	Maps from Siebel Primary Billing Profile/Bill Frequency to Common. This value is not mapped to Oracle Utilities Customer Care and Billing	Bill Frequency	None

DVM	Description	Siebel Field	CC&B Field
CUSTOMERPARTY_BILL PROFILE_BILLTYPECODE	Maps from Siebel Primary Billing Profile/Bill Type to Common to Oracle Utilities Customer Care and Billing Bill Format Flag.  Also used to map Siebel Statement Profile/Bill Type to Common to Oracle Utilities Customer Care and Billing Contact Details/Contacts/Bill Format Flag	Bill Type	Bill Format Flag
CUSTOMERPARTY_PAY PROFILE_CREDIT_CARD TYPE	Maps from Siebel Primary Billing Profile/Credit Card Type to Common to Oracle Utilities Customer Care and Billing AutoPay/Credit Card Type	Credit Card Type	Card Type
CUSTOMERPARTY_MED IATYPECODE	Maps from Siebel Primary Billing Profile/Media Type to Common to Oracle Utilities Customer Care and Billing Main Customer Bill Route Type.  Also used to map Siebel Statement Profile/Media Type to Common to Oracle Utilities Customer Care and Billing Contact Details/Contacts/Bill Route Type	MediaType	mainCustomerBillRoute Type  contacts/billRouteType
CUSTOMERPARTY_LAN GUAGE_CODE	Maps from Siebel Primary Billing Profile Language Code to Common to Oracle Utilities Customer Care and Billing personDetails/language	BankLanguageCode	language
CUSTOMERPARTY_COU NTRY	Maps from Siebel Address/Country to Common to Oracle Utilities Customer Care and Billing Address/Country  This is used in all different kinds of Addresses being synchronized between Siebel and Oracle Utilities Customer Care and Billing	Country	Country



DVM	Description	Siebel Field	CC&B Field
CUSTOMERPARTY_STATE new DVM	<p>Maps from Siebel Address/State to Common to Oracle Utilities Customer Care and Billing Address/State</p> <p>This is used in all different kinds of Addresses being synchronized between Siebel and Oracle Utilities Customer Care and Billing</p>	State	State

**For more information** about DVMs, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Understanding Message Transformation, Enrichment, and Configuration," or "Working with Message Transformations" or *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*, "Working with Domain Value Maps. For information on matching values for each DVM, refer to the applicable section in Setting up Oracle Utilities Customer Care and Billing for OU\_CCB\_01 and Siebel Energy for SEBL\_01.

## Cross-References

Cross-references maps and connects the records within the application network, and enables these applications to communicate in the same language. The integration server stores the relationship in a persistent way so that others can refer to it.

These are the cross-references for Customer Data Synchronization Integration Pack for Oracle Utilities Customer Care and Billing (CC&B) and Siebel Energy:

**Note:** During implementation you do not need to do anything with this table. This table is populated by the integration processes as customers are created or updated.

ID Name (xref "table")	Xref Type	Column Names: Column Values			Notes
UTILITIES_CUSTOMERPARTY_ACCOUNTID	1-to-1	COMMON	SEBL_01	OUCCB_01	Siebel Account ID is mapped one-to-one to the Oracle Utilities Customer Care and Billing (CC&B) Account ID
		Account ID	Account ID	Account ID	
UTILITIES_CUSTOMERPARTY_PERSONID	1-to-1	COMMON	SEBL_01	OUCCB_01	Siebel Account ID is mapped one-to-one to the Oracle Utilities Customer Care and Billing Person ID
		Per-Account ID	Account ID	Person ID of mainCustomer	
UTILITIES_CUSTOMERPARTY_BILLPROFILEID	1-to-1	COMMON	SEBL_01	OUCCB_01	Siebel Bill Profile ID is mapped to Common. No Oracle Utilities Customer Care and Billing IDs are populated here.
		Common Bill Profile ID	Bill Profile ID	Not Populated	
UTILITIES_CUSTOMERPARTY_ADDRESSID	1-to-M*	COMMON	SEBL_01	OUCCB_01	Siebel Address ID is cross-referenced here if the address is mapped to Oracle Utilities Customer Care and Billing (CC&B). No Oracle Utilities Customer Care and Billing IDs are populated here.
		Address ID	Address ID	Not Populated	
UTILITIES_CUSTOMERPARTY_CONTACTID	1-to-M*	COMMON	SEBL_01	OUCCB_01	Siebel Contact IDs that are synchronized with Oracle Utilities Customer Care and Billing are mapped here. Oracle Utilities Customer Care and Billing Contact IDs are populated only for those Contacts that are part of Statement Profiles sent from Siebel to Oracle Utilities Customer Care and Billing.
		Contact ID	Contact ID	CCB Person Ids of Contacts	
UTILITIES_CUSTOMERPARTY_STATEMENTPROFILEID	1-to-1	COMMON	SEBL_01	OUCCB_01	Statement Profiles from Siebel are synchronized to Oracle Utilities Customer Care and Billing as Contacts for Multiple Bill Recipients. No Oracle Utilities Customer Care and Billing IDs are populated here.
		Statement Profile ID	Statement Profile ID	Not Populated	

**For more information** about cross-references, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Understanding Message Transformation, Enrichment, and Configuration," Creating Cross-References."

## Updating MDS with AIA Meta Data

If new artifacts are created, if extensions or customizations are made on the artifacts, or if DVM changes are made in AIA MetaData, you must upload the artifacts to MDS.

Oracle Metadata Services (MDS) repository contains all metadata. The contents under <AIA\_HOME>/AIA MetaData are uploaded to SOA-MDS > apps/AIA MetaData. This includes specific schemas, WSDLs, DVMs, Cross Reference metadata, default faultPolicies, AIAConfigurationProperties.xml and AIAEHNotification.xml

**For more information** about updating MDS, see *Oracle Application Integration Architecture – Foundation Pack: Integration Developers Guide*, “Updating MDS.”

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## Timing Customer Updates

The SyncAcctSiebelUtilitiesEventAggrConsumer process picks up updates from the database table AIA\_AGGRE\_UTILITIES\_ENTITIES by periodically polling it. The frequency of polling is controlled by a property specified in the SyncSiebelUtilitiesAggrEventConsumer\_db.jca file of:

SyncSiebelUtilitiesAggrEventConsumer.

```
<property name="PollingInterval" value="200"/>
```

The period specified here is measured in seconds.

If required, implementation can change this property to control frequency of polling. After making the change, it is required to redeploy the SyncAcctSiebelUtilitiesEventAggrConsumer process.

---

## Error Notification Setup

Based on the roles defined for the services, email notifications are sent if a service errors out.

**For more information** about AIA error handling and error notifications; see the Oracle Application Integration Architecture – *Foundation Pack: Core Infrastructure Components Guide*, “Setting Up Error Handling and Logging, Using Error Notifications.”

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## SOA Infrastructure Common Properties

On the Enterprise Manager, Payload Validation property defined in SOA Infrastructure must be turned off. This property is defined on the SOA level under Common Properties and can be overridden for each process.

Ensure that your implementation always has Payload Validation disabled for all integration processes.

## Chapter 5: Monitoring, Error Handling, and Troubleshooting

This chapter provides detail on monitoring, error handling, and troubleshooting and discusses how to perform:

- [Monitoring from Oracle Utilities Customer Care and Billing](#)
- [Monitoring from Siebel Energy](#)
- [Monitoring from the Integration](#)
- [Troubleshooting](#)
- [Error Handling Summary](#)

---

### Monitoring from Oracle Utilities Customer Care and Billing

This section discusses:

- [Oracle Utilities Customer Care and Billing Error Logs](#)
- [Notifications](#)

---

#### Oracle Utilities Customer Care and Billing Error Logs

- Errors related to the XAI Inbound service are stored in the CCB\_ENVIRONMENT\_NAME/logs/system folder in spl\_xai.log, weblogic\_current.log and xai.trc.

For example: V231\_CCB\_PERF\_BLD10\_LIN\_ORA\_WLS/logs/system

**For more information** about errors and notifications, see the Oracle Utilities Customer Care and Billing documentation.

---

#### Notifications in Oracle Utilities Customer Care and Billing

The XAI inbound service - C1-CustomerMaintenanceRequest is invoked to process the message. Regardless of whether To-Do was set up or not, the errors are logged in spl-service.log file.

## Monitoring from Siebel Energy

To monitor the integration flow using Siebel Energy, use the following:

- [Monitoring the Workflows](#)
- [Monitoring the Server Component](#)

### Monitoring the Workflows

The Workflows can be monitored as described:

#### To Verify that the Order is Submitted to the Queue

1. Navigate to "Administration-Business Process -> Workflow Deployment -> Active Workflow Processes" view.
2. Query for the Workflow Process "SISOMBillingSubmitOrderWebService" in the bottom applet.
3. Change the "Monitoring - Level" for the workflow process to "4 - Debug".
4. Create an order and submit it.
5. Navigate to Administration-Business Process > Workflow Instance Admin.
6. In the All Workflow Process Instances applet, choose the workflow process you need to administer from the Process Name field.
7. In the Related Instances child applet, you can view the workflow's run-time instances and their parameters.
8. Query for the Workflow Process "SISOMBillingSubmitOrderWebService" and Sort the instances via "Start Date" descending.
9. Navigate to "Step Instances" and check new instance is created for the submitted order and is in Complete status.

#### To Verify that Account Updates are Sent to Middleware

1. Navigate to Site Map > Administration – Web Services > Outbound Web Service
2. Query for "SyncCustomerSiebelEventAggregator" in Name Field and verify that endpoint URL is configured correctly based on details provided in Configuration section.
3. Navigate to "Administration-Business Process -> Workflow Deployment -> Active Workflow Processes"

- Query for following Workflow Process in the bottom applet and Change the "Monitoring - Level" for the workflow process to "4 - Debug".

