Web Service Development
Oracle FLEXCUBE Universal Banking
Release 12.0
[May] [2012]
Oracle Part Number E51465-01

Table of Contents

1. PREFACE 1-1

1.1 AUDIENCE 1-1
1.2 RELATED DOCUMENTS 1-1
1.3 CONVENTIONS 1-1
1.4 HYPOTHETICAL EXAMPLE USED IN THE DOCUMENT 1-2

2. INTRODUCTION 2-1

2.1 HOW TO USE THIS GUIDE 2-1

3. WEB SERVICE - INTRODUCTION 3-1

3.1 COMPONENTS OF WEB SERVICE 3-1
3.2 FLEXCUBE SOAP FORMAT 3-2
3.3 FLEXCUBE WSDL FORMAT 3-5
3.3.1 WSDL parts 3-5
3.3.2 FCUBS WSDL example 3-6
3.4 FLEXCUBE WEB SERVICE DATA FLOW 3-9

4. PRE REQUISITES FOR WEB SERVICE DEVELOPMENT 4-1

5. WEB SERVICE DEVELOPMENT 5-1

5.1 WEB SERVICE SPECIFICATION 5-1
5.2 GENERATE / DEVELOP XSDS 5-2
5.2.1 Open Development generated 5-2
5.2.2 Hand coded 5-2
5.3 GENERATE/DEVELOP WSDL 5-6
5.3.1 Generate WSDL using TrAX 5-7
5.4 BUILD EAR 5-12
5.4.1 Directory Creation 5-12
5.4.2 File Copy 5-13
5.4.3 Creation of Gateway EJB property file 5-13
5.4.4 Creation of Gateway EJB EAR file 5-16
5.4.5 Creation of Web Service property file 5-20
5.4.6 Creation of Web Service EAR file 5-23
5.4.7 Adding New Service to the List 5-25
5.5 DEPLOYING OF EAR FILE 5-27
5.5.1 Deploying of Gateway EJB EAR file 5-27
5.5.2 Deploying of Web Service EAR file 5-33
5.6 TESTING THE WEB SERVICE 5-36

6. ANNEXURE A – FCMOBILESERVICE – SAMPLE FILES 6-1

6.1 XSD FILES 6-1
6.1.1 CS-Mobil-Types.xsd 6-1
6.1.2 CS-CreateMobil-Req-Full-MSG.xsd 6-12
6.1.3 CS-CreateMobil-Req-IO-MSG.xsd 6-13
6.1.4 CS-CreateMobil-Res-Full-MSG.xsd 6-14
6.1.5 CS-CreateMobil-Res-PK-MSG.xsd 6-15
6.2 WSDL FILE 6-16
6.2.1 FCMobileService.wsdl 6-16
6.3 IMPLEMENTATION JAVA FILES 6-19
6.3.1 FCMobileServiceImpl.java 6-19
6.4 GATEWAY STATIC DATA FROM OPEN DEVELOPMENT 6-29

6.4.1 GWTB_AMEND_FIELDS__JKDMOBIL.INC 6-29
6.4.2 GWTB_AMEND_NODES__JKDMOBIL.INC 6-29
6.4.3 GWTM_AMEND_FIELDS__JKDMOBIL.INC 6-30
6.4.4 GWTM_AMEND_MASTER__JKDMOBIL.INC 6-30
6.4.5 GWTM_AMEND_NODES__JKDMOBIL.INC 6-31

1. Preface

This document describes the concepts and helps reader to develop Web service for FLEXCUBE UBS function IDs. Web Services developed for FLEXCUBE UBS are deployed on Gateway framework.

1.1 Audience

This Web service Development book is intended for FLEXCUBE Application Developers/Users who perform the following tasks:

- Develop the new web service for existing FLEXCUBE Function IDs
- Modify the existing web service to add/remove fields

1.2 Related documents

For more information on FLEXCUBE framework, refer the below documents:

- Development Overview Guide
- Getting Started
- FCUBS-FD05-04-01-TrAX-Reference

To Use this manual, you need conceptual and working knowledge of the below:

Proficiency	**Resources**
FLEXCUBE UBS Development overview	Development Overview Guide
OPEN DEVELOPMENT function ID development getting started	Getting Started
Open Development screen development	Function ID Development

1.3 Conventions

The following text conventions are used in this document:

Convention Meaning

boldface	Boldface type indicates graphical user interface elements (for example, menus and menu items, buttons, tabs, dialog controls), including options that you select.
italic	italic type indicates book titles, emphasis, or placeholder variables forwhich you supply particular values.
monospace	Monospace type indicates language and syntax elements, directory

	and File name, URLs, text that appears on the screen, or text that you enter.
	Indicates important information

1.4 Hypothetical Example used in the document

FLEXCUBE UBS has the function ID JKDMOBILE. This is a maintenance function ID. This function ID is used map the customer number with mobile number. This document covers the web service development for this function ID.

2. Introduction

2.1 How to use this Guide

The information in this guide includes:

- Chapter 2, "Introduction"

  This is an introduction section.
- Chapter 3, "Web Service - Introduction"

  This section discuss the Web service introduction and FLEXCUBE UBS web service concepts
- Chapter 4, "Pre requisites for Web service development"

  This section discuss the pre-request check list for web service development
- Chapter 5, "Web services Development"

  This section discusses steps for web service development and testing.
- Chapter 6, "Annexure A – FCMobileService sample files"

  This section discuss the sample files

3. Web Service - Introduction

Web Services are self-contained, self-describing, modular applications that can be published, located and invoked across the web. A Web Service is an interface that describes a collection of operations that are network accessible through standardized XML messaging. The technology is called “Web service” because it integrates services(applications) using web technologies(the internet and its standards). Web service plays vital role in creating Service Oriented Architecture based software applications.

Web services use the following technologies

- XML

  XML is used to describe the web service specifications

- SOAP

  Simple Object Access Protocol is a network, transport, and programming language, platform independent protocol that allows client to call a remote service. The message format is XML

- WSDL

  Web Service Description Language is an XML based interface and implementation description language The service provider uses WDSL document in order to specify the operations of web service and parameters and data types of these operations

3.1 Components of web service

Following are the components of FLEXCUBE UBS Web service:

- XSD files
  - Message XSDs

    This represents the “Message” portion on WSDL file that used to define the message communicated in web service. A message can have one or more data types.
  - Type XSDs

    This represents the “Types” portion on WSDL file that used to define the data types that are part of messages.
- WSDL file
- Implementation Java files
- Gateway static data

Example:

JKDMOBILE function ID – web service development results in following files. Refer the annexure A for these file contents

- XSD files
  - CS-Mobil-Types.xsd
  - CS-CreateMobil-Req-Full-MSG.xsd
  - CS-CreateMobil-Req-IO-MSG.xsd
  - CS-CreateMobil-Res-Full-MSG.xsd
  - CS-CreateMobil-Res-PK-MSG.xsd
- WSDL file
  - FCMobileService.wsdl
- Implementation Java files
  - FCMobileServiceImpl.java
- Gateway static data
  - GWTB_AMEND_FIELDS__JKDMOBIL.INC
  - GWTB_AMEND_NODES__JKDMOBIL.INC
  - GWTM_AMEND_FIELDS__JKDMOBIL.INC
  - GWTM_AMEND_MASTER__JKDMOBIL.INC
  - GWTM_AMEND_NODES__JKDMOBIL.INC

3.2 FLEXCUBE SOAP format

FLEXCUBE UBS uses the following SOAP format

SOAP component	FCUBS component	Example
SOAP Envelope	OPERATION.FUNCTIONID_PATTERN_REQ/RESP	CREATEMOBILE_FSFS_REQ
SOAP Header	<FCUBS_HEADER>	<FCUBS_HEADER>
SOAP Body	<FCUBS_BODY>	<FCUBS_BODY>

Example:

```
<CREATEMOBILE_FSFS_REQ xmlns="http://fcubs.ofss.com/service/FCMobileService">
  <FCUBS_HEADER>
    <SOURCE>FLEXCUBE </SOURCE>
    <UBSCOMP>FCUBS</UBSCOMP>
    <MSGID></MSGID>
    <CORRELID></CORRELID>
    <USERID>PIYUSHB</USERID>
    <BRANCH>000</BRANCH>
    <MODULEID>CS</MODULEID>
    <SERVICE>FCMobileService</SERVICE>
```

```
  <OPERATION>CreateMobile</OPERATION>
  <SOURCE_OPERATION></SOURCE_OPERATION>
  <SOURCE_USERID></SOURCE_USERID>
  <!--Optional:-->
  <DESTINATION></DESTINATION>
  <!--Optional:-->
  <MULTITRIPID></MULTITRIPID>
  <!--Optional:-->
  <FUNCTIONID></FUNCTIONID>
  <!--Optional:-->
  <ACTION></ACTION>
  <!--Optional:-->
  <MSGSTAT>SUCCESS</MSGSTAT>
  <!--Optional:-->
  <ADDL>
    <!--Zero or more repetitions:-->
    <PARAM>
      <NAME>abc</NAME>
      <VALUE>123</VALUE>
    </PARAM>
  </ADDL>
</FCUBS_HEADER>
<FCUBS_BODY>
  <Jktm-Junk-Mobile-Full>
    <CUSTOMER_NO>000000001</CUSTOMER_NO>
    <CELL_NO>1234567890</CELL_NO>
    <!--Optional:-->
    <MAKER></MAKER>
    <!--Optional:-->
    <MAKERSTAMP></MAKERSTAMP>
```

```
<!--Optional:-->
<CHECKER></CHECKER>
<!--Optional:-->
<CHECKERSTAMP></CHECKERSTAMP>
<!--Optional:-->
<MODNO></MODNO>
<!--Optional:-->
<TXNSTAT></TXNSTAT>
<!--Optional:-->
<AUTHSTAT></AUTHSTAT>
<!--Zero or more repetitions:-->
<Jktm-Junk-Mobil-Dtl>
  <CUSTOMER_NO>010101</CUSTOMER_NO>
  <!--Optional:-->
  <ACCOUNT_NO></ACCOUNT_NO>
  <!--Optional:-->
  <NAME></NAME>
  <!--Optional:-->
  <TXNDETL></TXNDETL>
  <!--Optional:-->
  <STATUS></STATUS>
  <!--Optional:-->
  <CELL_NO></CELL_NO>
</Jktm-Junk-Mobil-Dtl>
<!--Optional:-->
<Jktm-Junk-Mobile-Dtl2>
  <CUSTOMER_NO></CUSTOMER_NO>
  <!--Optional:-->
  <CUSTOMER_NAME></CUSTOMER_NAME>
  <!--Optional:-->
```

```
        <CUSTOMER_CATEGORY></CUSTOMER_CATEGORY>
        <!--Optional:-->
        <ADDRESS></ADDRESS>
        <!--Optional:-->
        <CITY></CITY>
        <!--Optional:-->
        <COUNTRY></COUNTRY>
      </Jktm-Junk-Mobile-Dtl2>
    </Jktm-Junk-Mobile-Full>
  </FCUBS_BODY>
</CREATEMOBILE_FSFS_REQ>
```

In FCUBS BODY, the data blocks are referred as nodes. Example, *Jktm-Junk-Mobile-Full* in above XML represents the data block that sources from *JKTM_JUNK_MOBILE_FULL* table. Replace "-"(hyphen) with "_"(underscore) to get the table name and data block.

