Oracle Service Bus Integration Implementation Guide
Oracle FLEXCUBE Investor Servicing
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FINANCIAL SERVICES

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1. Introduction

1.1 Scope

This document brings out the feasibility of interfacing an external system with FLEXCUBE invoking the FCUBS Gateway service using the Oracle Service Bus. The document also describes sample integration via Oracle Service Bus between a hypothetical client system that uses FLEXML messages for service requests and FCUBS Gateway Service. As part of these even different mechanisms of interface like the File based, MQ based, RMI and Web Services are also explored.

1.2 Introduction to Oracle Service Bus

Oracle Service Bus (formerly BEA AquaLogic Service Bus) is an enterprise-class service bus that connects, manages, and mediates interactions between heterogeneous services. OSB accelerates service configuration, integration, and deployment, thus simplifying management of shared services across the SOA.

Oracle Service Bus is an intermediary that processes incoming service request messages, determines routing logic, and transforms these messages for compatibility with other service consumers. It receives messages through a transport protocol such as HTTP(S), JMS, File, and FTP, and sends messages through the same or a different transport protocol. Service response messages follow the inverse path. The message processing by Oracle Service Bus is driven by metadata, specified in the *message flow definition* of a proxy service.

Advantages

Oracle Service Bus is policy driven and enables you to establish loose coupling between *service clients* and *business service s. Thus OSB helps* to processes incoming service request messages from any client, determines routing logic, and transforms these messages for compatibility with our FCUBS Services.

2. Requirement /Problem Statement

The requirement is to display the capability of the FCUBS Gateway service to be exposed or configured in Oracle Service Bus so as to enable a seamless integration between an external system and FCUBS through the Oracle Service Bus. A sample configuration is to be done in Oracle Service Bus to integrate an external system that requests and receives responses in FLEXML format with FLEXCUBE using the FCUBS Gateway Services. The Service request can be in synchronous or Asynchronous mode.

3. Prerequisites

3.1 Software Required

- Oracle Service Bus 10gR3 (formerly BEA AquaLogic Service Bus)
- Download & install the Oracle Service Bus 10gR3 from the below link

http://www.oracle.com/technology/software/products/osb/index.html?rssid=rss_otn_soft


Choose the Complete **Type of Installation**

The Complete type of Installation will provide with the below components.

- Oracle Weblogic Server 10.3
- Oracle Workshop for Weblogic

Workshop provides a unified development environment that enables you to develop web applications and web services regardless of your experience in developing applications using Java EE 2. It includes a suite of tools for developing, debugging, and deploying sophisticated enterprise applications including Oracle Service Bus resources.

- Oracle Service Bus

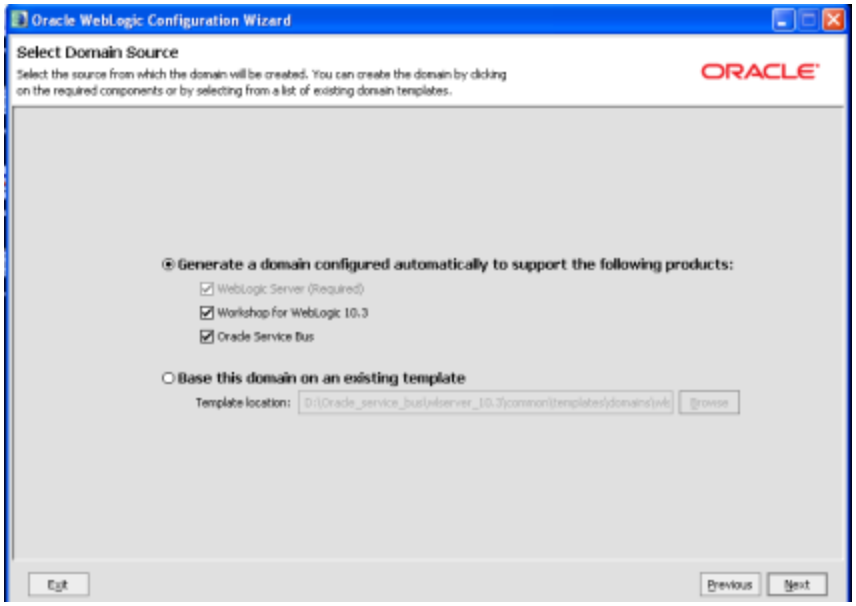
Oracle Service Bus consists of the following sub-components that can be installed on your system

- Service Bus Server –The full set of components that comprise Oracle Service Bus, except the example and the IDE.
- IDE and Service Bus Example –The Oracle Service Bus Plug-in for Workshop for WebLogic and the Oracle Service Bus Examples. The examples demonstrate key features of Oracle Service Bus and help you get started with designing and configuring resources and services using the Oracle Service Bus Console.