Workflow Name	Description
SWI Account Update Workflow	Account Update
SWI Address Update Workflow	Address Update
SWI Billing Profile Update Workflow	Billing Profile
SWI Contact Update Workflow	Contact Update
SWI Statement Profile Update Workflow	Statement Profile Update

- Update any of the account detail.
- Navigate to Administration-Business Process > Workflow Instance Admin.
- In the All Workflow Process Instances applet, choose the workflow process you need to administer from the Process Name field.
- In the Related Instances child applet, you can view the workflow's run-time instances and their parameters.
- Query for the corresponding Workflow Process based on the object updated and Sort the instances via "Start Date" descending.
- Navigate to "Step Instances" view and check if new instances is created in corresponding workflow and is in "Complete" status.

Note: When changing the Monitoring – Level for the workflow process to "4 - Debug", remember to change the Monitoring level back to the original value when done with debugging.

## Monitoring the Server Components

Check for following components as shown in the following table. These components should be configured and running on Siebel Server

Component Name	Component Alias	Component Group
Enterprise Integration Mgr	EIM	EAI
EAI Object Manager (ENU)	EAIObjMgr_enu	EAI
Workflow Process Manager	WfProcMgr	Workflow

Workflow Process Batch Manager	WfProcBatchMgr	Workflow
Workflow Monitor Agent	WorkMon	Workflow
Generate Triggers	GenTrig	Workflow

### To Generate the Trigger

1. Navigate to Administration - Server management > Jobs.
2. Define the Job Parameters with the following values and start the job.  
If the job parameters information does not appear when you query for it, then search for it in Advanced or Hidden section.
  - a. EXEC = TRUE
  - b. Privileged User = <Table Owner>
  - c. Privileged User Password = <Table Owner>
  - d. Trigger File Name: trigger.sql
  - e. Remove = TRUE
3. After about five minutes, check for log details for the task for the new workflow monitor component "Workflow Monitor Agent SWI" by navigating to Administration - Server Management > Tasks.
4. If errors occur, check whether all configurations have been done for ACR 474 properly and then repeat steps shown above.

### Checking Status of WorkMonSWI

To check the status of WorkMonSWI, perform the following:

### To check WorkMonSWI status

1. Navigate to Sitemap→Administration – Server Management
2. Select “Tasks”
3. Query for the Task “WorkMonSWI” and Check the status, it should be in running status. If Status is not running restart the server

### To Generate the Trigger

1. Navigate to Administration - Server management > Jobs.
2. Create a job for the "Generate Triggers" under Component/Job.

3. Define the Job Parameters with the following values and start the job.  
If the job parameters information does not appear when you query for it, then search for it in Advanced or Hidden section.
  - a. EXEC = TRUE
  - b. Privileged User = <Table Owner>
  - c. Privileged User Password = <Table Owner>
4. Trigger File Name: trigger.sql
5. After about five minutes, check for log details for the task for the new workflow monitor component "Workflow Monitor Agent SWI" by navigating to Administration > Server Management > Tasks.
6. If errors occur, check whether all configurations have been done for ACR 474 properly and then repeat

---

## Monitoring the Integration

To monitor the integration flow using the Integration, use any of the following:

- [Monitoring the composite instances using Oracle SOA Enterprise Manager](#)
- [Monitoring the WebLogic logs](#)
- [Monitoring the queues using WebLogic Console](#)
- [Data Purge](#)

---

## Monitoring using SOA Enterprise Manager

Monitoring through the SOA Enterprise Manager consists of the following:

1. The Administrator user receives a notification email for any failures in integration flows.
2. The notification email includes an error text and description and a link to the failed instance of the composite on Oracle Enterprise Manager (EM) console.
3. On logging on to the Oracle Enterprise Manager Console, you can see details about an instance.
4. The status of the ABCS instance, payload, and child processes can be monitored from the Oracle Enterprise Manager Console.

**For more information** about error notifications, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Working with Error Handling and Logging," Using Error Notifications.



---

## Monitoring using WebLogic logs

Log in to the machine where SOA server is installed. The SOA logs are stored in: <WebLogic installation folder>/user\_projects/domains/<SOA Domain name>/servers/<SOA Server name>/logs

---

## Monitoring the Queues using WebLogic Console

Using the WebLogic Console, you can monitor the queues in the following way:

### To monitor the queues through the WebLogic Console

1. Log in to the WebLogic Console, and select Services → Messaging → JMS Modules.
2. All queues used for the integration are available in the JMS Module **AIAJMSModule**.
3. Select the appropriate queue on the list and click the Monitoring tab.  
In the Monitor tab, check if the message is stuck in a queue if there are no consumers listening to the queue.  
You can also check how many consumers are listening to the queue. If the Consumers Current column is 0, it means no consumers are listening to the queue.
4. To check the message rolled back to the error queue, select the appropriate error queue on the list and click the Monitoring tab. In the Monitor tab, you can see the message.

---

## Data Purge

To maintain maximum system integrity, the Oracle Fusion Middleware database should be purged periodically. For information about how to complete this task, refer to the note 815896.1 on <https://support.oracle.com>.

---

## Troubleshooting

This section explains the actions that can be taken to fix transactions, which fail in the edge applications. This section also explains how to resubmit the failed messages in case error messages are shown.

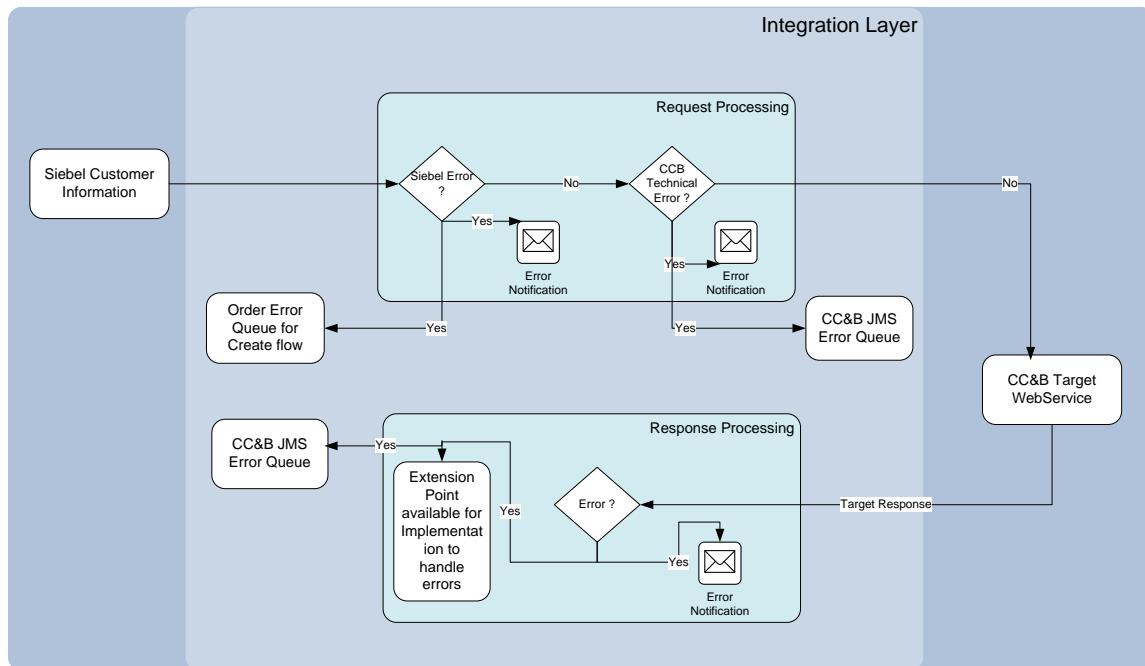


Figure 10: Integration Layer Flow Diagram

The error scenarios are divided into two categories

### Business Errors

- These are errors which occur in the Edge applications or in the Integration layer because of incorrect data setup. For these errors, the message needs to be resubmitted after the data is corrected.
- Any errors found during processing an inbound Customer message coming from Siebel is rolled back into the Order error queue and AIA Error notification is sent.
- In case of business error returned from Oracle Utilities Customer Care and Billing (CC&B), a response message is rolled back to CCB Error JMS Queue and AIA error notification is sent. Errors from Oracle Utilities Customer Care and Billing (CC&B) are not communicated back to Siebel. It is up to the implementation to process it further using extension services.

### Technical Errors

- These errors are usually connection failures. In case, if the Integration is down for Create Flow process, Siebel simply marks the Order in Error Status. When Integration is up again, then the Order message must be manually sent to the Order Queue.
- If any technical errors are found when the Oracle Utilities Customer Care and Billing application is down, then the messages are rolled back to CCB Error JMS Queue. When Oracle Utilities Customer Care and Billing application is up again, the messages must be manually pushed or send from Integration.

## Resubmit from JMS Error Queue

If there is a connection failure on connecting to Oracle Utilities Customer Care and Billing (CC&B), messages are moved to the Oracle Utilities Customer Care and Billing Error JMS queue. Log on to the Weblogic Console to monitor the JMS Queues and move the messages from the Error Queue to the Main Queue once the reason for failure is resolved.

Queue		Error Queue	JMS Module
<b>Siebel</b>			
Order	AIA_OUSEBLSalesOrderJMSQueue	AIA_OUSEBLSalesOrderJMSQueue_ErrorQ	AIAJMSModule
<b>Oracle Utilities Customer Care and Billing</b>			
Customer Party	AIA_OUCCBCustomerPartyJMSQueue	AIA_OUCCBCustomerPartyJMSQueue_ErrorQ	AIAJMSModule

## Resubmitting Transactions using Message Resubmission Utility

The Message Resubmission Utility API enables external programs to utilize the functionality of enabling a message that is in an error state to resent for a transaction. Typically this utility should be run after the problem is fixed.

**For more information** about running the Message Resubmission Utility, see *Oracle Fusion Middleware Infrastructure Components and Utilities User's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Using the Message Resubmission Utility."

## Error Handling Summary

This section describes the different ways through which error handling is performed and errors resolved.