3.3 FLEXCUBE WSDL format

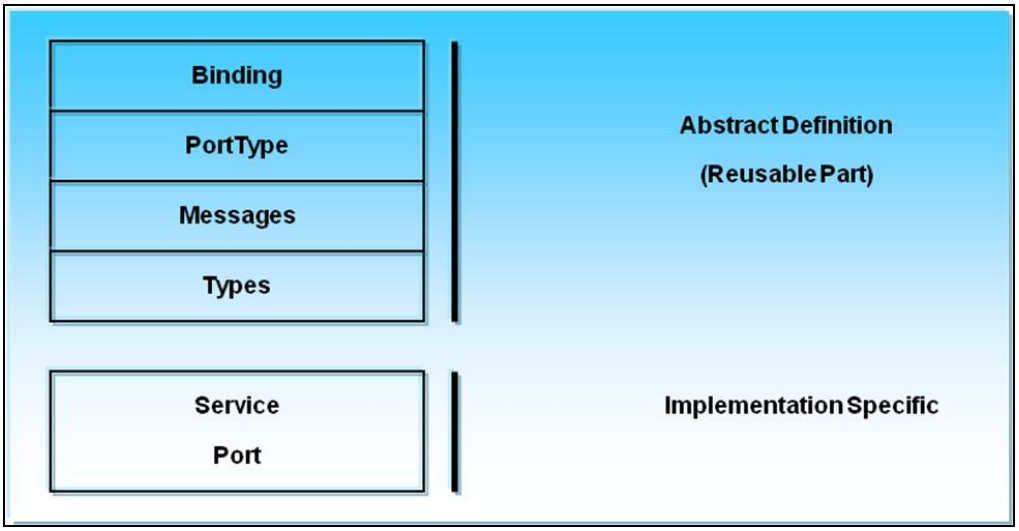
FLEXCUBE has the concept of Function ID that has multiple actions. This is translated to Web service pattern as below:

```
FUNCTION ID + ACTIONS = WEB SERVICE + OPERATIONS
```

Example

```
JKDMOBILE + NEW = FCMobileService + CreateMobile
```

3.3.1 WSDL parts



3.3.2 FCUBS WSDL example

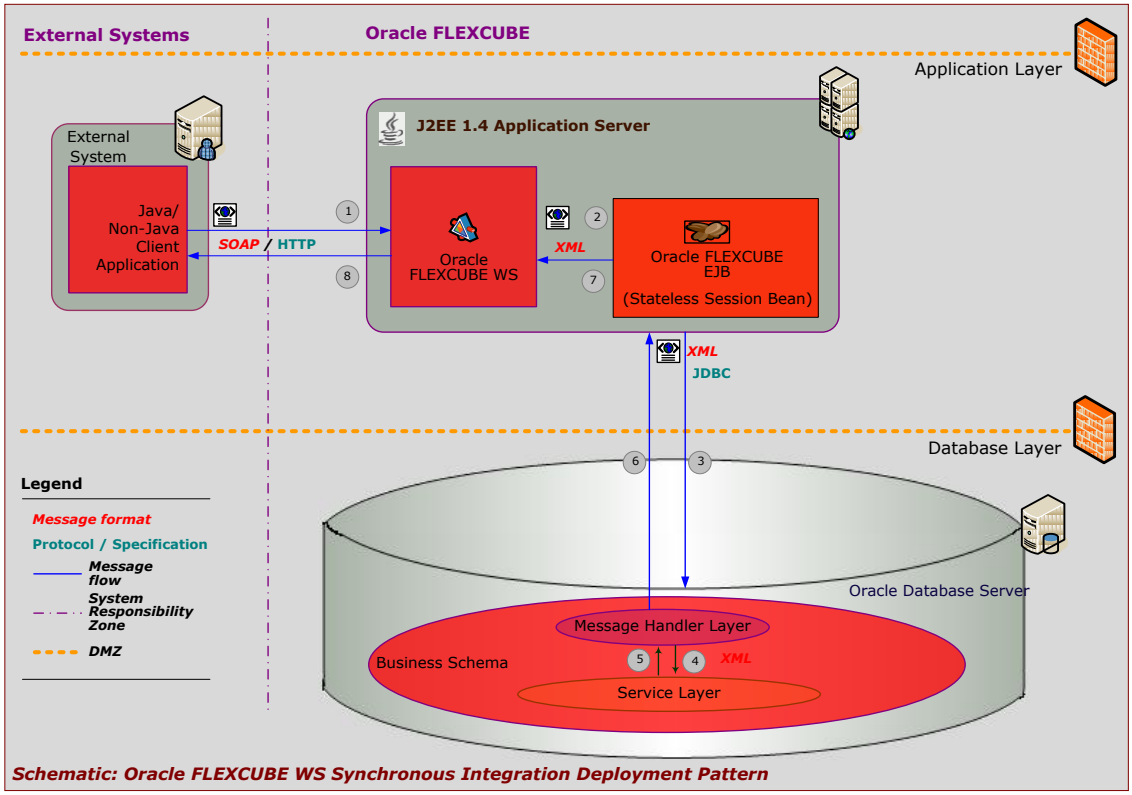
```
<?xml version= "1.0" encoding="UTF-8"?>
 <wsdl:definitions name="FCMobileService"
 targetNamespace = "http://types.ws.gw.fcubs.ofss.com"
 xmlns:tns = "http://types.ws.gw.fcubs.ofss.com"
 xmlns:wsdlsoap = "http://schemas.xmlsoap.org/wsdl/soap/"
 xmlns:wsdl = "http://schemas.xmlsoap.org/wsdl/"
 xmlns:xs = "http://www.w3.org/2001/XMLSchema"
 xmlns="http://schemas.xmlsoap.org/wsdl/"
 xmlns:ns="http://fcubs.ofss.com/service/FCMobileService">

<wsdl:types>
   <xs:schema>
      <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
       schemaLocation="../XSD/CS-CreateMobil-Req-Full-MSG.xsd"/>
   </xs:schema>
    <xs:schema>
          <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
           schemaLocation="../XSD/CS-CreateMobil-Res-Full-MSG.xsd"/>
    </xs:schema>
   <xs:schema>
          <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
          schemaLocation="../XSD/CS-CreateMobil-Req-IO-MSG.xsd"/>
   </xs:schema>
    <xs:schema>
         <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
          schemaLocation="../XSD/CS-CreateMobil-Res-PK-MSG.xsd"/>
    </xs:schema>
</wsdl:types>
```

```
<wsdl:message name="CreateMobileFSReq">
    <wsdl:part name="RequestMsg" element="ns:CREATEMOBILE_FSFS_REQ"/>
</wsdl:message>

<wsdl:message name="CreateMobileFSRes">
    <wsdl:part name="ResponseMsg" element="ns:CREATEMOBILE_FSFS_RES"/>
</wsdl:message>

<wsdl:message name="CreateMobileIOReq">
    <wsdl:part name="RequestMsg" element="ns:CREATEMOBILE_IOPK_REQ"/>
</wsdl:message>

<wsdl:message name="CreateMobilePKRes">
    <wsdl:part name="ResponseMsg" element="ns:CREATEMOBILE_IOPK_RES"/>
</wsdl:message>

<wsdl:portType name="FCMobileServiceSEI" >
  <wsdl:operation name="CreateMobileIO">
       <wsdl:input message="tns:CreateMobileIOReq"/>
       <wsdl:output message="tns:CreateMobilePKRes"/>
  </wsdl:operation>

  <wsdl:operation name="CreateMobileFS">
       <wsdl:input message="tns:CreateMobileFSReq"/>
       <wsdl:output message="tns:CreateMobileFSRes"/>
  </wsdl:operation>

</wsdl:portType>
```

```
<wsdl:binding name="FCMobileService" type="tns:FCMobileServiceSEI">

 <wsdlsoap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>

 <wsdl:operation name="CreateMobileFS">

     <wsdlsoap:operation soapAction=""/>

         <wsdl:input>

            <wsdlsoap:body use="literal"/>

         </wsdl:input>

         <wsdl:output>

            <wsdlsoap:body use="literal"/>

     </wsdl:output>

 </wsdl:operation>


 <wsdl:operation name="CreateMobileIO">

      <wsdlsoap:operation soapAction=""/>

         <wsdl:input>

           <wsdlsoap:body use="literal"/>

         </wsdl:input>

       <wsdl:output>

           <wsdlsoap:body use="literal"/>

       </wsdl:output>

 </wsdl:operation>


</wsdl:binding>


 <wsdl:service name="FCMobileService">

     <wsdl:port name="FCMobileServiceSEI" binding="tns:FCMobileService">

        <wsdlsoap:address
location="http://localhost:9080/FCMobileService/services/FCMobileService"/>

     </wsdl:port>

</wsdl:service></wsdl:definitions>
```

3.4 FLEXCUBE Web Service data flow

The below diagram explains the web service message flow in FLEXCUBE UBS.



1. Consumer sends web service request as per the WSDL definition implemented.
2. FLEXCUBE UBS Gateway(that deploys the FLEXCUBE UBS Web service) received the request and forwards the request to FLEXCUBE UBS EJB
3. FLEXCUBE EJB forwards the request to Database Message handler using JDBC protocol
4. Message handler identifies the Service and calls corresponding operation handler for processing
5. The response message is sent back to Message handler
6. Message handler forward the response message back to FCUBS EJB
7. FCUBS EJB sends the response back to FLEXCUBE Gateway web service
8. FLEXCUBE Gateway web service responds to the Consumer.

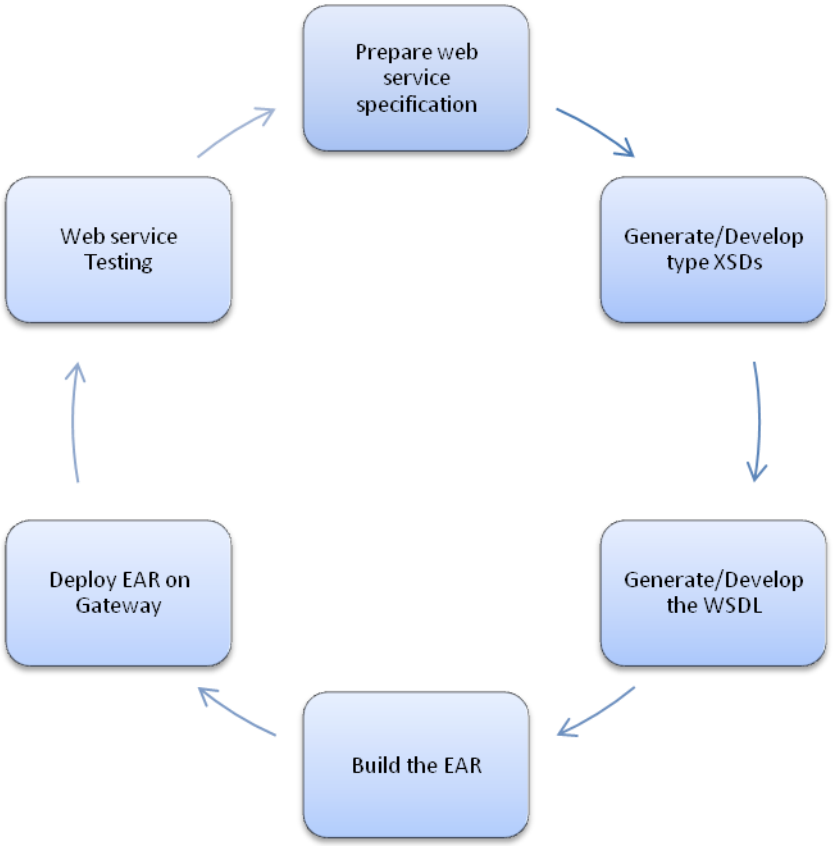
Every FLEXCUBE UBS Web service developed; need to be deployed on FLEXCUBE UBS Gateway framework. Refer the FLEXCUBE Gateway deployment patterns for more information.