3.2 Weblogic Domain

- Create a Weblogic domain by using the Oracle Weblogic configuration wizard


Configure Weblogic domain to support Oracle Service Bus


Oracle WebLogic Configuration Wizard
Select Domain Source
Select the source from which the domain will be created. You can create the domain by clicking on the required components or by selecting from a list of existing domain templates.
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Generate a domain configured automatically to support the following products:
WebLogic Server (Required)
Workshop for WebLogic 10.3
Oracle Service Bus
Base this domain on an existing template
Template location:
Browse
Exit
Previous
Next

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4. Oracle Service Bus Description

4.1 Oracle Service Bus Core Features

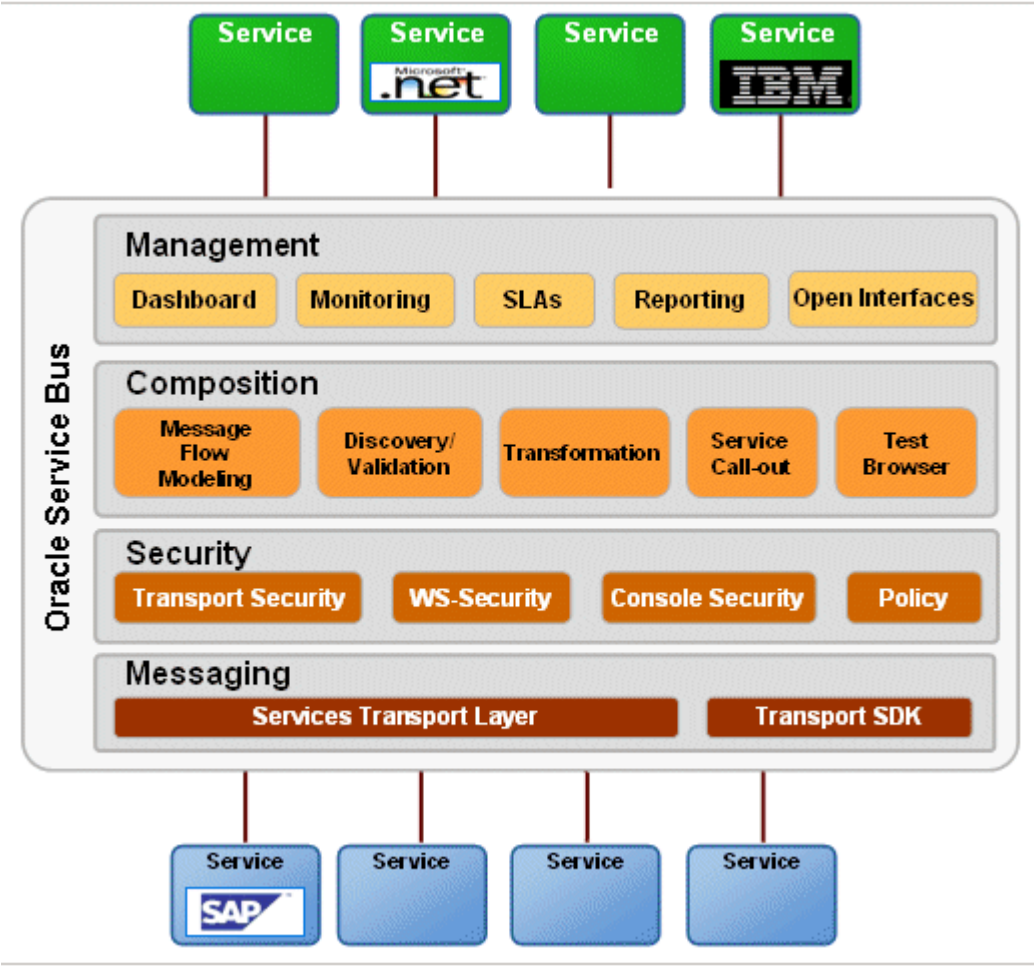
Oracle Service Bus is a proven market-leading Enterprise Service Bus (ESB) built from the ground up for SOA lifecycle management that provides foundation capabilities for service discovery and intermediation, rapid service provisioning and deployment, and governance.