### Create Flow

The Order Create flow (used for Customer creation) error handling summary is described in this table:

S.No	Integration Flow	Type of error	Action	Notification Type	Retry
A1	Order created in Siebel	Integration layer is down	Order is in Error State in Siebel.		After integration is up, manually resubmit the order again.

S.No	Integration Flow	Type of error	Action	Notification Type	Retry
A2		Internal failure in Sales Order EBS	Message goes from the queue to the Siebel Order error queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.
A3		Error in Siebel Sales Order EBF	Message goes from the queue to the Siebel Order error queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.
A4		Error in Customer Party EBF	Message goes from the queue to the Siebel Order error queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.
A5		Error returned from Siebel when querying for Customer information	Message goes from the queue to the Siebel Order error queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.
A6		Error in Customer Party EBS	Message goes from the queue to the Siebel Order error queue. + AIA error handling.	Email notification and worklist entry.	After fixing the data, move the messages from the error queue to the main queue.
A7		Error in CCB Customer Party JMS consumer	Customer Party message moved to Oracle Utilities Customer Care and Billing Customer Party Error Queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.

S.No	Integration Flow	Type of error	Action	Notification Type	Retry
A8		Oracle Utilities Customer Care and Billing application is down	Customer Party message moved to Oracle Utilities Customer Care and Billing Customer Party Error Queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.
A9		Business Error from Oracle Utilities Customer Care and Billing	Customer Party message moved to Oracle Utilities Customer Care and Billing Customer Party Error Queue. + AIA error handling.	Email notification and worklist entry	Message is moved to Error Queue, Implementation can further process errors using extension points.

## Update Flow

The Customer Update flow error handling summary is described in this table:

S.No	Integration Flow	Type of error	Action	Notification Type	Retry
A1	Customer Information updated in Siebel	Integration layer is down	Update is retried from Siebel automatically till positive acknowledgement is received by Siebel.		After integration is up Aggregator Service is invoked and Update message is processed.
A2		Internal failure in UpdateCustomerPartySiebelUtilitiesReqABCSImplV1	AIA error handling	Email notification and worklist entry	Update message needs to be sent from Siebel again.
A3		Error returned from Siebel when querying for Customer information	AIA error handling	Email notification and worklist entry	Update message needs to be sent from Siebel again.
A4		Error in CCB Customer Party JMS consumer	Customer Party message moved to OUCCB Customer Party Error Queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the CCB error queue to the main queue.
A5		Oracle Utilities Customer Care and Billing application is down	Customer Party message moved to OUCCB Customer Party Error Queue. + AIA error handling.	Email notification and worklist entry	After fixing the data, move the messages from the error queue to the main queue.

S.No	Integrati on Flow	Type of error	Action	Notification Type	Retry
A6		Business Error from Oracle Utilities Customer Care and Billing	Customer Party message moved to OUCCB Customer Party Error Queue. + AIA error handling.	Email notification and worklist entry	Message is moved to Error Queue, Implementation can further process errors using extension points.

## Chapter 6: Extensibility Options

One of the key principles for the design of Oracle Application Integration Architecture (AIA) is its extensibility model. Oracle Application Integration Architecture offers extensibility in different shapes.

- **EBOs** - The design of the enterprise business objects (EBOs) includes mechanisms to extend generic objects in an upgrade-safe manner by providing hooks to plug in additional industry-specific or customer-specific information.
- **XSLs/ABCS** - The transformations (XSLs) provided with ABCS have custom transformation templates available to map to and from customer specific elements. The ABCS also provide extension points to extend their own functionality.

This chapter provides guidelines on extending the Customer Data Synchronization Integration Pack, and discusses how to:

- [Extend an EBO](#)
- [Extend ABC Services](#)
- [Pass Data without customizing the EBO](#)

### Extending EBOs

The EBOs provided with the integration are carefully defined to represent a typical business process; however, these definitions do not contain any attributes that are customer specific. To meet the needs of customers with more tailored or customized processing, the integration pack provides the means to extend EBOs in a nonintrusive way.

For example, if your business process requires more information when creating a work order, you can extend EBOs to include the additional information.

A custom schema definition file (XSD) is provided for every EBO that is shipped with the integration. The EBO can be modified by changing these custom files. The XSDs are incorporated into the EBOs so that any custom extensions that are added to the EBOs are protected when patches or upgrades are applied.

## EBO Customization

The following sections describe a sample scenario of when and how to customize EBOs. To extend EBOs, add custom elements to the EBO then complete custom mapping for the requester and for the provider.

### To add and map custom elements to the EBO

1. From the EBO, identify which section or EBO Type needs to be extended.

Add the custom elements to the correct custom EBO Type section in the custom xsd file.

**For more information** about Extending EBOs, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Extensibility for Oracle AIA Artifacts – Extending EBOs".

2. Navigate to the Query Customer Party List Siebel Provider BPEL composite QueryCustomerPartyListSiebelUtilitiesProvABCSImplV1 and open the custom transformation. (For example, QueryCustomerPartyListResponse\_to\_SyncCustomerPartyList.xsl)
3. Navigate to the Customer Party List EBF BPEL composite UtilitiesProcessBillingAccountListEBF and open the custom ABM to EBM transformation. (For example, SWICustomerPartyQueryByExample\_Output\_To\_QueryCustomerPartyListResponse EBM\_Custom.xsl)
4. Map the elements from Siebel to the custom EBO elements.
5. Make sure the elements are added to the correct section or extension type that needs to be extended.

### To map the EBO to the provider

1. Navigate to the CC&B Sync Customer Party Provider BPEL composite SyncCustomerPartyOUCCBUtilitiesProvABCSImpl and open the custom EBM to ABM transformation under xsl folder. (For example, Xform\_Create\_CustomerPartyEBM\_to\_CustomerMaintenanceCCBABM\_Custom.xsl )
2. Map the elements from the custom EBO elements to the ABM.
3. Make sure the elements are added to the correct section or extension type that needs to be extended.



4. Copy the modified EBO xsd file(s) to the correct location on the application server.  
Ex:  
<AIA\_HOME>/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/<Path\_to\_xsd>
5. Update the modified xsd in the above step to the MDS Repository for the changes to take effect.
6. Follow the steps below to deploy the modified Requester and Provider BPEL processes
7. Run the <AIA\_HOME>/aia\_instances/<instance\_name>/bin aiaenv.bat or aiaenv.sh depending on the operating system. This sets the environment variables required by the build process.
8. Take backup of the  
AIA\_HOME>/aia\_instances/<INSTANCE\_NAME>/AIAMetaData/config/AIAConfigurationProperties.xml. The properties for the Requesters and Providers to be deployed get overwritten and any user defined properties need to be set again after the processes are deployed.
9. Write your own customDP files for updating the metadata and deploying the processes, which are changed as part of customization. The sample code snippet's for the same is given below.
10. The custom file for the Metadata update would look as below.

```
<DeploymentPlan component="Customer" version="1.0">
  <Configurations>
    <UpdateMetadata wlserver="pips.OUCCBToSiebelEnergyCustomer">
      <fileset dir="{AIA_HOME}/AIAMetaData">
        <include name="<Path_of_file>/<file_to_getUpdated>" />
      </fileset>
    </UpdateMetadata>
  </Configurations>
</DeploymentPlan>
```

11. The custom DP script for deployment is as follows. The one, which is changed, should be deployed and the sample script for the same will be as follows.

```
<DeploymentPlan component="Customer" version="1.0">
  <Deployments>
    <Composite compositeName="<processname>"
      compositedir="{AIA_HOME}/services/industry/Utilities/OUCCB/RequestorABCS/<processname>" revision="1.0" wlserver="pips.OUCCBToSiebelEnergyCustomer" action="deploy" />
  </Deployments>
</DeploymentPlan>
```

12. Once the custom scripts are ready the we can execute the custom scripts using the following command

```
ant -f $AIA_HOME/Infrastructure/Install/AID/AIAInstallDriver.xml -
DDeploymentPlan=$AIA_HOME/pips/OUCCBToSiebelEnergyCustomer/Deploymen
```

```
tPlans/CustomDP.xml -
DPropertiesFile=$AIA_HOME/aia_instances/<instance_name>/config/AIAIn
stallProperties.xml -l
$AIA_HOME/pips/OUCCBToSiebelEnergyCustomer/DeploymentPlans/CustomDep
loy.log
```

13. Test to make sure the mapping is correct and the information is passed from one application to the other.

## Extending ABC Services

All Requester and Provider ABC Services provided with this integration pack have extension points available to extend the functionality. For example extension points can be used for additional data enrichment, if required.

Two or more extension points exist in each ABCS depending on the number of services it invokes and the message exchange pattern for those services.

Customers can develop add-ins and have them hooked to these extensibility points. These customer-developed services behave as an extension to the delivered ABC service.

**When invoking Extension Services, make sure the appropriate Security Policy** is chosen for the Extension Service. Chapter 7 discusses Security in further detail.

**For more information** about Extending ABCS, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Extensibility for Oracle AIA Artifacts – Extending ABC Services".

## Passing Data without Extending the EBO

In some cases, it is necessary to pass a number of fields from one application to another without using the integration layer transformation. If the information does not need to be translated using DVMS, it can simply pass through the integration layer. In this case, Oracle Utilities Customer Care and Billing uses a custom BO to accept additional information for Customer Party.

Please see Oracle Utilities Customer Care and Billing Implementation guide for information on custom extensions.

### To Pass Data without Customizing EBO

1. Configure the source application to pass the new custom element in escaped xml format.

This can be done using XSL on the outbound message in the source application.

2. Configure a custom xsl in the Requester ABCS to map the source data to a custom element in EBM.  
This data can then be passed across to the target.
3. Configure a custom xsl in the Provider ABCS to map the custom element in EBM to the ABM.
4. The target application is now able to receive the escaped xml in a custom element and process it

## Chapter 7: Security

This chapter describes the security policies used for different services.