4. Pre requisites for Web service development

- Web service development Specification (explained in further sections)
- OPEN DEVELOPMENT tool -to generate the type XSDs and Gateway static data
- Target FLEXCUBE UBS environment with Gateway framework implemented.
- TrAX tool (to generate the WSDL and Java Implementation files)

5. Web service Development

The below diagram represents the web service development cycle



5.1 Web Service specification

Specification	Example Data
What is the function ID web service required?	JKDMOBILE
What is the action of the function ID web service required?	NEW
What is the Web service name?	FCMobileService
What is the operation name?	CreateMobile
Open Development generated XSD available in the xsd folder, specified at Open Development?(Yes/No) *XSD files generated for the screen should be available for maintenance function IDs. For online function IDs, these type XSDs may be hand coded*	Yes
Created a Web Service and operation using TrAX tool?	Yes

Specification	Example Data
Specify the name of the service and operation created for a function id, to be used in FLEXCUBE	
WSDL, Config file created using TrAX tool? (Yes/No) *WSDL files are needed to create a service, this contains the information for the service being created for a function id (using the XSD's)*	Yes
Property and EAR file generated from the installer? (Yes/No) *The property and EAR file are created using installer. Location for these files is specified during creation.*	Yes

5.2 Generate / Develop XSDs

There are two ways to develop XSDs

- Use Open Development Tool
- Manually create XSD and maintain Gateway static data

5.2.1 Open Development generated

As a part of Function ID development, Open Development is used to generate the following web service artifacts:

- XSD folder with type XSDs
- INC folder that has following Gateway static data needed at runtime for web service.
  - GWTB_AMEND_FIELDS__JKDMOBIL.INC
  - GWTB_AMEND_NODES__JKDMOBIL.INC
  - GWTM_AMEND_FIELDS__JKDMOBIL.INC
  - GWTM_AMEND_MASTER__JKDMOBIL.INC
  - GWTM_AMEND_NODES__JKDMOBIL.INC

Refer Open Development documents for steps to get type XSDs and following INC files to populate Gateway maintenance tables.

5.2.2 Hand coded

If Open Development is not used for XSDs generation, these XSDs need to be created manually using existing samples available.

Developer expected to have proficiency in understanding complete FLEXCUBE UBS web service framework and patterns to hand code the XSDs. Refer Section 6 for sample files. User can also refer existing contract online web service files for reference/samples.

If Open Development is not used, the Gateway static data need to maintain manually as follows:

1. Make the entry in GWTM_OPERATIONS_MASTER for every operation code for a given web service.

Example:

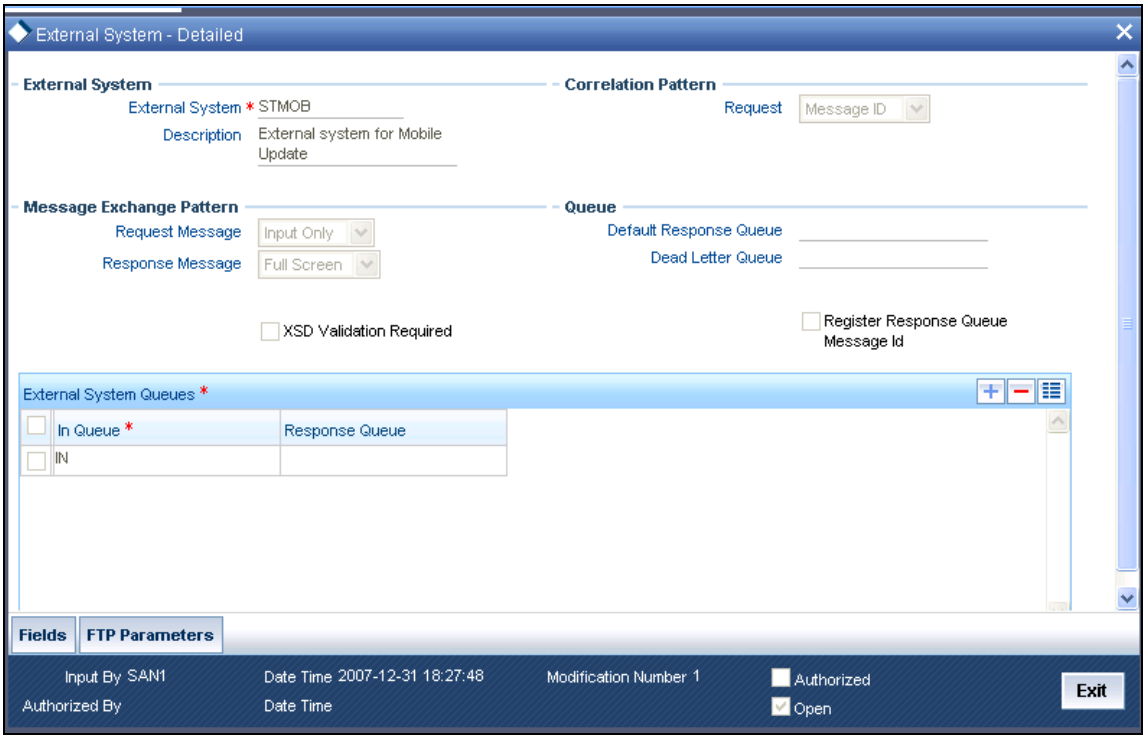
SERVICE_NAME	**FCUBSCustomerService**
OPERATION_CODE	ModifyMobile
SERVICE_DESC	Customer Service
OPERATION_DESCRIPTION	Modification of Mobile Number
MODULE_CODE	ST
REPLY_REQD	N
FC_FUNCTION_ID	STDCIF
FC_ACTION	MODIFY
DEFAULT_FUNCTION	Y
SMS_FUNCTION_ID	STGCIF
SMS_ACTION	UNLOCK
FS_REQ_XSD	ST- ModifyMobile -Req-Full-MSG.xsd
PK_RES_XSD	ST- ModifyMobile -Res-PK-MSG.xsd
FS_RES_XSD	ST- ModifyMobile -Res-Full-MSG.xsd
IO_REQ_XSD	ST- ModifyMobile -Req-IO-MSG.xsd

2. Make the entry in GWTM_GATEWAY_FUNCTIONS

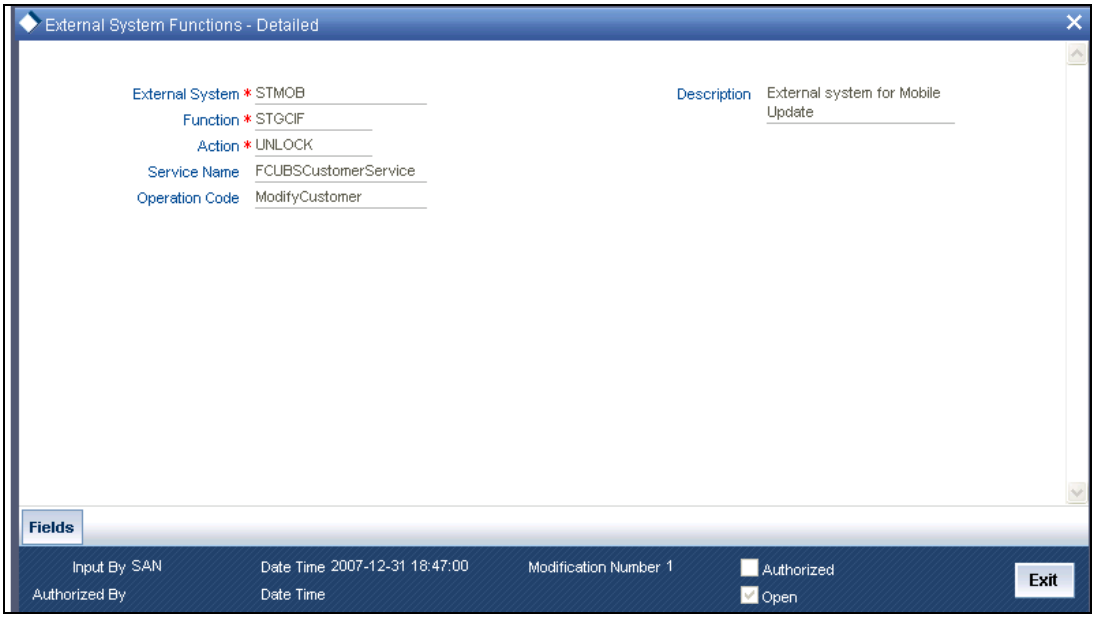
SERVICE_NAME	**OPERATION_CODE**	**FUNCTION_ID**	**ACTION**
FCUBSCustomerService	ModifyMobile	STGCIF	UNLOCK

3. Maintain external system details using function id GWDEXSYS

Example: STMOB



4. Maintain external system function using function id GWDEXFUN



5. Make the entry in GWTB_AMEND_NODES for new operation code

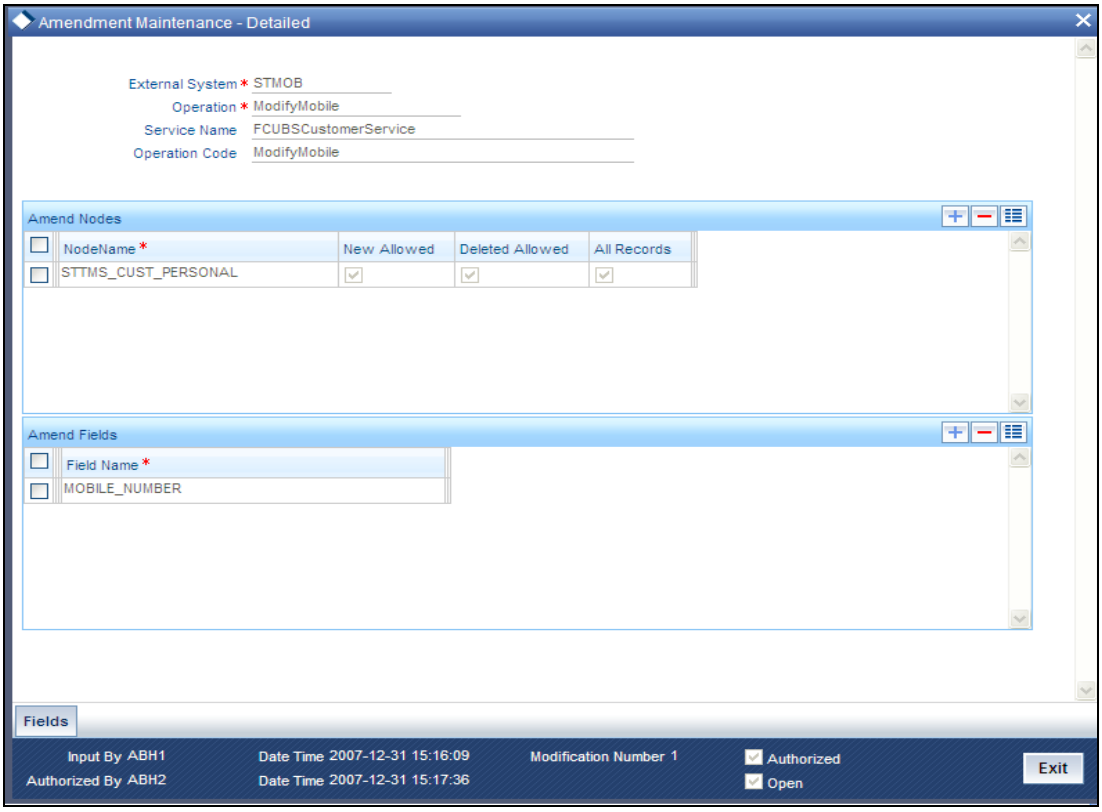
NODE_NAME	STTMS_CUST_PERSONAL
NEW_ALLOWED	N
DELETE_ALLOWED	N