This service-infrastructure software adheres to the SOA principles of building coarse grained, loosely coupled, and standards-based services, creating a “neutral container” in which business functions may connect service consumers and back-end business services, regardless of underlying infrastructure.

Built to meet exacting standards for reliability, availability, scalability, and performance, Oracle Service Bus uniquely combines the integration capabilities of an Enterprise Service Bus with operational service management, into a single enterprise-class software product, with a layered functional architecture.

The functional features of Oracle Service Bus can be categorized into the following functional layers:

- **Messaging Layer:** that reliably connects any service by leveraging standards web service transports, traditional messaging protocols and configuration of enterprise-specific custom transports.
- **Security Layer:** a rapid service configuration and integration environment that abstracts policies associated with routing rules, security, and service end-point access.
- **Composition Layer:** a meta-data driven feature-rich configuration interface for service discovery and validation capabilities for automatic import and synchronization of services with UDDI registries, allows message flow modeling, transformations, third-party service callouts and a test console.
- **Management Layer:** a service management environment that includes dynamic service and policy configuration, centralized usage and performance monitoring, and management of services - not just Web services, but also Java, .Net, messaging services, and legacy end points.



4.2 Proxy & Business Service

The two services provided by the OSB are proxy service & business services which provide the means for managing services, transforming messages, and routing messages through the enterprise.

- Proxy Service

  OSB proxy services are definitions of intermediary Web Services that OSB implements and hosts locally. OSB uses proxy services to route messages between business services and service clients. A proxy service configuration includes its interface, transport settings, security settings, and a message flow definition. The message flow definition defines the logic that determines how messages are handled as they flow through the proxy service.

- Business Service

  OSB business services are definitions of enterprise Web Services to which OSB is a client. Those external Web Services are implemented in and hosted by external systems, so OSB must know what to call, how to call, and what to expect as a result of a call. OSB business services model those interfaces so that OSB can invoke the external services. A business service configuration includes its interface, transport settings, and security settings. It does not include a message flow definition.

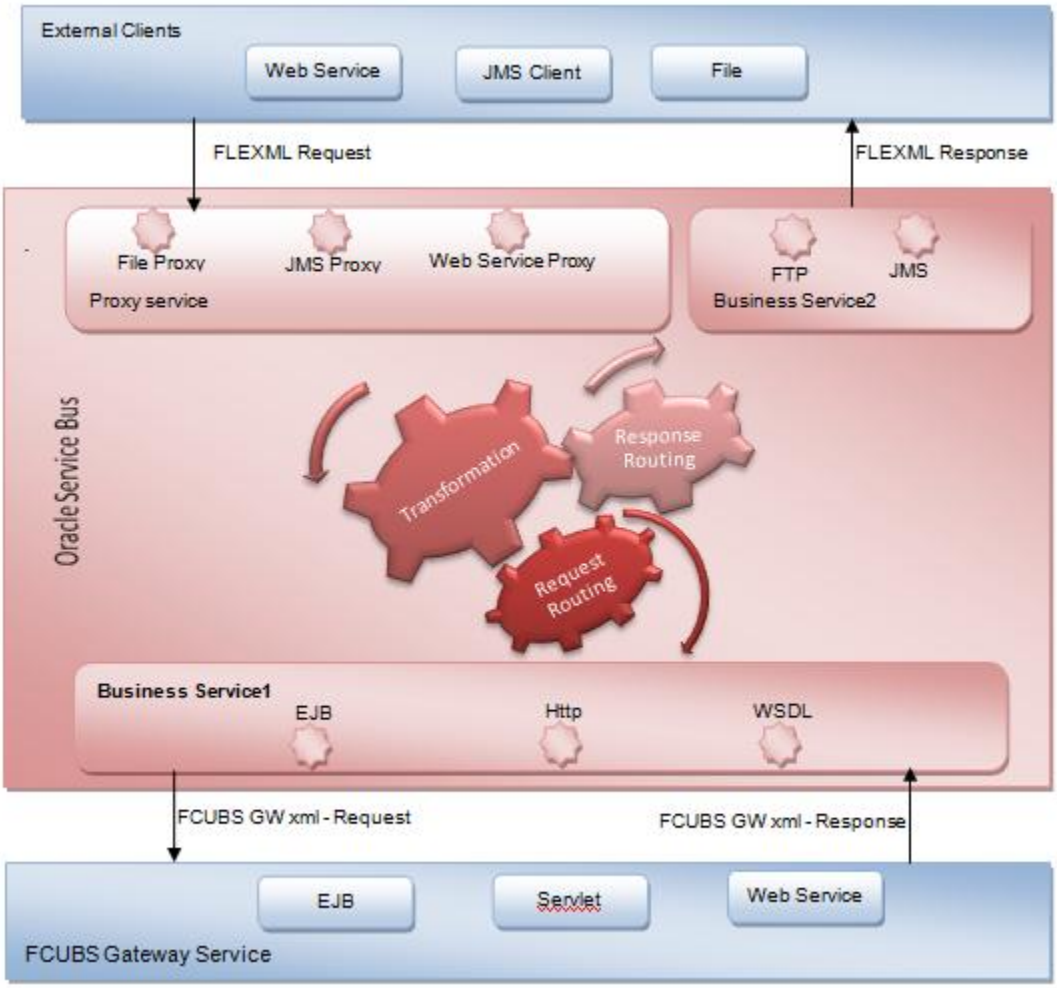
5. Integration using Oracle Service Bus – a sample