The Oracle Utilities Customer Data Synchronization Integration Pack has been enhanced with Oracle Web Services Manager (OWSM) to provide the following security enhancements:

- Attach security policies to services
- Pass username/password information through csf-keys
- Define and store declarative policies from a central location
- Enforce security and management policies through configurable agents

**When invoking Extension Services, make sure the appropriate Security Policy is chosen for the Extension Service being invoked.**

---

## Applied Security Policies

This section identifies the security policies used for various services.

---

### Global Service Policy

By default all Oracle Application Integration Architecture (AIA) Services - Application Business Connector Services (ABCS), Enterprise Business Services (EBS) and Transport Adapter Services are secured with the following Global Service Policy:

```
oracle/aia_wss_saml_or_username_token_service_policy_OPT_ON
```

Applications invoking secured AIA Web Services need to provide credentials.

## Global Client Policy

Inter-AIA communication is handled by Global Client Policy. By default all Client services are secured with the Global Client Policy:

`oracle/aia_wss_saml_or_username_token_client_policy_OPT_ON`

## Local Client Policy

The Oracle Utilities Customer Care and Billing (CC&B) Customer Party Provider ABCS that invokes CC&B web service has overridden the above mentioned Global Client policy with a local security policy:

- `oracle/wss_http_token_client_policy`

This enables the credentials to be passed to the edge applications as part of the http header.

Upon install, a csf-key **OUCCB\_01** get created. Passwords can be changed in the Oracle Enterprise Manager.

The following table shows the `oracle/wss_http_token_client_policy` client policy attached to composites.

SOA Composite	Attached To
SyncCustomerPartyOUCCBUilitiesProvABCImpl	C1-CustomerMaintenanceRequest

## Local Client No Authentication Policy

The Query Customer Party Siebel Provider ABCS that invokes Siebel web service has overridden the above mentioned Global Client policy with a local security policy:

- `oracle/no_authentication_client_policy`

SOA Composite	Attached To
QueryCustomerPartyListSiebelUtilitiesProvABCImplV1	SWI_spcCustomer_spcParty_spcService

By default, the following Extension web services are overridden with a local security policy:

- `oracle/no_authentication_client_policy`

If authentication is required by implementation, then it is overridden with specific authentication policies required.

SOA Composite	Attached To
SyncCustomerPartyOUCCBUilitiesProvABCImpl	SyncCustomerPartyOUCCBUilitiesProvABCImplExtensionService
SyncCustomerSiebelUtilitiesEventAggregator	SyncCustomerSiebelUtilitiesEventAggregatorExtensionAbstract

QueryCustomerPartyListSiebelUtilitiesProvABCImplV1	QueryCustomerPartyListSiebelUtilitiesProvABCImplV1Extension
ProcessSalesOrderSiebelUtilitiesReqABCImpl	ProcessSalesOrderSiebelUtilitiesReqABCImplExtensionService
UpdateCustomerPartySiebelUtilitiesReqABCImplV1	UpdateCustomerPartyABCSExtension
UtilitiesProcessBillingAccountListEBF	UtilitiesProcessBillingAccountListEBFExtensionService

**For more information about security validation,** see Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1 (11.1.1.5.0), "Working with Security" and Oracle Fusion Middleware Installation Guide for Oracle

## Edge Application Credentials

Upon install, following csf-keys get created for this integration:

- OU\_CCB\_01
- SEBL\_01

These keys are used to store Credentials of edge Applications. In order to change the credentials used to invoke web services of OUCCB or Siebel from integration, follow the steps below:

1. From the Enterprise Manager, navigate to the Weblogic Domain
2. Select the appropriate SOA domain, right click the Menu, select the Security menu Item and then go to Credentials.
3. Expand oracle.wsm.security and click the appropriate key whose credentials have to be changed: OUC\_CCB\_01 or SEBL\_01.
4. Edit existing csf-key credentials using the Edit feature and update username/password with changed credentials.
5. Click OK.

## Appendix A: Data Mapping

The section describes the customer data mapping and high level structure of customer record coming from Siebel Energy

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### High Level Structure of Customer Record coming from Siebel

The following components of customer record coming from Siebel are described in this section:

- List of Accounts
  - Account Details including name, mainPhone, mainFax
- List of Cut Address
  - Address – get Seasonal Addresses of Account from here
- List of Contact
  - Contact – nothing mapped from here
  - Personal Address List of Contact
    - Personal Address – get Seasonal Addresses of ContactDetails on Statement Profile List only
- List of Billing Profiles – Map only Primary Billing Profile
  - Billing Profile Details
  - Cut Address Copy – map the Address to Main Person Address
  - Contact Details of Billing Profile – map the Contact to overrideMailingName in Oracle Utilities Customer Care and Billing
- List of Statement Profiles
- Contact Details – Map to contactDetails in Oracle Utilities Customer Care and Billing
- Address Details – Map to address on contactDetails
- Other Statement Profile Details

Below is the table showing the mapping of elements from Siebel to EBM to Oracle Utilities Customer Care and Billing:

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
SWICustomerParty/O/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/AccountNumber	CustomerPartyAccount/Identification/AlternateObjectKey/Id/CustomerPartyAccount/Identification/AlternateObjectKey/ContextId = 'Account'	accountDetails/externalAccountNumber	Siebel Account Number mapped to Oracle Utilities Customer Care and Billing..	
SWICustomerParty/O/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/MasterAccountId	/CustomerPartyAccount/Identification/AlternateObjectKey/Id/CustomerPartyAccount/Identification/AlternateObjectKey/ContextId = 'MasterAccount'	personDetails/externalMasterAccountId	Siebel Master Account ID mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerParty/O/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/AccountStatus	/CustomerPartyAccount/Status/Code		Account Status mapped only to EBM, not to Oracle Utilities Customer Care and Billing.	CUSTOMERPARTY_STATUSCODE
SWICustomerParty/O/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/AccountTypeCode	/CustomerPartyAccount/ClassificationCode		AccountTypeCode only mapped to EBM not mapped to Oracle Utilities Customer Care and Billing.	CUSTOMERPARTY_ACCOUNTCLASSCODE
SWICustomerParty/O/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/AccountCreated	/CustomerPartyAccount/CreationDateTime	accountDetails/setupDate	Setup Date of Account	
SWICustomerParty/O/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/CurrencyCode	/CustomerPartyAccount/CurrencyCode/CustomerPartyBillingProfile/CurrencyCode/CustomerPartyPaymentProfile/CurrencyCode	accountDetails/currency	Currency Code of Account	CUSTOMERPARTY_CURRENCY_CODE new dvm

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/MainFaxNumber	/PartyContact/Contact/ContactFaxCommunication/FaxCommunication/CompleteNumber PartyContact/Contact/ContactPhoneCommunication/PhoneCommunication/UseCode = 'FAX'	personDetails/fax	Main Fax Number mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/MainPhoneNumber	/PartyContact/Contact/ContactPhoneCommunication/PhoneCommunication/CompleteNumber PartyContact/Contact/ContactPhoneCommunication/PhoneCommunication/UseCode = 'PHONE'	personDetails/mainPhone	Main Phone Number mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/Name	/PartyContact/Contact/OrganizationName or /Organization/Name	personDetails/primaryName	Name from Siebel mapped to primaryName in Oracle Utilities Customer Care and Billing. Oracle Utilities Customer Care and Billing has a formatting algorithm for Person Name	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/PrimaryOrganizationId			Use this Organization Id to get the Organization Name from ListOfInternalDivision	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt	/Identification/ApplicationObjectKey			