NODE_NAME	STTMS_CUST_PERSONAL
ALL_RECORDS	Y
SERVICE_NAME	FCUBSCustomerService
OPERATION_CODE	ModifyMobile

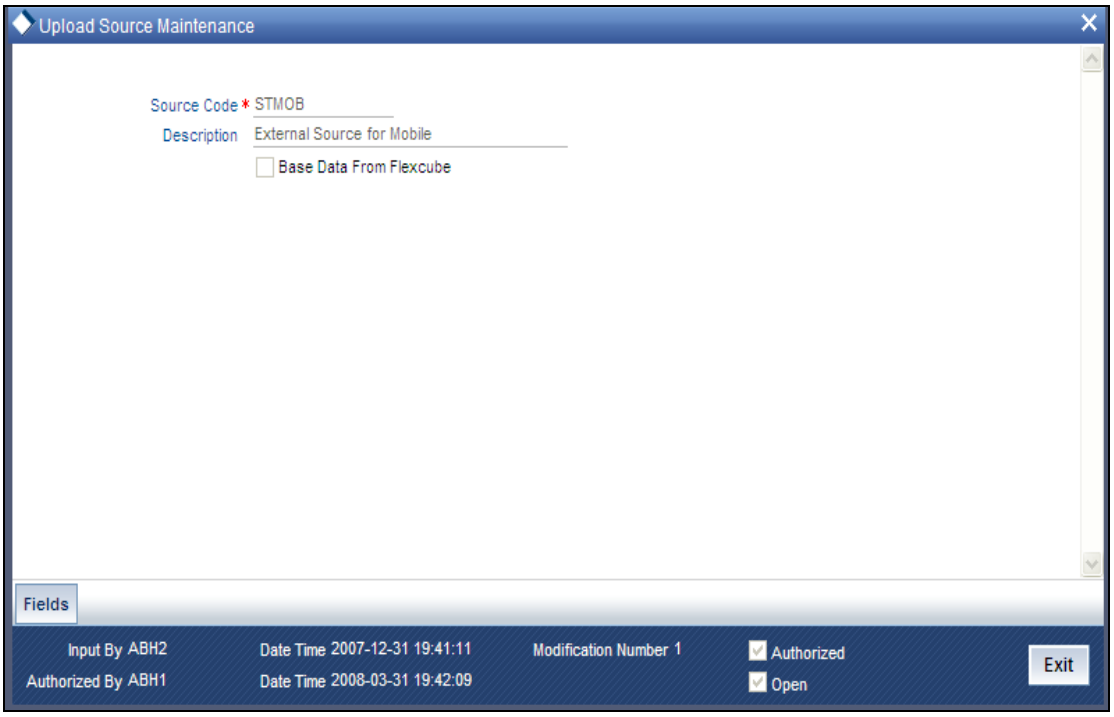
6. Make the entry in GWTB_AMEND_FIELDS for new operation code

NODE_NAME	STTMS_CUST_PERSONAL
FIELD_NAME	MOBILE_NUMBER
SERVICE_NAME	FCUBSCustomerService
OPERATION_CODE	ModifyMobile

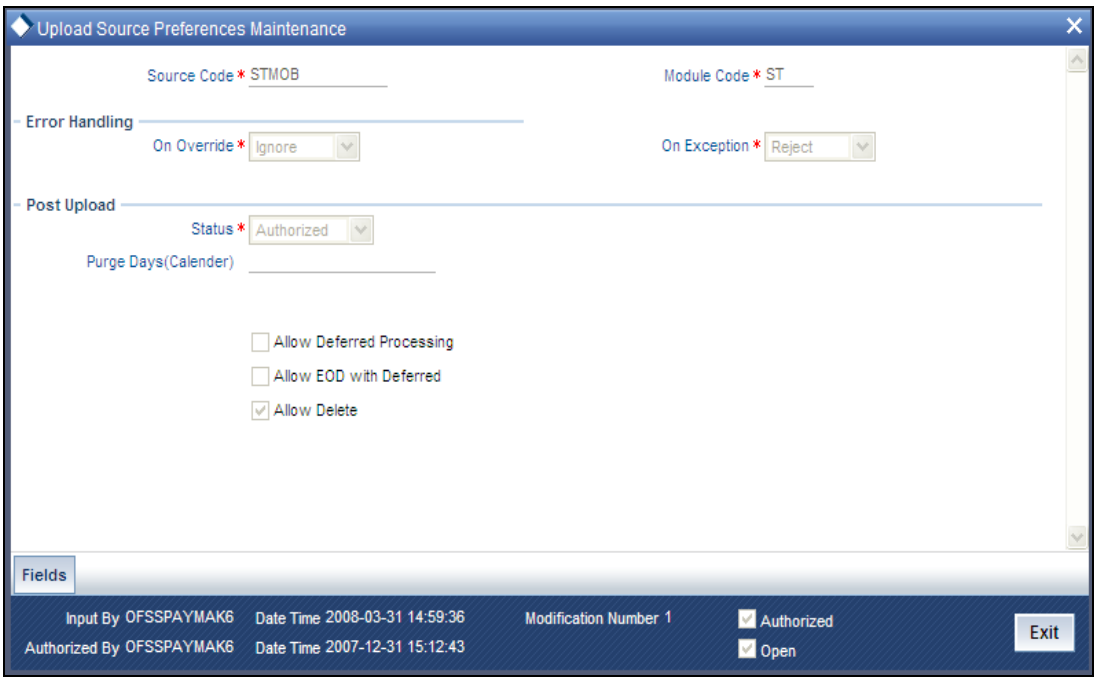
7. Make Mobile number fields as Amendable for External system using function id STDAMDMT



8. Maintain external Source using function id CODSORCE



9. Maintain external Source parameters preference using function id CODUPLDM



5.3 Generate/Develop WSDL

Having type and Message XSDs, WSDL file development can be done in two ways:

- Using TrAX tool

Refer the document FCUBS-FD05-04-01-TrAX-Reference for more information

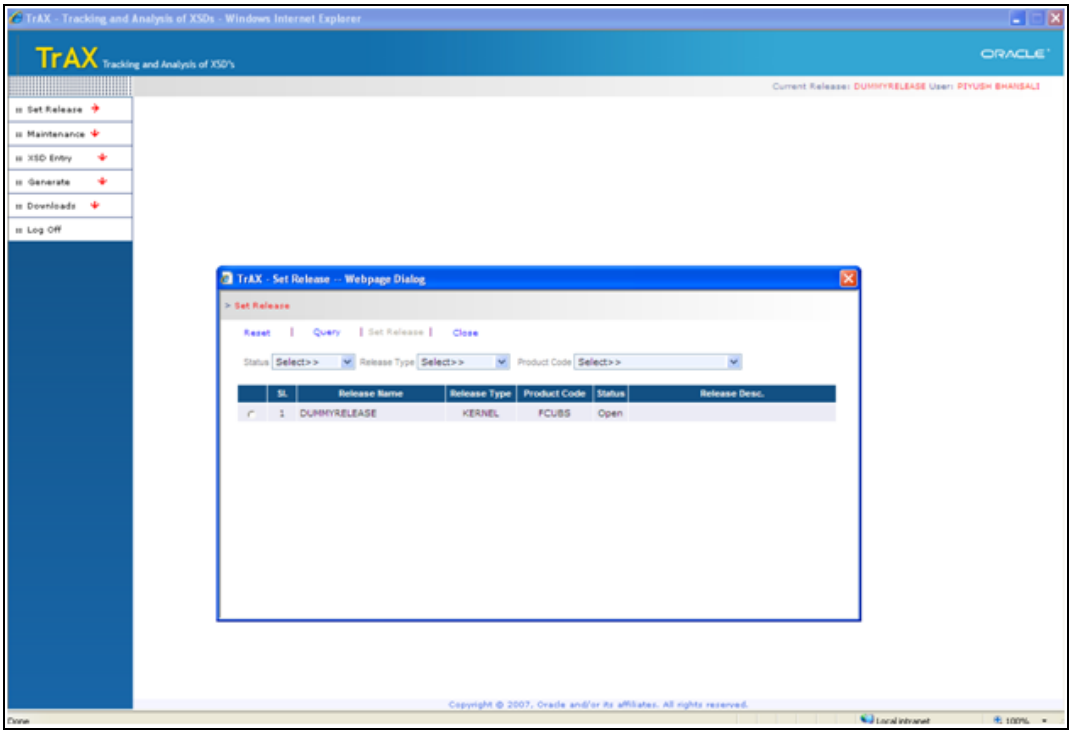
- Hand coding

Developer expected to have proficiency in understanding complete FLEXCUBE UBS web service framework and patterns to hand code the WSDL file. Refer annexure A for sample files. User can also refer existing contract online web service files for reference/samples.