A Sample integration of an external system with FCUBS gateway service via the Oracle Service bus is described below.

5.1 Approach

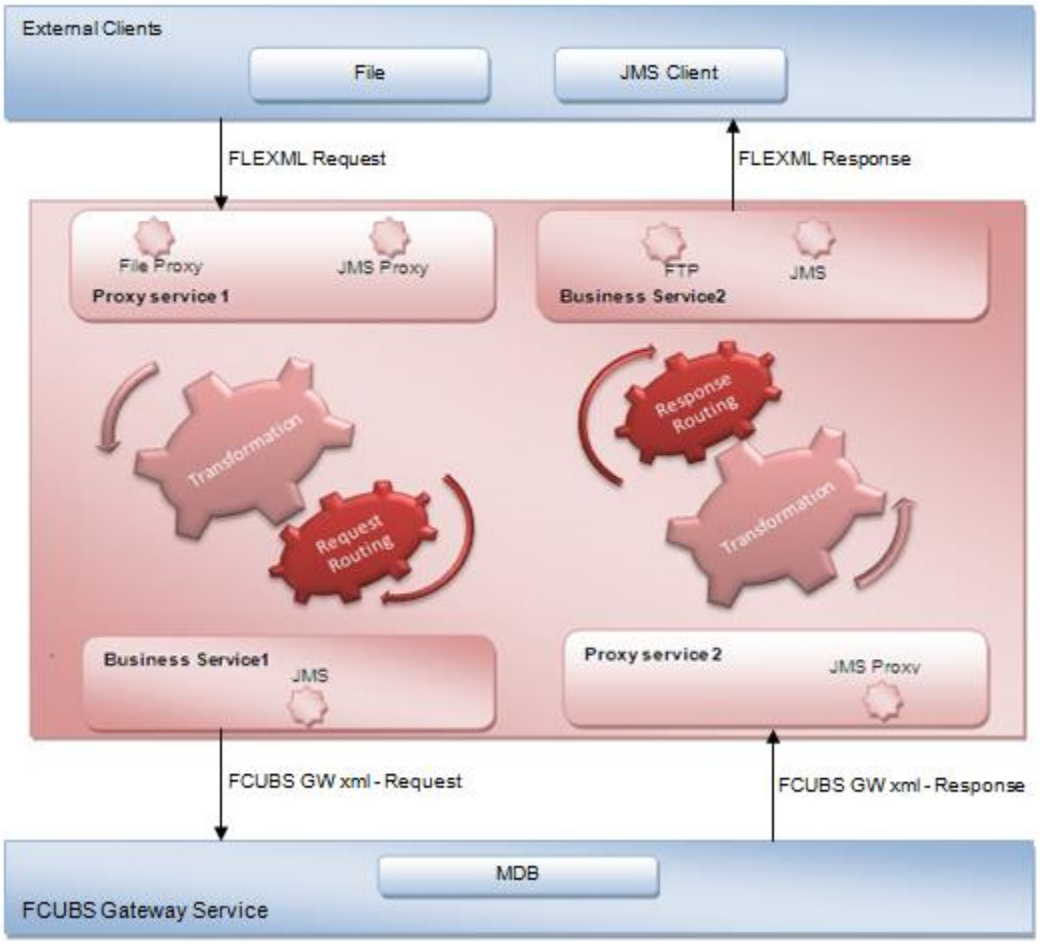
- The External System invokes the CreateCustAcc , CreateTDAcc or CreateFTContract service with FLEXML message format and this request message is then transformed into the FCUBS Gateway xml format and Routed to the corresponding Gateway Service FCUBSAccService , FCUBSTDService or FCUBSFTService.
- The integration can be Synchronous or Asynchronous.