Siebel Energy	Customer Party EBM	CCB	Comments	DVM
/ListOfSwicustomerpartyio/ Account/RowId	/ID  /CustomerPartyA ccount/Identificati on/ApplicationObj ectKey/ID			
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/Type	/TypeCode	personDetails/per sonOrBusiness	If Siebel = "Residential", CC&B value should be "P" referring to Person If Siebel = "Commercial" or "Industrial", CC&B value should be "B" referring to Business	CUSTOMERPARTY_ TYPECODE
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/Type	/TypeCode	accountDetails/cu stomerClass	Maps to Customer Class in Oracle Utilities Customer Care and Billing.	CUSTOMERPARTY_ ACCOUNTTYPECOD E
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/PrimaryBillingProfil eld			This is used to identify the Billing Profile to map to Oracle Utilities Customer Care and Billing. Only Primary Billing Profile details are mapped from Siebel to Oracle Utilities Customer Care and Billing.	
			This section below is used to map the Seasonal Addresses from Siebel to Oracle Utilities Customer Care	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
			and Billing. Only map addresses where Type = 'Seasonal'	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/AddressType	/PartyLocation/LocationReference/TypeCode /PartyLocation/SeasonalIndicator to True where Type=Seasonal Address		Only Account Addresses of type Seasonal are mapped from Siebel to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/StartDate	/PartyLocation/SeasonalPeriod/StartDate	personDetails/seasonalAddress/seasonalAddresses/startMonthDay	Start Date of Seasonal Period	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/EndDate	/PartyLocation/SeasonalPeriod/EndDate	personDetails/seasonalAddress/seasonalAddresses/endMonthDay	End Date of Seasonal Period	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/City	/PartyLocation/LocationReference/Address/CityName	personDetails/seasonalAddress/seasonalAddresses/address/city	City of Address mapped to CCB	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/Country	/PartyLocation/LocationReference/Address/CountryCode	personDetails/seasonalAddress/seasonalAddresses/address/country	Country of Address mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/County	/PartyLocation/LocationReference/Address/CountyName	personDetails/seasonalAddress/seasonalAddresses/address/County	County of Address mapped to Oracle Utilities Customer Care and Billing	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/PostalCode	/PartyLocation/LocationReference/Address/PostalCode	personDetails/seasonalAddress/seasonalAddresses/address/postal	Postal Code of Address mapped to Oracle Utilities Customer Care and Billing.	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
SWICustomerPartyO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/RowId	/PartyLocation/Id entification/ApplicationObjectKey/ID /PartyLocation/LocationReference/LocationIdentification/ApplicationObjectKey/ID /PartyLocation/LocationReference/Address/Identification/ApplicationObjectKey/ID CustomerPartyBillingProfile/CustomerPartyBillingProfileLocationIdentification		Used in XREF to map the Address Id synchronized from Siebel to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/State	/PartyLocation/LocationReference/Address/StateName /PartyLocation/LocationReference/Address/CountrySubDivisionID	personDetails/seasonalAddress/seasonalAddresses/address/state	State of Address mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/StreetAddress	/PartyLocation/LocationReference/Address/LineOne	personDetails/seasonalAddress/seasonalAddresses/address/addressLine1	Street Address Line1 mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListofCutAddress/CutAddress/StreetAddress2	/PartyLocation/LocationReference/Address/LineTwo	personDetails/seasonalAddress/seasonalAddresses/address/addressLine2	Street Address Line2 mapped to Oracle Utilities Customer Care and Billing.	
			This section below is used to map the Seasonal Addresses of Statement Profile Contacts from Siebel to Oracle	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
			Utilities Customer Care and Billing. Only map for contacts that are specified on the Statement Profile and where Personal address is of Type = 'SeasonalAddress'	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/Id	/PartyContact/Contact/ContactAddressCommunication/Identification/ApplicationObjectKey/ID  /PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/Identification/ApplicationObjectKey/ID CustomerPartyStatementProfile/ContactAddressCommunicationIdentification		This is populated XREF to identify the Siebel Addresses that are synchronized with Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/AddressType	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/UseCode		Only map where type = Seasonal.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/City	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/CityName	contactDetails/contacts/seasonalAddress/seasonalAddresses/address/city	City mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact	/PartyContact/Contact/ContactAddressCommunication/AddressCom	contactDetails/contacts/seasonalAddress/seasonalAddresses/	Country mapped to Oracle Utilities Customer Care and Billing.	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
act/ListOfPersonalAddress/PersonalAddress/Country	munication/Address/CountryCode	address/country		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/County	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/CountryName	contactDetails/contacts/seasonalAddress/seasonalAddresses/address/County	County mapped to Oracle Utilities Customer Care and Billing .	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/PostalCode	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/CountryPostalCode	contactDetails/contacts/seasonalAddress/seasonalAddresses/address/postal	Postal Code mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/State	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/CountrySubDivisionID	contactDetails/contacts/seasonalAddress/seasonalAddresses/address/state	State mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/StreetAddress	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/LineOne	contactDetails/contacts/seasonalAddress/seasonalAddresses/address/addressLine1	Street Address Line 1 mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/StreetAddress2	PartyContact/Contact/ContactAddressCommunication/AddressCommunication/Address/LineTwo	contactDetails/contacts/seasonalAddress/seasonalAddresses/address/addressLine2	Street Address Line 2 mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Cont	/PartyContact/Contact/ContactAddressCommunication/AddressCom	contactDetails/contacts/seasonalAddress/seasonalAddresses/	Start Date of Seasonal Period	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
act/ListOfPersonalAddress/PersonalAddress/StartDate	munication/SeasonalPeriod/StartDate	startMonthDay		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfContact/Contact/ListOfPersonalAddress/PersonalAddress/EndDate	/PartyContact/Contact/ContactAddressCommunication/AddressCommunication/SeasonalPeriod/EndDate	contactDetails/contacts/seasonalAddress/seasonalAddresses/endMonthDay	End Date of Seasonal Period	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfInternalDivision/InternalDivision/Name	/CustomerPartyAccount/OrganizationUnitReference/OrganizationUnitIdentification/Id	accountDetails/cisDivision	Primary Organization Name mapped to cisDivision in Oracle Utilities Customer Care and Billing.	CUSTOMERPARTY_ORGANIZATIONUNIT
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfInternalDivision/InternalDivision/OrganizationId			This ID is used to match the Primary Organization ID specified at the Account Level	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BillingProfileId	/CustomerPartyBillingProfile/Identification/ApplicationObjectKey/ID		Only map to Oracle Utilities Customer Care and Billing based on Primary Billing Profile ID being populated under Account.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BankAccountName	/CustomerPartyPaymentProfile/PaymentInstrument/BankDraft/AccountHolderName	accountDetails/autopayDetails/name	Bank Account Holder's name mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BankAccountNumber	/CustomerPartyPaymentProfile/PaymentInstrument/BankDraft/Number	accountDetails/autopayDetails/externalAccountId	Bank Account	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BankAccountNumber	/CustomerPartyPaymentProfile/PaymentInstrument/	accountDetails/autopayDetails/paymentType	Use Payment Method and BankAccountType	CUSTOMERPARTY_PAYPROFILE_BANKACCOUNTTYPE

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
Account/ListOfComInvoiceProfile/ComInvoiceProfile/BankAccountType	BankDraft/TypeCode		to make it to paymentType in Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BankName	/CustomerPartyPaymentProfile/PaymentInstrument/BankDraft/BankName		Name of the Bank	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BillFrequency	/CustomerPartyBillingProfile/FrequencyCode	The Frequency with which Bill should be received. Ex: Monthly, Quarterly and so forth.		CUSTOMERPARTY_BILLPROFILE_FREQUENCYCODE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BillType	/CustomerPartyBillingProfile/BillTypeCode	Account Person Relationship/Bill Format Flag	Type of Bill. If its detailed bill or just wants the summary	CUSTOMERPARTY_BILLPROFILE_BILLTYPECODE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/CreditCardExpirationMonth	/CustomerPartyPaymentProfile/PaymentInstrument/CreditCard/ExpirationMonth	accountDetails/autopayDetails/expMonth	The Month in which credit card expires	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/CreditCardExpirationYear	/CustomerPartyPaymentProfile/PaymentInstrument/CreditCard/ExpirationYear	accountDetails/autopayDetails/expYear	The year in which credit card expires	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/CreditCardName	/CustomerPartyPaymentProfile/PaymentInstrument/CreditCard/CardHolderName	accountDetails/autopayDetails/name	Credit card holder name	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceP	/CustomerPartyPaymentProfile/PaymentInstrument/CreditCard/Num	accountDetails/autopayDetails/externalAccountId	Credit card number	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
rofile/ComInvoiceProfile/CreditCardNumber	er			
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/CreditCardType	/CustomerPartyPaymentProfile/PaymentInstrument/CreditCard/Type Code	accountDetails/autopayDetails/cardType	Type of credit card. It its VISA, Master and so forth.	CUSTOMERPARTY_PAYPROFILE_CREDIT_CARDTYPE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/EmailBillTo	//CustomerPartyBillingProfile/Email Communication/EmailCommunication/URI //CustomerPartyBillingProfile/Email Communication/EmailCommunication/UseCode = 'EmailBillTo'	personDetails/email	The email address to which bill should be received	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/MediaType	/CustomerPartyBillingProfile/Media TypeCode	accountDetails/mainCustomerBillRouteType	Whats the medium of communication EMAIL, PHONE etc	CUSTOMERPARTY_MEDIATYPECODE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BillingProfileName	/CustomerPartyBillingProfile/Name  /CustomerPartyPaymentProfile/Description		This is the ROWID of the billing profile no in Siebel	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/PaymentMethod	/CustomerPartyPaymentProfile/PaymentMethodCode	accountDetails/autopayDetails/paymentType	Use Payment Method and BankAccountType to make it to paymentType in Oracle Utilities Customer Care and Billing.	CUSTOMERPARTY_PAYPROFILE_PAYMENTMETHODCODE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/RoutingNumber	/CustomerPartyPaymentProfile/PaymentInstrument/EFT/RoutingNumber  /CustomerPartyP	accountDetails/autopayDetails/externalSourceId	This is the Bank account number in Siebel which is referred as externalSourceID in Oracle Utilities Customer Care	



Siebel Energy	Customer Party EBM	CCB	Comments	DVM
	aymentProfile/PaymentInstrument/BankDraft/RoutingNumber //CustomerPartyBankAccount/BankAccount/BankPartyReference/RoutingNumber		and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/BankLanguageCode	/CustomerPartyBillingProfile/LanguageCode	personDetails/language	Language Code	LANGUAGE
		accountDetails/autopayDetails/cancelAutopay	If payment message changes to Bill Me, then set this to true (cancel of Autopay).	
			The below section shows the mapping of the Address on the Primary Billing Profile into Oracle Utilities Customer Care and Billing.	
		personDetails/billAddressSource	Read from AIAConfigurationProperties mainCustomerBillAddressSource set to ACOV by default	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/ListOfCutAddressCopy/CutAddressCopy/City	/PartyLocation/LocationReference/Address/CityName	personDetails/address/city	City mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceP	/PartyLocation/LocationReference/Address/CountryCode	personDetails/address/country	Country mapped to Oracle Utilities Customer Care and Billing.	CUSTOMERPARTY_COUNTRY

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
rofile/ComInvoiceProfile/List ofCutAddressCopy/CutAddressCopy/Country				
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/List ofCutAddressCopy/CutAddressCopy/PostalCode	/PartyLocation/LocationReference/Address/PostalCode	personDetails/address/postal	Postal Code mapped to Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/List ofCutAddressCopy/CutAddressCopy/AddressId	/PartyLocation/Identification/ApplicationObjectKey/ID /PartyLocation/LocationReference/LocationIdentification/ApplicationObjectKey/ID /PartyLocation/LocationReference/Address/Identification/ApplicationObjectKey/ID /CustomerPartyBillingProfile//CustomerPartyLocationIdentification			
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/List ofCutAddressCopy/CutAddressCopy/State	/PartyLocation/LocationReference/Address/StateName /PartyLocation/LocationReference/Address/CountrySubDivisionID	personDetails/address/state	State Name	CUSTOMERPARTY_STATE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/List ofCutAddressCopy/CutAddressCopy/AddressLine1	/PartyLocation/LocationReference/Address/LineOne	personDetails/address/addressLine1		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt	/PartyLocation/LocationReference/	personDetails/address/address		