5.3.1 Generate WSDL using TrAX

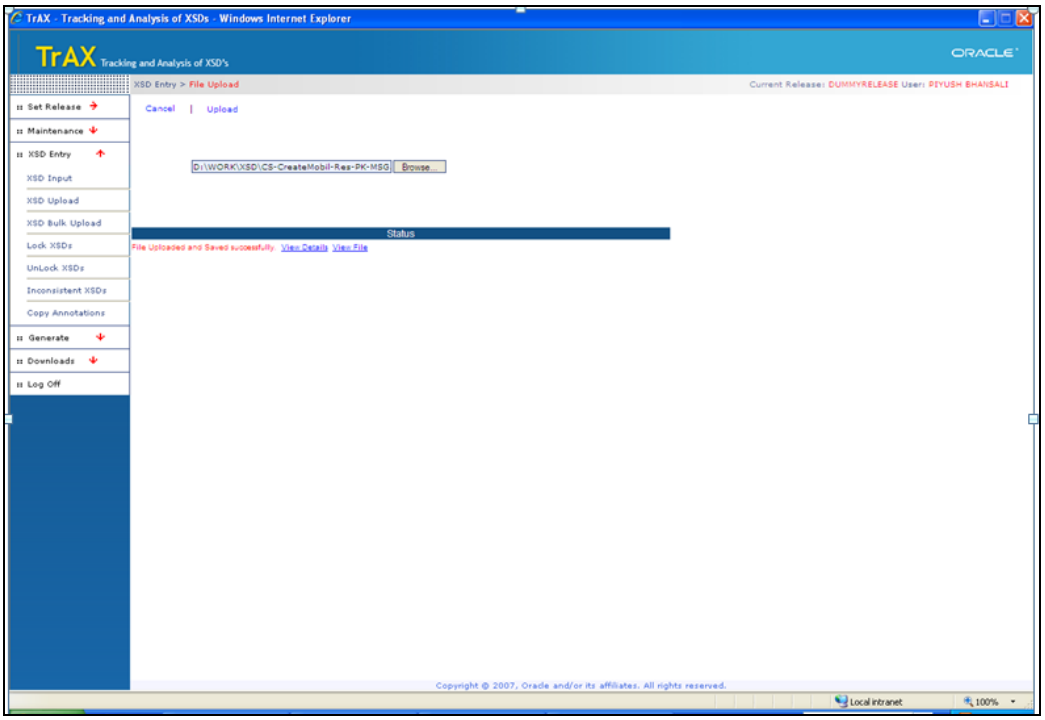
TrAX tool used for the creation of new module,service,operation and generation of WSDL files, which is used in deployment for WebServices

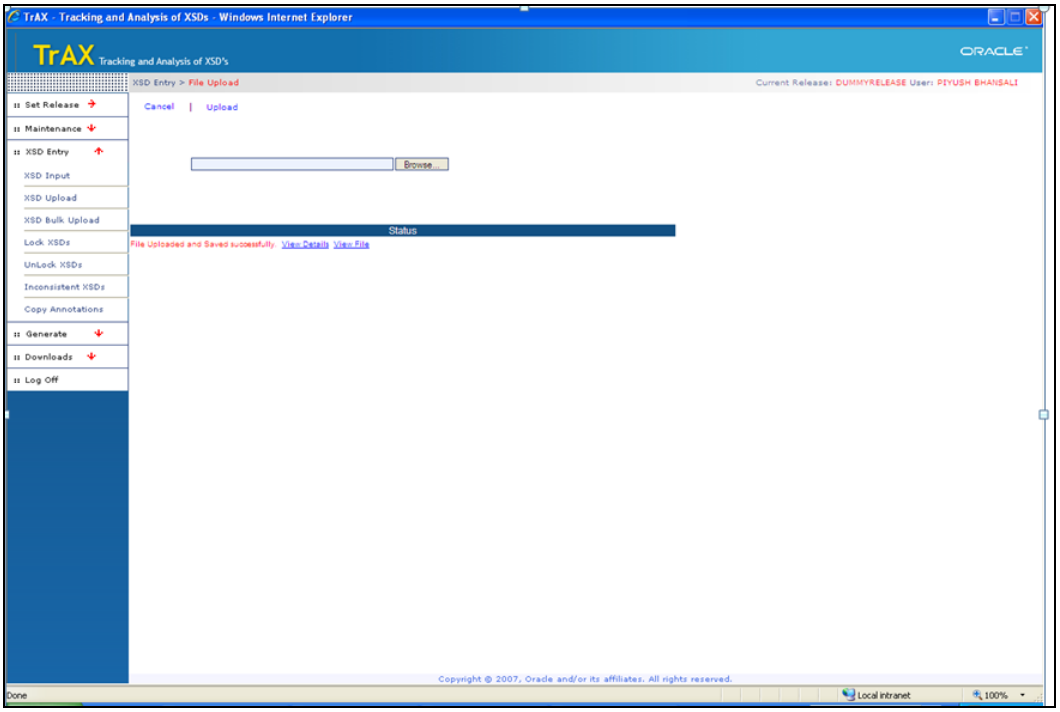
- Step – 1 - Set Release



- Step 2 - Upload XSD's:

The XSD's generated from the Open Development are uploaded in the TrAX tool so that it can be used to develop a new service.

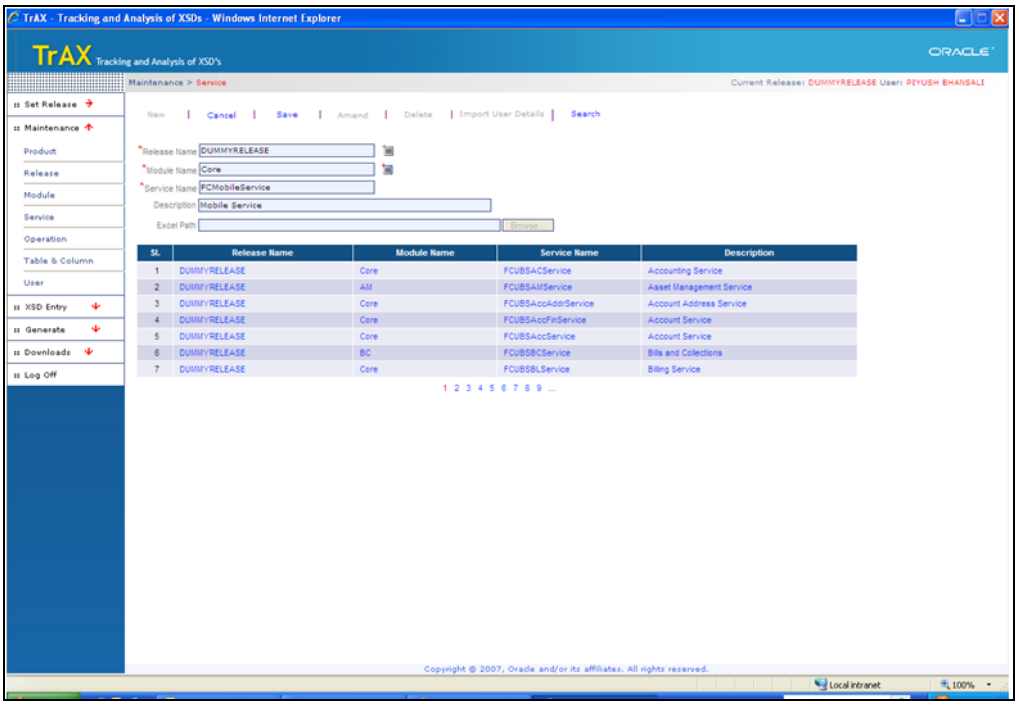




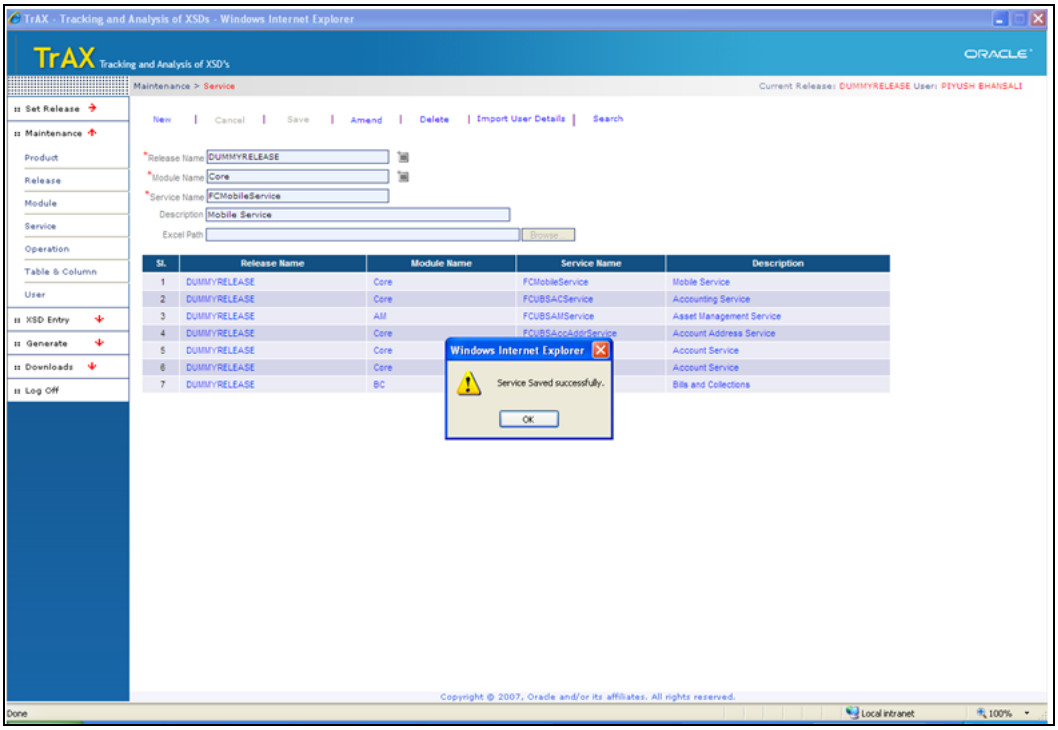
- Step 3 - Creation of Service

For creation of new services, under Maintenance →Service → New

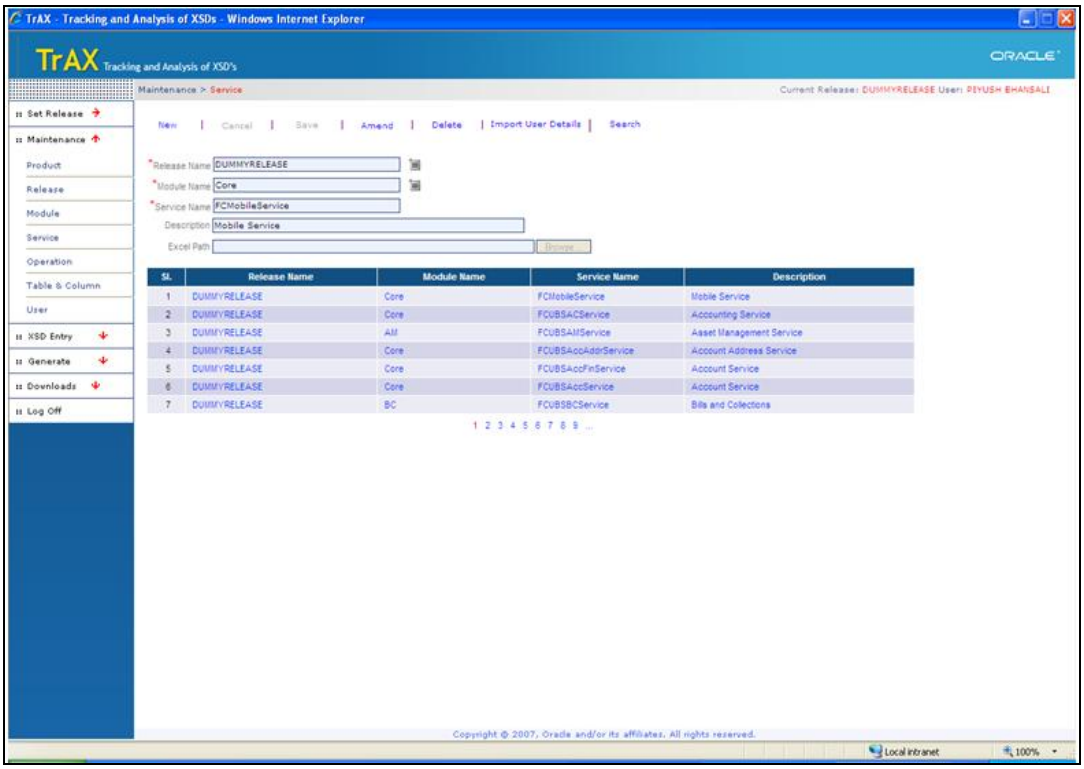
- Release name will be the release of FLEXCUBE for which the Service is created.
- Module name will contain the module for which the service is enabled.
- Service name is the WSDL name given to the web service created.
- Description has the details for which the service is created.