5.1.1 Synchronous Integration Pattern



- In a synchronous integration the Client System may invoke the Service using any of the following protocol
  - File
  - JMS Queues
  - Web Service
- For each of these Transport Protocol a Proxy service is defined in OSB
- The Request message is received by the respective Proxies defined in OSB
- The Request Message in FLEXML format is then Transformed to the FCUBS Gateway XML format based on the Transformation (XSLT) defined in the message flow definition in the corresponding Proxy
- For Synchronous integration the FCUBS Gateway services can be deployed as a EJB , Servlet or WebService for each of these a Business Service is defined in OSB
- The Transformed XML is then Routed to the Business Service that is defined for FCUBS Gateway Service based on the Message flow Definition
- The Response from FCUBS Gateway is returned by the Business service shall be again Transformed and Gets routed to the Next Business Service that shall send the response to the client

5.1.2 Asynchronous Integration Pattern



- In a Asynchronous integration the Client System may invoke the Service using any of the following protocol
  - File
  - JMS Queues
- For each of these Transport Protocol a Proxy service is defined in OSB
- The Request message is received by the respective Proxies defined in OSB
- The Request Message in FLEXML format is then Transformed to the FCUBS Gateway XML format based on the Transformation (XSLT) defined in the message flow definition in the corresponding Proxy
- For Asynchronous integration FCUBS Gateway services can be deployed as a MDB a JMS protocol based Business Service is defined in OSB
- The Transformed XML is then Routed to the JMS Business Service based on the Message flow Definition which shall enqueue the request message to the “IN –Queue” of the Gateway service

- The Response from FCUBS Gateway is written on to an Out-Queue an JMS proxy listening onto this Out queue shall pick up the message and Transforms the Gateway XML to FLEXML format and route it to the Business service that shall send the response message to the client

5.2 Building and Deployment

5.2.1 Pre-Requisite

Depending on the Type of integration the corresponding Gateway Service deployment needs to be done

- For Synchronous Integrations deploy one of the following
  - FCUBS Gateway EJB
  - FCUBS Gateway Servlet
  - FCUBS Gateway Web Service

Please note for Servlet and Web Service Gateway EJB is mandatory

- For Asynchronous Integrations deploy the Gateway MDB

5.2.2 File Based Request

5.2.2.1 Synchronous Pattern

The Documents mentioned below describes the building and Deployment details of the file Proxy service and the respective Business services for the Gateway components

- FCUBS Gateway EJB

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_File_GW_EJB Proxy Service.docx]
- FCUBS Gateway Servlet

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_File_GW_HTTP Proxy Service.docx]
- FCUBS Gateway WebService

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_File_GW_WS Proxy Service.docx]

5.2.2.2 Asynchronous Pattern

The Documents mentioned below describes the building and Deployment details of the file Proxy service and the respective Business services for the Gateway components

- FCUBS Gateway MDB

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_File_GW_MDB Proxy Service.docx]

5.2.3 JMS Queue Based Request

5.2.3.1 Synchronous Pattern

The Documents mentioned below describes the building and Deployment details of the jms queue Proxy service and the respective Business services for the Gateway components

- FCUBS Gateway EJB

  [ReferFS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_JMSQueue_GW_EJB_Proxy Service.docx]

- FCUBS Gateway Servlet

  [ReferFS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_JMSQueue_GW_HTTP Proxy Service.docx]

- FCUBS Gateway WebService

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_JMSQueue_GW_WS Proxy Service.docx]

5.2.3.2 Asynchronous Pattern

The Documents mentioned below describes the building and Deployment details of the jms queue Proxy service and the respective Business services for the Gateway components

- FCUBS Gateway MDB

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_JMSQueue_GW_MDB Proxy Service.docx]

5.2.4 Web Service

5.2.4.1 Synchronous Pattern

The Documents mentioned below describes the building and Deployment details of the Web Service Proxy service and the respective Business services for the Gateway components

- FCUBS Gateway EJB

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_WebService_GW_EJB_Proxy Service.docx]

- FCUBS Gateway Servlet

  [Refer FS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_WebService_GW_HTTP Proxy Service.docx]

- FCUBS Gateway WebService

  [ReferFS_FCUBSV.UM_10.3.0.0.0.0.0_OSB_WebService_GW_WS_Proxy Service.docx]

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