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/ListOfCutAddressCopy/CutAddressCopy/AddressLine2	Address/LineTwo	Line2		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/ListOfCutAddressCopy/CutAddressCopy/County	/PartyLocation/LocationReference/Address/CountyName	personDetails/address/County		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/ListOfCutAddressCopy/CutAddressCopy/Province	/PartyLocation/LocationReference/Address/ProvinceName			
			Set the CustomerPartyLocationIdentification and CustomerPartyContactIdentification on CustomerPartyBillingProfile	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/ListOfContactQuery/ContactQuery/FirstName	/PartyContact/PersonName/FirstName	personDetails/overrideMailingName1	Concatenate the first name and last name with a space to identify the override mail name in Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComInvoiceProfile/ComInvoiceProfile/ListOfContactQuery/ContactQuery/LastName	/PartyContact/PersonName/LastName	personDetails/overrideMailingName1	Concatenate the first name and last name with a space to identify the override mail name in Oracle Utilities Customer Care and Billing.	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt	/PartyContact/Identification/Applica			

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
/ListOfSwicustomerpartyio/ Account/ListOfComInvoiceP rofile/ComInvoiceProfile/List ofContactQuery/ContactQu ery/ContactId	tionObjectKey/ID  //CustomerPartyP aymentProfile/Co ntact/Identificatio n/ApplicationObje ctKey/ID /CustomerPartyBi llingProfile/Custo merPartyContactI dentificaton			
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfExemptions/ Life Support Flag	/SpecialNeedProf ile/LifeSupportInd icator	personDetails/li feSupport	Used to identify if Person is on Life Support	
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfExemptions/ Special Description	/SpecialNeedProf ile/Description	personDetails/li feSupportDescr iption	Description of Life Support used	
			Set the CustomerPartyCo ntactAddressCom municationIdentific ation and CustomerPartyCo ntactIdentification on CustomerPartySta tementProfile	
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/StatementProfileId				
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/ContactFirstName	/PartyContact/Per sonName/FirstNa me	contactDetails/c ontacts/primary Name		
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/	/PartyContact/Per sonName/LastNa me			

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
Account/ListOfComStatementProfile/ComStatementProfile/ContactLastName				
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/ContactWorkPhone	PartyContact/ContactPhoneCommunication/PhoneCommunication/CompleteNumber/PartyContact/ContactPhoneCommunication/PhoneCommunication/UseCode = 'HOME'/PartyContact/ContactPhoneCommunication	contactDetails/contacts/mainPhone		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/ContactFaxPhone	/CustomerPartyStatementProfile/FaxCommunication/CompleteNumber/CustomerPartyStatementProfile/FaxCommunication/FaxCommunication/UseCode = 'FAX'/CustomerPartyStatementProfile/FaxCommunication/Fax	contactDetails/contacts/fax		
		contacts/billAddressSource	Read from AIAConfigurationProperties multipleBillRecipientsBillAddressSource set to ACOV by default	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt/ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/EmailBillTo	/CustomerPartyStatementProfile/EmailCommunication/URI/CustomerPartyStatementProfile/E	contactDetails/contacts/email		

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
	mailCommunication/EmailCommunication/UseCode = 'URL' /CustomerPartyStatementProfile/EmailCommunication/Email			
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/LanguageCode	/CustomerPartyStatementProfile/LanguageCode	contactDetails/contacts/language		LANGUAGE
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/Contact Id	/PartyContact/Identification/ApplicationObjectKey/ID CustomerPartyStatementProfile/ContactIdentification	contactDetails/contacts/externalContactId	This ID is stored on Customer Party Statement Profile Contact Identification	
		contactDetails/contacts/personId	Pass in both externalContactId and personId for updates. For creates only pass in externalContactId	
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/MediaType	/CustomerPartyStatementProfile/MediaTypeCode	contactDetails/contacts/billRouteType		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile/BillType	/CustomerPartyStatementProfile/BillTypeCode	contactDetails/contacts/billFormat		
SWICustomerPartyIO/ListOfSwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/Account/ListOfComStatementProfile/ComStatementProfile	/CustomerPartyStatementProfile/NumberOfCopies	contactDetails/contacts/numberOfBillCopies	Count of copies to be receiving	

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
ile/NumberOfCopies				
		contactDetails/c ontacts/receive sNotification	Not mapped	
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/AddressId	/PartyLocation/Id entification/Applic ationObjectKey/I D  /PartyLocation/Lo cationReference/ LocationIdentifica tion/ApplicationO bjectKey/ID  /PartyLocation/Lo cationReference/ Address/Identifica tion/ApplicationO bjectKey/ID CustomerPartySt atementProfile/C ustomerPartyStat ementProfileLoca tionIdentification			
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/City	/PartyLocation/Lo cationReference/ Address/CityNam e	contactDetails/c ontacts/address /city		
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/State	/PartyLocation/Lo cationReference/ Address/StateNa me  /PartyLocation/Lo cationReference/ Address/Country SubDivisionID	contactDetails/c ontacts/address /state		
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/Country	/PartyLocation/Lo cationReference/ Address/Country Code	contactDetails/c ontacts/address /country		
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt	/PartyLocation/Lo cationReference/	contactDetails/c ontacts/address		

Siebel Energy	Customer Party EBM	CCB	Comments	DVM
/ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/Zipcode	Address/PostalC ode	/postal		
SWICustomerPartyIO/ListOf SwicustomerpartyioTopElmt /ListOfSwicustomerpartyio/ Account/ListOfComStateme ntProfile/ComStatementProf ile/StreetAddress	/PartyLocation/Lo cationReference/ Address/LineOne	contactDetails/c ontacts/address /addressLine1		

## Appendix B: Cross-References

The following sections provide references for where you can find more information on some of the terms and entities related to this integration.

### ABCs

**For more information,** see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Designing and Constructing ABC Services" and *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding ABC Services".

### AggregatorAdapters

**For more information,** see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Describing the Event Aggregation Programming Model".

### Creating Cross-References

**For more information,** see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Understanding Message Transformation, Enrichment, and Configuration," Cross-References.



## DVMs

**For more information** on domain value maps shipped with this product, see [Working with Domain Value Maps](#).

**For more information**, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Understanding Message Transformation, Enrichment, and Configuration," Domain Value Maps.

## EBFs

**For more information**, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Designing and Constructing EBFs" and *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack*, "Understanding EBSs," Enterprise Business Flow Processes.

## EBOs

For detailed documentation of individual EBOs and EBMs, click the AIA Reference Doc link on EBO and EBM detail pages in Oracle Enterprise Repository.

EBOs can be extended, for instance, to add new data elements. These extensions are protected, and remain intact after a patch or an upgrade.

**For more information** about using the Oracle Enterprise Repository and configuring it to provide the AIA Reference Doc link, see *Oracle Fusion Middleware Concepts and Technologies Guide for Oracle Application Integration Architecture Foundation Pack*, "Configuring and Using Oracle Enterprise Repository as the Oracle AIA SOA Repository."

## EBSs

**For more information**, see *Oracle Fusion Middleware Developer's Guide for Oracle Application Integration Architecture Foundation Pack*, "Designing and Developing EBSs" and *Oracle Application Integration Architecture - Foundation Pack: Concepts and Technologies Guide*, "Understanding EBSs".

## Error Handling

**For more information** about the errors thrown by Siebel CRM or Oracle EBS, see the documentation for that product. For more information about AIA error handling, see the *Oracle Fusion Middleware Infrastructure Components and Utilities User's Guide for Oracle Application Integration Architecture Foundation Pack*, "Setting Up and Using Error Handling and Logging."

**For more information** on the Oracle Worklist Application, see Oracle Application Integration Architecture: Foundation Pack, “Infrastructure Components and Utilities User’s Guide for Oracle Application Integration Architecture Foundation Pack, “Using the Error Console.”

## Error Roles

**For more information** about setting up error notifications using these values, see Oracle Fusion Middleware Infrastructure Components and Utilities User’s Guide for Oracle Application Integration Architecture Foundation Pack, “Setting up Error Notifications and Trace Logging.”

## JMS Adapters (Producers and Consumers)

**For more information**, see Oracle Fusion Middleware Developer’s Guide for Oracle Application Integration Architecture Foundation Pack, “Designing and Constructing JMS Adapter Services”.

## Setting Config Properties

**For more information**, see *Oracle Fusion Middleware Infrastructure Components and Utilities User’s Guide for Oracle Application Integration Architecture Foundation Pack*, “Using the BSR,” Loading Oracle AIA Configuration File Updates.

# Appendix C: Using Session Pool Manager

Session Pool Manager (SPM) is a service in the Oracle SOA Suite web server whose primary function is to manage a pool of web server session tokens that can be reused by BPEL flows.

Reusing session tokens significantly enhances the overall performance of BPEL flows that call web services. This is because the session token creation process is a time-consuming operation in the application web server.

Some features of SPM include:

- SPM is automatically initialized upon the request of a session token.
- The session token pool is stored in memory.
- SPM supports concurrent (multithreaded) BPEL flows
- SPM supports multiple application web server instances (hosts), with one SPM instantiated per host.
- Includes the Sentinel, which periodically checks session tokens, removes expired sessions, and replaces them with new ones.

**For more information** about Session Pool Manager, see the Oracle Application Integration Architecture - Pre-Built Integrations 11.1: Utilities Guide.

## Configuring Session Pool Manager

SPM configuration properties are set in the AIAConfigurationProperties.xml file as a Module Configuration. The module name is SessionPoolManager.

SPM can work with multiple hosts (application web servers). Therefore, each property can be set as a default for all hosts, and overridden for a specific host. The only exception is the TRACE.LOG.ENABLED property, which cannot be set to be server-specific.