After successful creation of Service, it displays the message “Service Saved Successfully”.



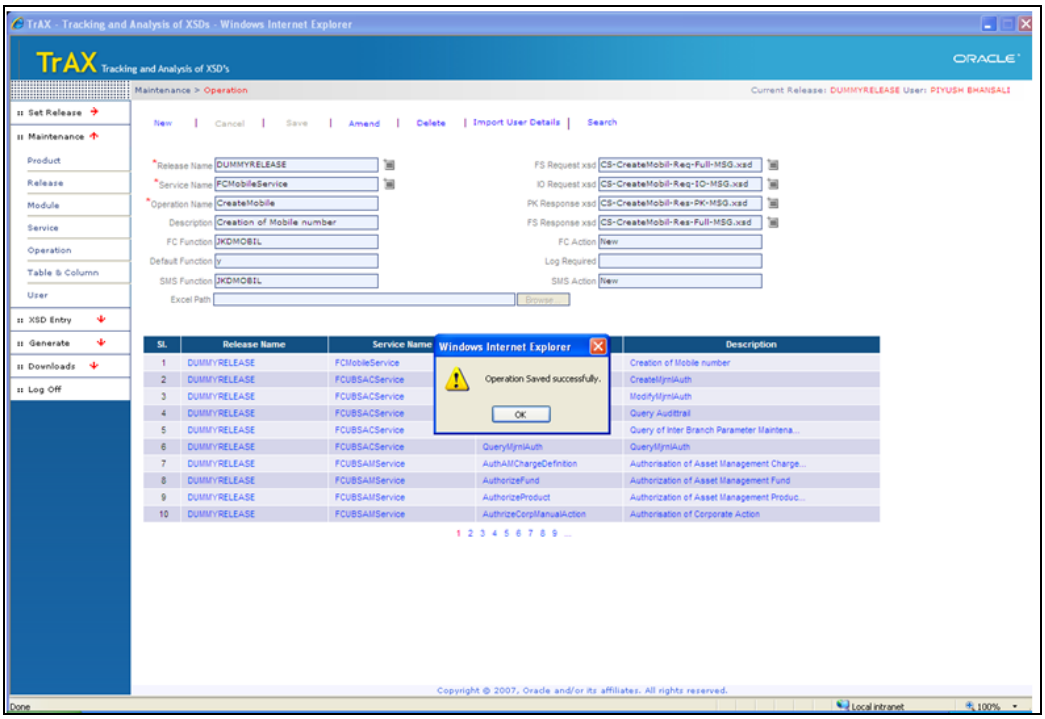
The new service name can be checked in the list after successful creation.



- Step 4 -Creation of Operation

To create a new operation, under Maintenance → Operation. Click New.

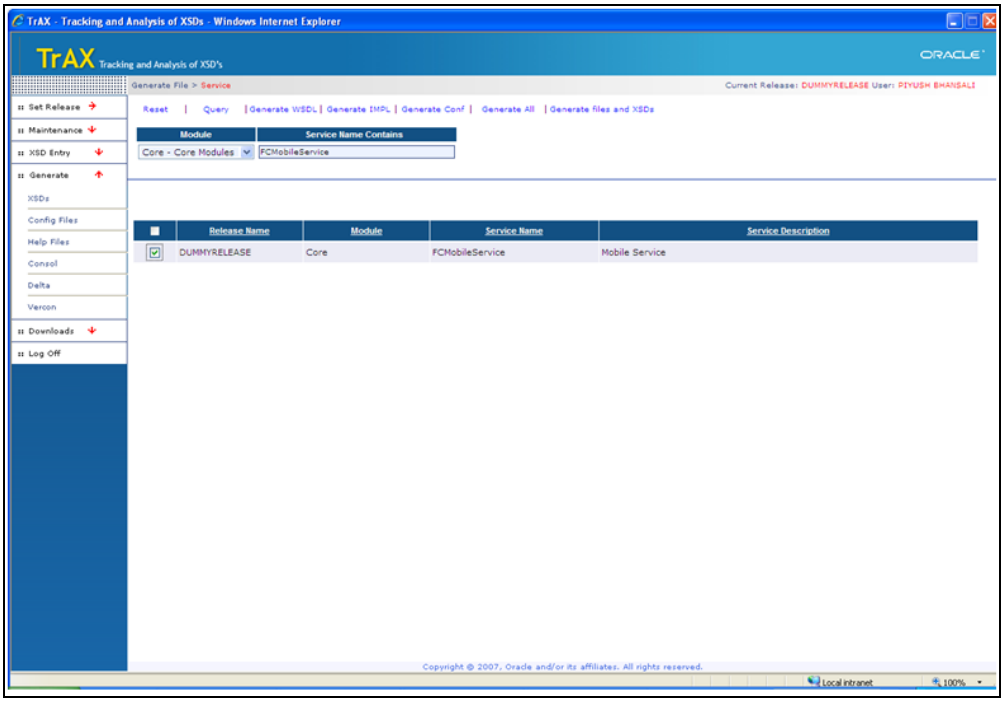
- Operation name is the name given to the Operation created.
- Description has the details for which the Operation is created.
- FS request XSD is the full request message XSD file generated from Open Development tool for a function id.
- IO request XSD is the Input/output request message XSD file generated from Open Development tool for a function id.
- PK response XSD is the Primary Key response message XSD file generated from Open Development tool for a function id.
- FS response XSD is the full response message XSD file generated from Open Development tool for a function id.
- FC Action refers to the FLEXCUBE action available for the Operation. Here it is New.



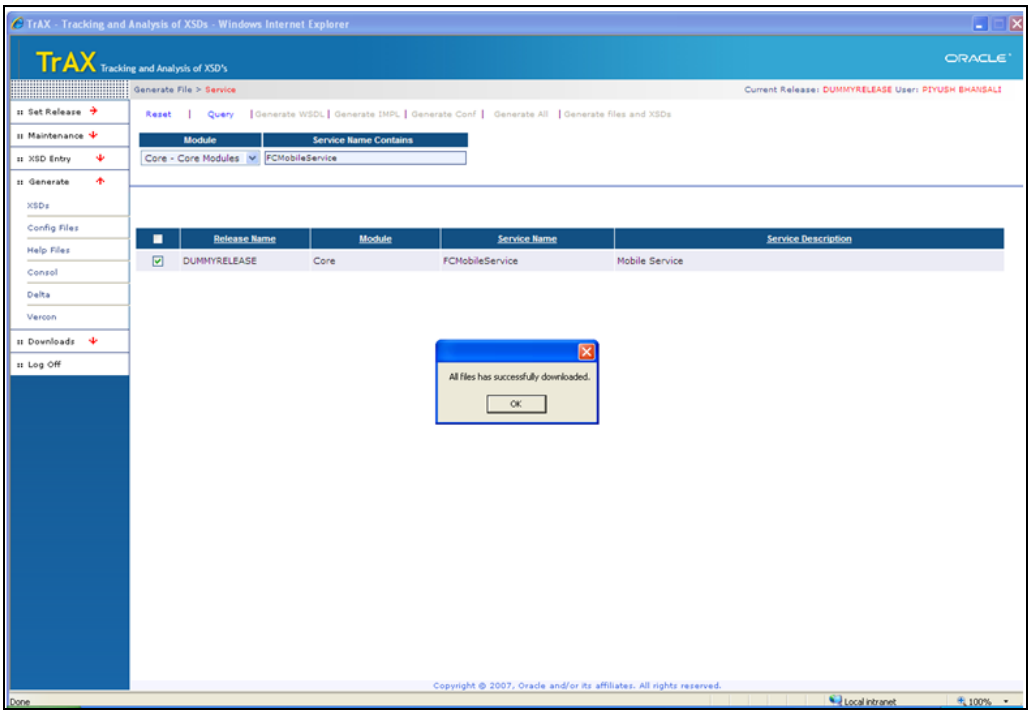
- Step 5 - Generation of WSDL files

Select Generate →Config files

- Click on Query, Enter the Module Name and Service name for which the WSDL is to be generated.
- After checking the Release, module and service name, Options are enabled.
- Click on Generate All to get WSDL, IMPL, CONF files. It will ask for the location where all these files will be generated



- Ensure the message “All Files has successfully downloaded”
- Go to the location mentioned and check the WSDL file generation. In this example, the file name is “FCMobileService.wsdl”



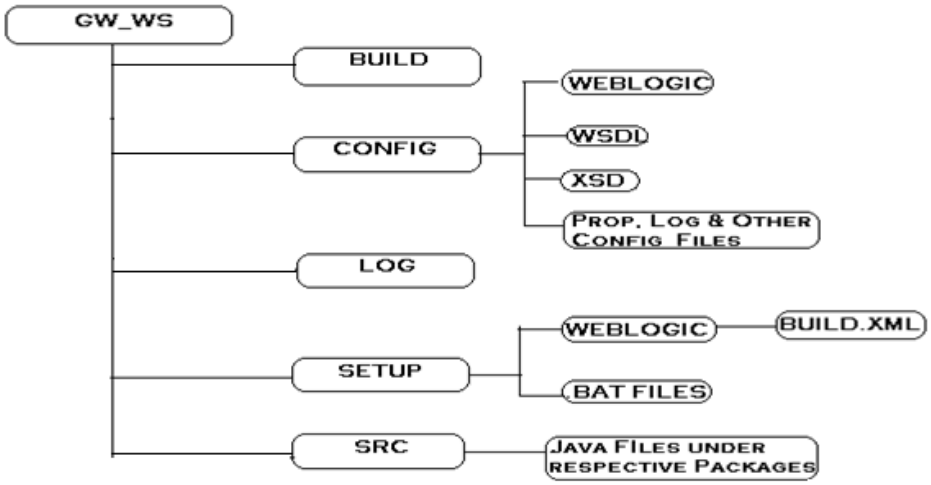
5.4 Build EAR

This section explains how to build EAR file using XSDs and WSDL created

5.4.1 Directory Creation

- Identify & Copy **GW_WS.zip** into your local machine. Unzip the file

  This file contains factory shipped directory structure and pre-configured properties file for Gateway framework.
- The following folder structure can be seen after unzip.