Each property has a prefix that indicates the application web server. For example:

```
<Property name="all_hosts.PoolSize_Max">40</Property>
<Property name="SEBL_01.PoolSize_Max">20</Property>
```

The first line defines **40** as the default maximum pool size for all hosts.

The second line overrides the default pool size to **20** for the application web server SEBL\_01.

The concept of system ID and HostID are synonymous.

For example, a customer may use SEBL\_01 as the system ID for the Siebel application web server. They will see SEBL\_01 in the AIAConfigurationProperties.xml file as the "Default.SystemID" property for the services connecting to the Siebel application web server. This SEBL\_01 value should also be used as the HostId value in SPM to refer to the Siebel application web server.

The values of "SEBL\_01.EndpointURI" properties for the process, should match with the value of "SEBL\_01.EndpointURI" property under the SessionPoolManager module configuration section.

For example:

```
<Property
name="SEBL_01.EndpointURI">http://[siebel.http.host]:[siebel.http.port]/eai_enu/start.swe?SWEExtSource=SecureWebService&
SWEExtCmd=Execute&WSSOAP=1</Property>
```

---

**Caution:** In the case where a Siebel instance is restarted, you must terminate the Session Pool Manager for that Siebel instance as its Siebel sessions are no longer valid

---

## Appendix D: Support for Multiple Billing Systems

This integration can be used in a scenario where Siebel customer data has to be synchronized with multiple billing systems. This section describes all the additional setup and configurations required to handle it.

The following diagram illustrates an example scenario where both Utilities and Communications PIPs are deployed and customer information can be sent to multiple billing systems besides Oracle Utilities Customer Care and Billing.

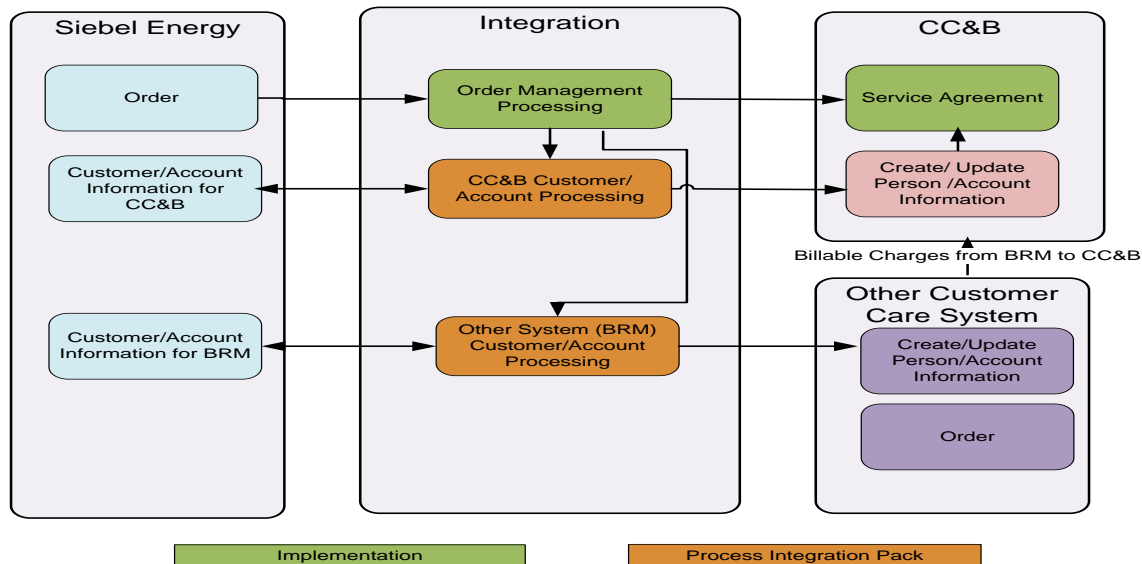


Figure 11: Multiple Billing Systems flow diagram

## Orders Coming from Siebel to Multiple Systems

When an Order gets created in Siebel, it is put into a queue for integration to consume. If the Order has to be routed conditionally to different systems, it has to be done through a custom process. Since Order Processing is implementation specific it is out of scope of this document.

## Updates Coming from Siebel to Multiple Systems

In case of co-deployment of both Utilities and Communications PIPs, Utilities Routing Service can be configured to route an update event to both aggregator services – Utilities Aggregator Service and Communications Aggregator Service.

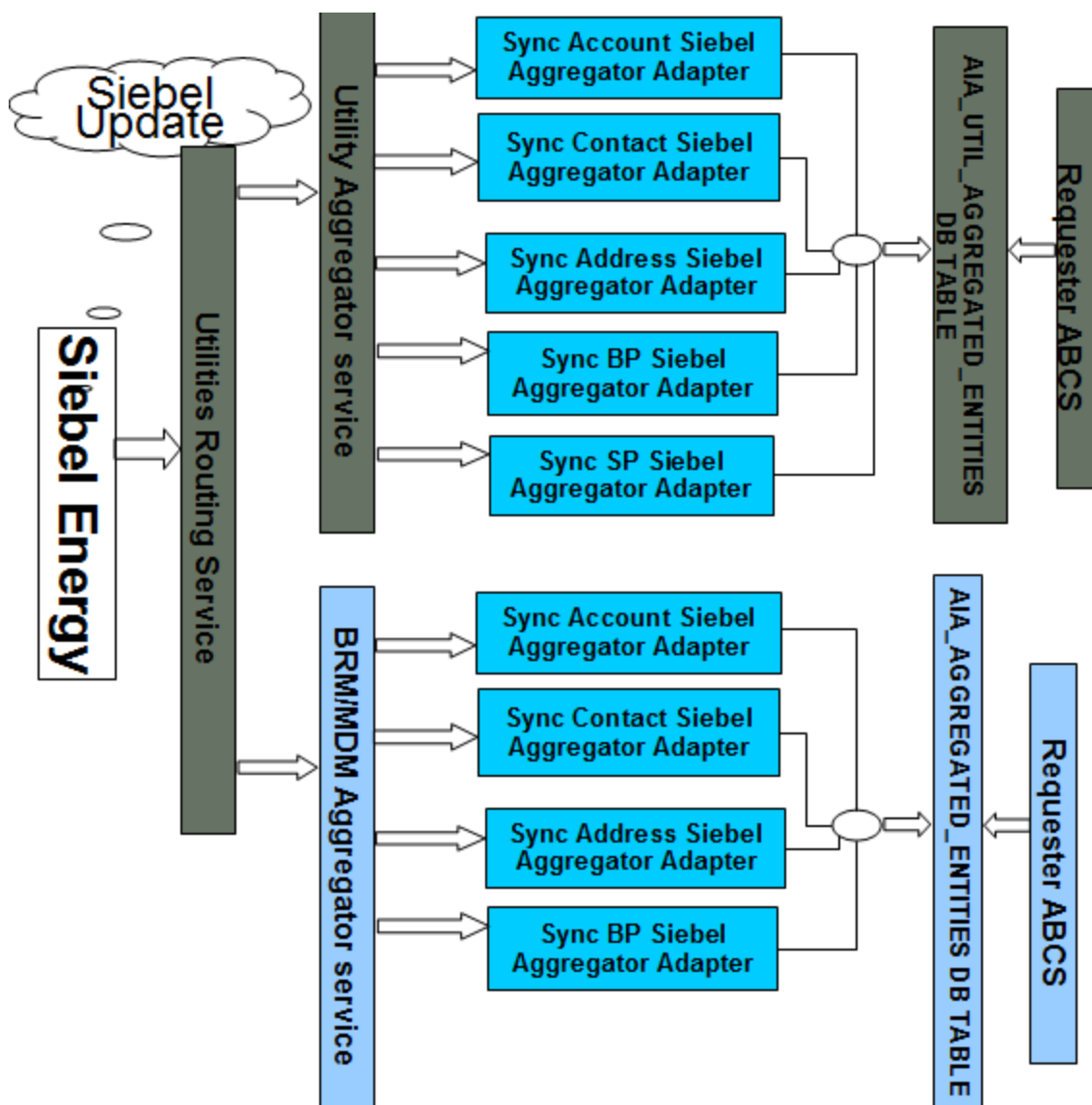


Figure 12: Updates from Siebel to multiple systems diagram

In Siebel Energy, when a user navigates to the Accounts screen, queries an account and updates an account attribute (for example, Address, Contact, the Primary Billing Profile, or Statement Profile). Siebel invokes the `SyncCustomerSiebelEventAggregator` service with the `SiebelUpdateABM` message. The detail of the account is updated. Depending on the type of update, one of five Siebel messages can be generated: `ListOfSWICustomerIO`, `ListOfSWIBillingProfileIO`, `ListOfSWIStatementProfileIO`, `ListOfSWIContactIO`, or `ListOfSWIAddressIO`.

If the outbound webservice is to send updates to Siebel, it should be configured to invoke the **`SyncCustomerSiebelUtilitiesAggregatorRoutingService`** in integration. This routing service routes Siebel message only to Utilities Aggregator or both Utilities Aggregator and Communications PIP Shared Service Aggregator. This conditional routing is controlled through a Service Property on **`SyncCustomerSiebelUtilitiesAggregatorRoutingService`** in `AIAConfigurationProperties`.

## Siebel Outbound Web Services configuration

Following Configuration changes are required on Outbound Web service of Siebel to invoke Utilities Routing service.