5.4.2 File Copy

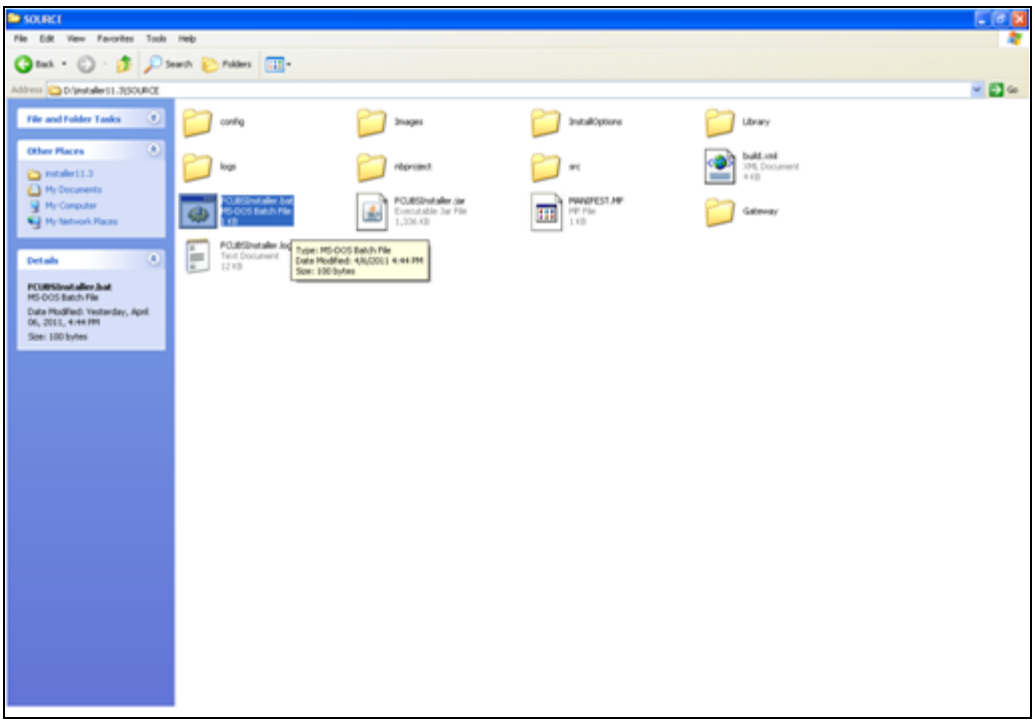
- Copy the WSDL generated into **GW_WS\CONFIG\WSDL** folder.
- Copy all the relevant XSD's into **GW_WS \CONFIG\XSD** folder.
- Copy the Java Implementation file into **GW_WS \src\com\ofss\fcubs\gw\ws** folder

5.4.3 Creation of Gateway EJB property file

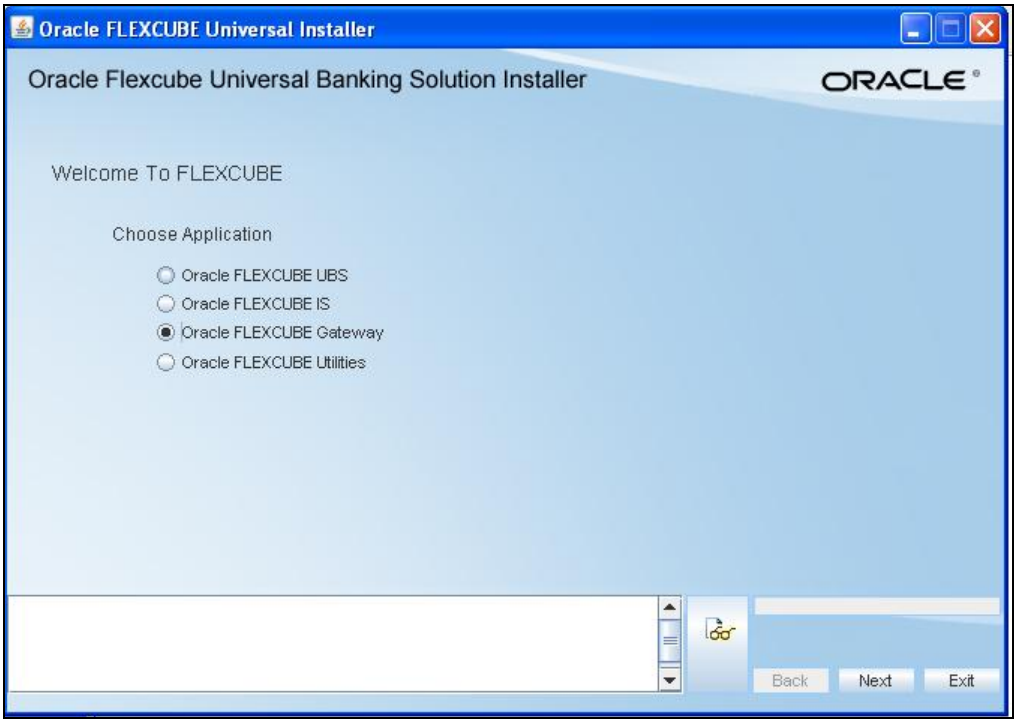
This section describes the steps to create Gateway EJB property file.

Skip this section(steps 1 to 4) if Gateway EJB is already deployed in Target FLEXCUBE UBS environment.

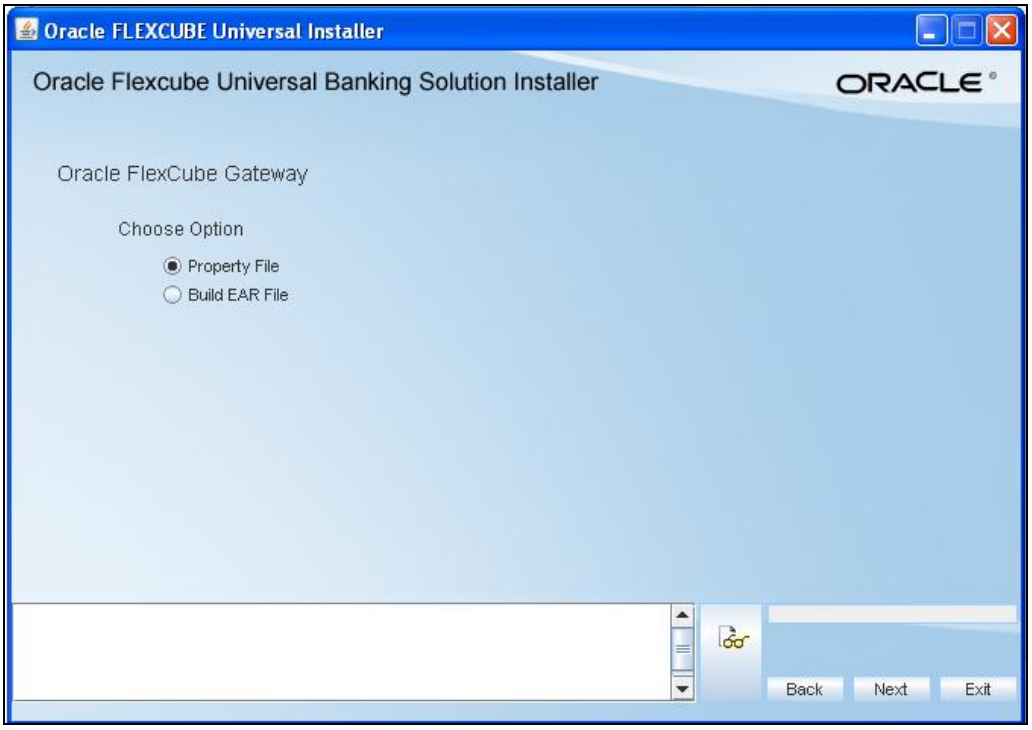
- Step 1 – Copy installer source to your local windows machine and run the FCUBSInstaller



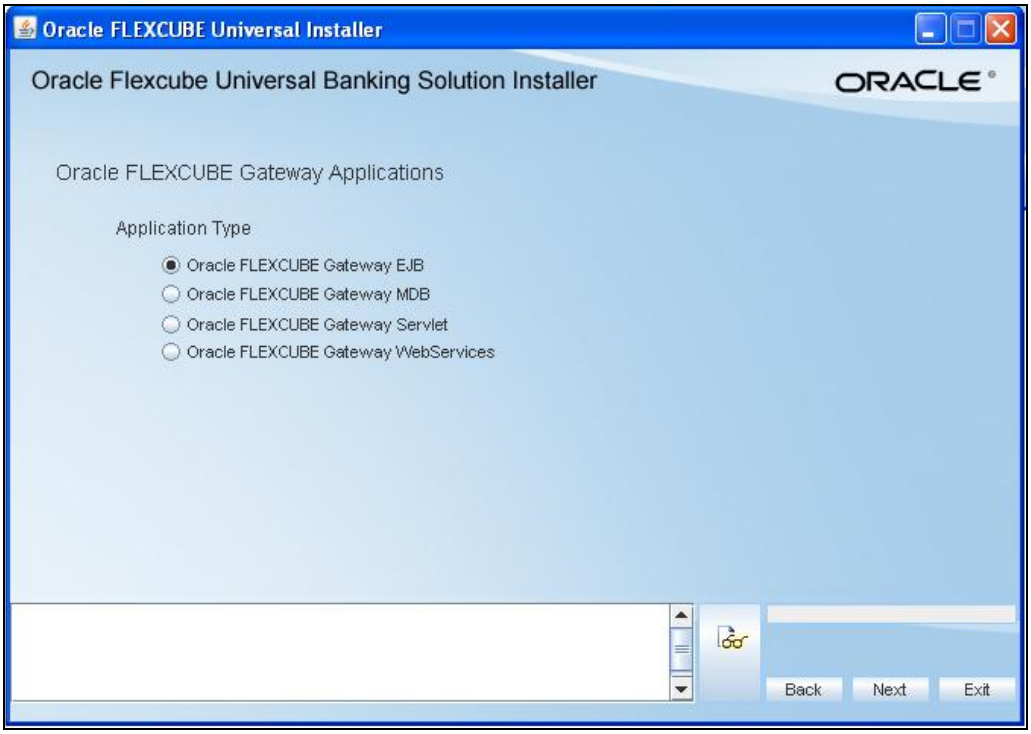
- Step 2 – Select Oracle FLEXCUBE Gateway