Complete the following steps for defining the end point URL (Outbound Web services)

### Web Service Changes for Statement Profile Update

1. Navigate to Site Map > Administration – Web Services > Outbound Web Service
2. Query for “SyncCustomerSiebelEventAggregator” in Name Field
3. In the Service Port Applet, depending on whether only Comms PIP or Utilities PIP or both are installed, modify the Address Field with following value:

Comms PIP	Utility PIP	Address Field Value
TRUE	TRUE	<a href="http://adcgaf06.us.oracle.com:8029/soa-infra/services/default/SyncCustomerSiebelUtilitiesEventAggregatorRoutingService/SyncCustomerSiebelUtilitiesEventAggregatorRoutingServiceAdapter.ep">http://adcgaf06.us.oracle.com:8029/soa-infra/services/default/SyncCustomerSiebelUtilitiesEventAggregatorRoutingService/SyncCustomerSiebelUtilitiesEventAggregatorRoutingServiceAdapter.ep</a>
TRUE	FALSE	<a href="http://slc60031sems.us.oracle.com:8092/soa-infra/services/default/SyncCustomerSiebelEventAggregator/Client">http://slc60031sems.us.oracle.com:8092/soa-infra/services/default/SyncCustomerSiebelEventAggregator/Client</a>
FALSE	TRUE	<a href="http://sdc60024sems.us.oracle.com:8056/soa-infra/services/default/SyncCustomerSiebelUtilitiesEventAggregator/Client">http://sdc60024sems.us.oracle.com:8056/soa-infra/services/default/SyncCustomerSiebelUtilitiesEventAggregator/Client</a>

4. Query for “SWISubmitOrder” on the Name field of the Web Services applet.
5. Change the Address field for outbound Web service to point  
jms://jms/aia/SalesOrderQueue@jms/aia/AIAOUSEBLCF

## Setting the Application Integration Architecture (AIA) Configuration Properties

Following Service configurations are required to support routing updates to multiple systems.

### Service Configurations

ABCS Name	Property Name	Default / Shipped Value	Description
SyncCustomerSiebelUtilitiesEventAggregatorRoutingService	OUCCB.Routing.Enabled	true	This property is used to indicate if the updates coming out of Siebel needs to be routed to Oracle Utilities Customer Care and Billing.
SyncCustomerSiebelUtilitiesEventAggregatorRo	SharedService.Routing.Enabled	false	This property is used to indicate if the updates coming out of Siebel

ABCS Name	Property Name	Default / Shipped Value	Description
utingService			needs to be routed to Communications PIP Shared Service Event Aggregator.

## Additional Setup for Co-deployment of Utilities and Communications PIPs on different SOA/Foundation Pack servers

In case of co-deployment of both Utilities and Communications PIPs on different SOA/Foundation Pack servers using the same Siebel server, an additional change has to be made to the composite.xml of SyncCustomerSiebelUtilitiesEventAggregatorRoutingService to route updates coming from Siebel correctly.

In SyncCustomerSiebelUtilitiesEventAggregatorRoutingService, the location of the Communications Shared Service Aggregator – SyncCustomerSiebelEventAggregator will have to be changed to the correct SOA server where Communications PIP is installed.

Sample Code changed to be made:

```
<reference name="SyncCustomerSiebelEventAggregator"

<binding.ws
port="http://xmlns.oracle.com/ABCS/Siebel/Core/SyncCustomerSiebelEventAggregator/V1#wsdl.endpoint\(SyncCustomerSiebelEventAggregator/SyncCustomerSiebelEventAggregator\)"
location="http://COMMUNICATIONS-PIP-SOA-SERVER-LOCATION/soa-infra/services/default/SyncCustomerSiebelEventAggregator/Client?WSDL"
soapVersion="1.1">
  <property name="weblogic.wsee.wsat.transaction.flowOption"
  type="xs:string" many="false">WSDLDriven</property>
</binding.ws>
</reference>
```

Once the location of the Communications SOA-Server details are updated, re-deploy the Routing service.

## Appendix E: Script to avoid Seasonal Address Overlap in Siebel

Following script is provided in order to prevent a Seasonal Address overlap in Siebel:

```
var Month = new Array("Jan", "Feb", "Mar", "Apr", "May", "Jun",
"Jul", "Aug", "Sep", "Oct", "Nov", "Dec"); var
DateMon1, DateMon2, DateMon3;
var DateDay2, DateDay1, DateDay3;
var StartDate1, EndDate1;
```

```

var StartDate2,EndDate2;
var StartMon1,EndMon1,StartDay1,EndDay1;
var StartMon2,EndMon2,StartDay2,EndDay2;
function IsLessThen( Date1 , Date2 ){
    DateMon1 = Date1.getMonth();
    DateMon2 = Date2.getMonth();
    DateDay1 = Date1.getDate();
    DateDay2 = Date2.getDate();
    if((DateMon1 < DateMon2)||((DateMon1 == DateMon2)&&(DateDay1 <
DateDay2)))
        return true;
    else return false;
}
function IsLessThenOrEqual( Date1 , Date2 ){

    DateMon1 = Date1.getMonth();
    DateMon2 = Date2.getMonth();
    DateDay1 = Date1.getDate();
    DateDay2 = Date2.getDate();

    if((DateMon1 < DateMon2)||((DateMon1 == DateMon2)&&(DateDay1 <=
DateDay2)))
        return true;
    else return false;
}
function BusComp_PreWriteRecord ()
{
    var sReturn = "Done";
    var BO = TheApplication().GetBusObject( "Account" );
    var BC = BO.GetBusComp( "CUT Address" );
    var searchSpec = this.GetSearchExpr();
    var type;

    type = GetFieldValue( "Type" );
    ActivateField("Id");
    var Id = GetFieldValue( "Id" );
    var sDate = GetFieldValue( "Start Date" );
    var eDate = GetFieldValue( "End Date" );

    if(type=="Seasonal" && sDate != "" && eDate != ""){

        StartDate1 = new Date(sDate) ;
        EndDate1 = new Date(eDate) ;
        StartMon1 = StartDate1.getMonth();
        StartDay1 = StartDate1.getDate();
        EndMon1 = EndDate1.getMonth();
        EndDay1 = EndDate1.getDate();

        if((StartMon1 == 1 && StartDay1 == 29) || (EndMon1 == 1 &&
EndDay1 == 29)){
            this.SetFieldValue("Type","");
            this.SetSearchExpr(searchSpec);
            this.ExecuteQuery(ForwardOnly);
            this.InvokeMethod("RefreshBusComp");
            this.LastRecord();
        }
    }
}

```



```

        TheApplication().RaiseErrorText("Record cannot be
committed as leap year's Feb 29 date is not allowed for Seasonal
Addresses");
        return CancelOperation;
    }

    ClearToQuery();
    this.ExecuteQuery(ForwardOnly);
    var isRecord = FirstRecord();

    while( isRecord ) {

        if(Id!=GetFieldValue( "Id" )){
            var type2= GetFieldValue( "Type" );
            if(type2 == "Seasonal"){

                StartDate2 = new Date(GetFieldValue(
"Start Date" )) ;
                EndDate2 = new Date(GetFieldValue( "End
Date" )) ;;

                StartMon2 = StartDate2.getMonth();
                StartDay2 = StartDate2.getDate();
                EndMon2 = EndDate2.getMonth();
                EndDay2 = EndDate2.getDate();

                //S1<=E1 && S2<=E2

                if(IsLessThenOrEqual(StartDate1,EndDate1)
&& IsLessThenOrEqual(StartDate2,EndDate2)){

                    if(!((IsLessThen(EndDate2,StartDate1)||IsLessThen(EndDate1,Start
Date2))){

                        SetSearchSpec("Id",Id);
                        ExecuteQuery(ForwardOnly);

                        this.SetFieldValue("Type","");

                        sReturn = "Error";
                        break;
                    }
                }

                //S1>E1 && S2>E2

                if(IsLessThen(EndDate1,StartDate1)&&IsLessThen(EndDate2,StartDate
2)){

                    SetSearchSpec("Id",Id);
                    ExecuteQuery(ForwardOnly);
                    this.SetFieldValue("Type","");
                    sReturn = "Error";
                    break;
                }

                //S1<=E1 && S2>E2
                if(IsLessThenOrEqual(StartDate1,EndDate1)
&& IsLessThen(EndDate2,StartDate2)){

                    if(!IsLessThen(EndDate2,StartDate1)||(!IsLessThen(EndDate1,Star

```

```

tDate2))) {

    SetSearchSpec("Id", Id);
    ExecuteQuery(ForwardOnly);

    this.SetFieldValue("Type", "");

    sReturn = "Error";
    break;

    }

    //S2<=E2 && S1>E1
    if(IsLessThenOrEqual(StartDate2,EndDate2)
    && IsLessThen(EndDate1,StartDate1)){

        if((!IsLessThen(EndDate1,StartDate2))||(!IsLessThen(EndDate2,Star
tDate1))){

            SetSearchSpec("Id", Id);
            ExecuteQuery(ForwardOnly);

            this.SetFieldValue("Type", "");

            sReturn = "Error";
            break;

            }

        }

        isRecord = NextRecord();

    }

    this.SetSearchExpr(searchSpec);
    this.ExecuteQuery(ForwardOnly);
    this.InvokeMethod("RefreshBusComp");
    this.LastRecord();

    if(sReturn == "Error"){
        TheApplication().RaiseErrorText("DATE OVERLAP BETWEEN " +
StartDate1+"-"+Month[StartMon1] +" to "+EndDay1+"-"+Month[EndMon1]+ "
and " + StartDay2+"-"+Month[StartMon2]+ " to "+EndDay2+"-
"+Month[EndMon2]);
    }
    return ContinueOperation;
}

```

## Appendix F: CAVS Testing

The Composite Application Validation System (CAVS) is a framework that provides an approach to test integration of Oracle Application Integration Architecture services. CAVS includes test initiators that simulate web service invocations and simulators that simulate service endpoints.

The CAVs properties in AIAConfigurationProperties.xml are by default set to not route the messages to CAVS. CAVS related properties need to be changed only if you decide to use CAVS for testing. These properties can be identified in the AIAConfigurationProperties.xml file as the name of these Service Configuration properties ends with either RouteToCAVS or CAVS.EndpointURI, and are available in the file under each ABCS Name.

**For more information**, about CAVS; see the *Oracle Fusion Middleware Infrastructure Components and Utilities User's Guide for Oracle Application Integration Architecture Foundation Pack 11g Release 1*, "Introduction to the Composite Application Validation System".