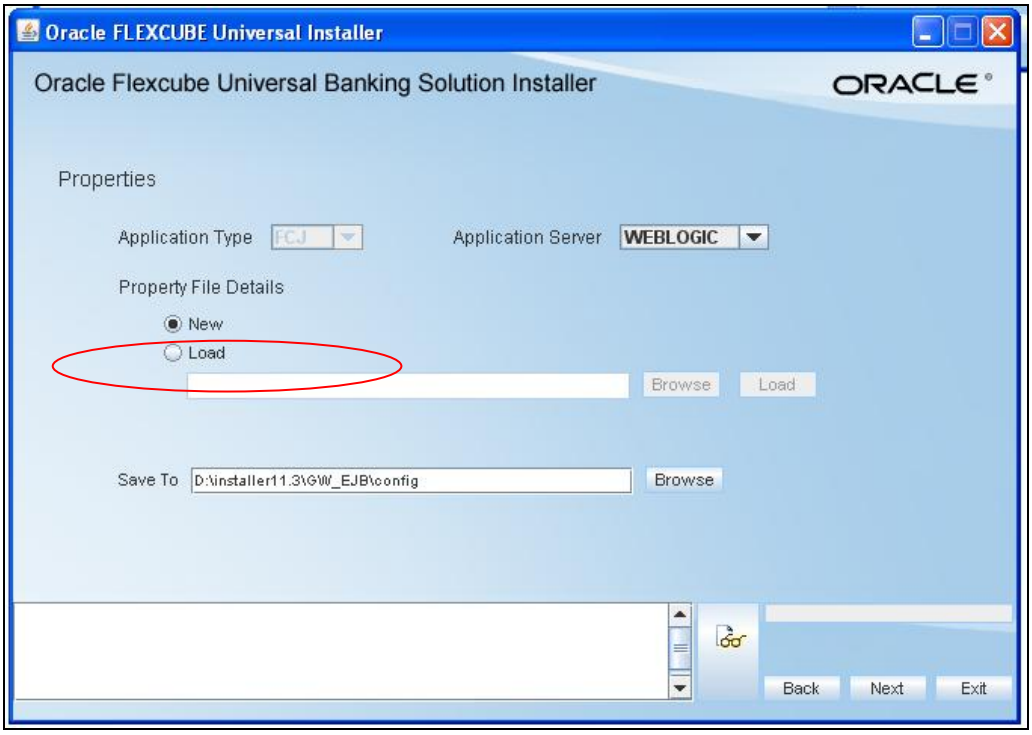
- Step-3 – Select Property File



- Step-4.a – Select Oracle FLEXCUBE Gateway EJB



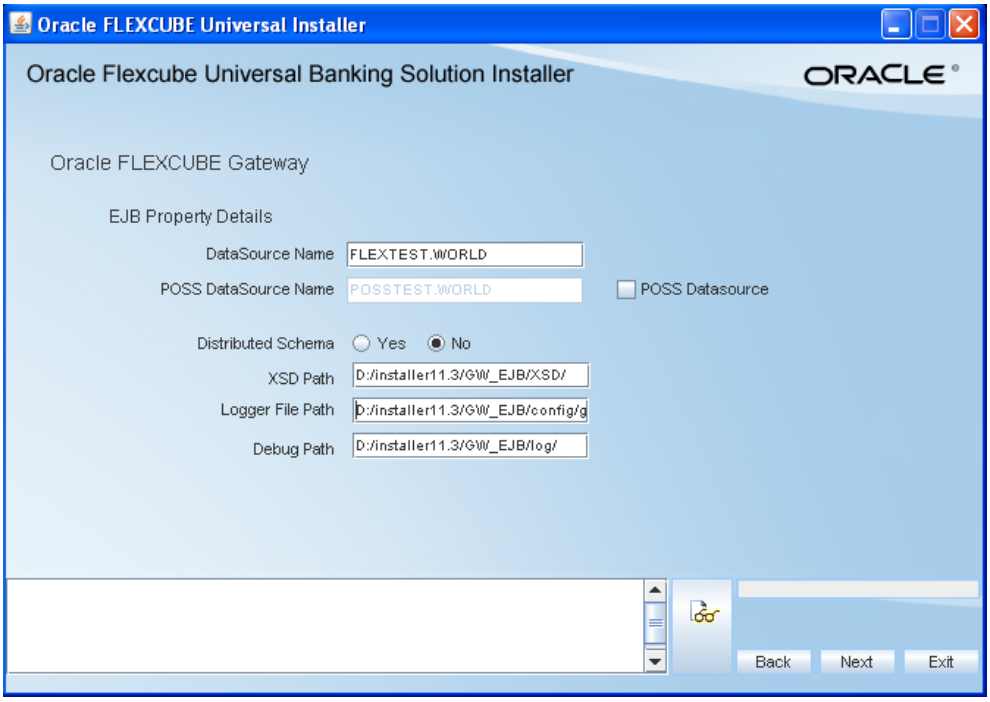
- Step-4.b – Select New



Specify the location in which new Property file for EJB application will be created.

Click Next

- Step-4.c – provide details



Details of the Property file for EJB.

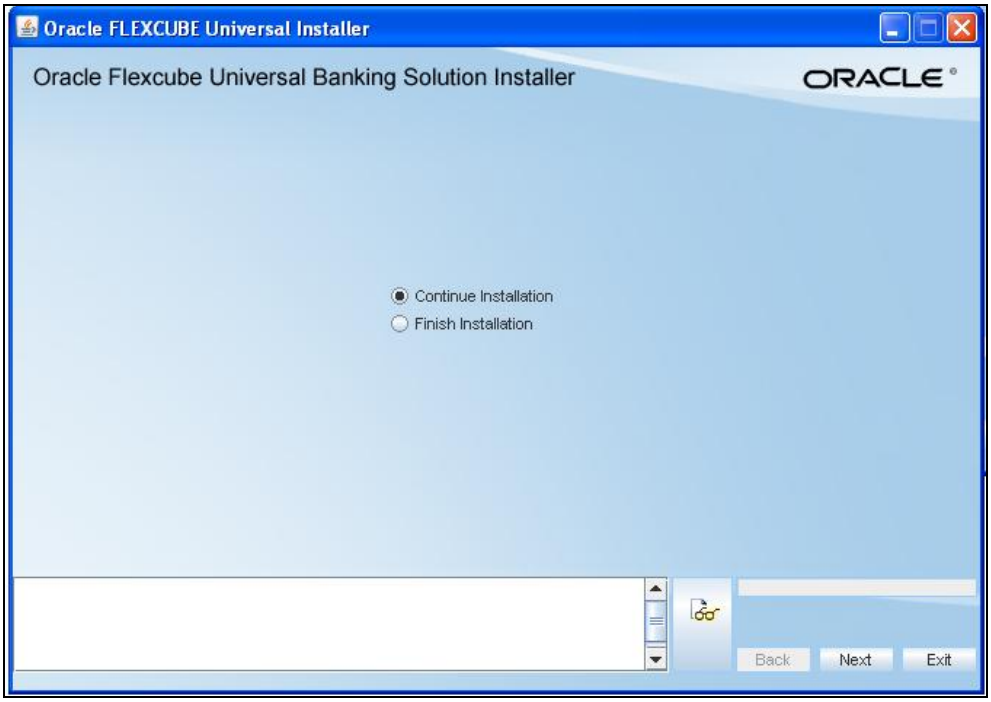
Path location is mentioned where the specific files will be available. Here it is in local machine.

5.4.4 Creation of Gateway EJB EAR file

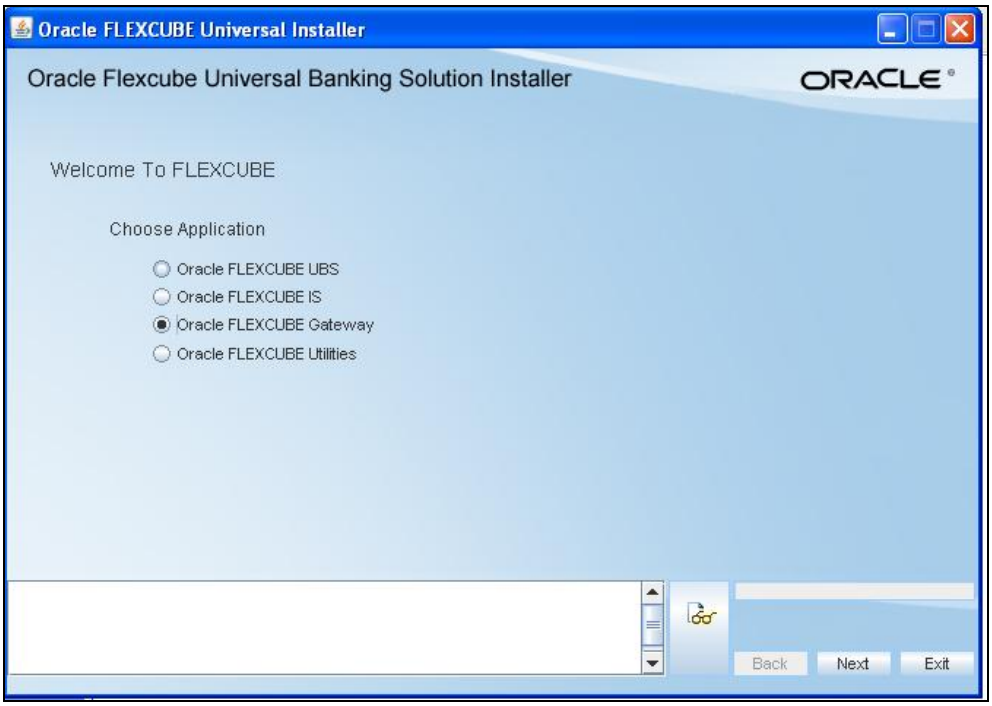
This section describes the steps to create the Gateway EJB EAR file

*Skip this section(steps 5 to10) if Gateway EJ**B is already deployed in Target** FLEXCUBE UBS environment.*

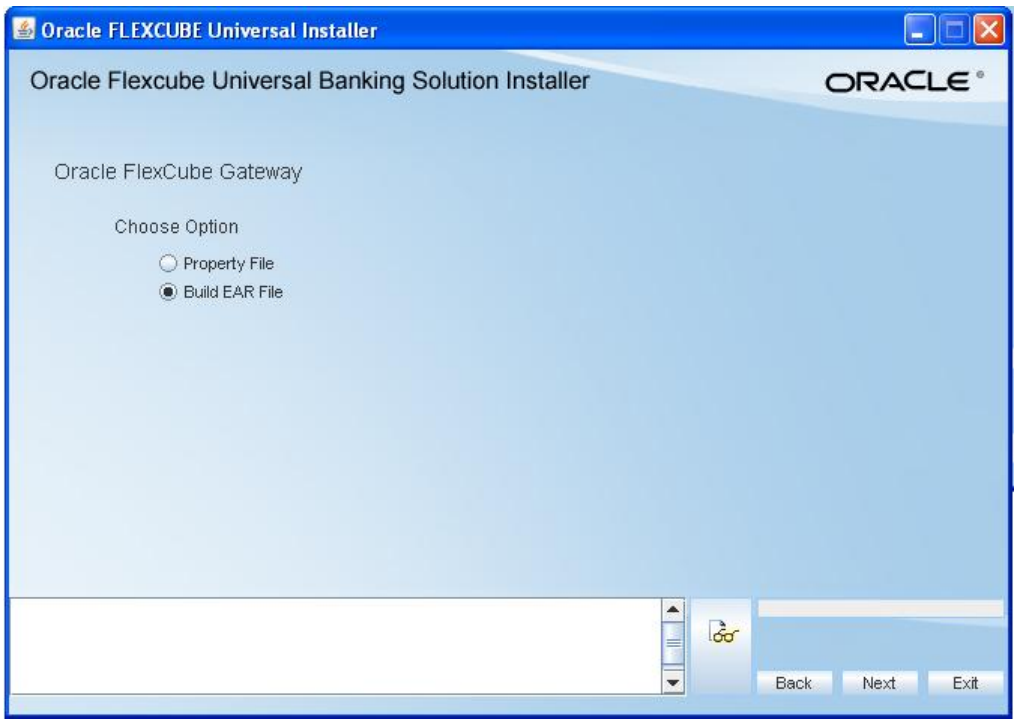
- Step-5- Click on Continue to generate Gateway EJB EAR file



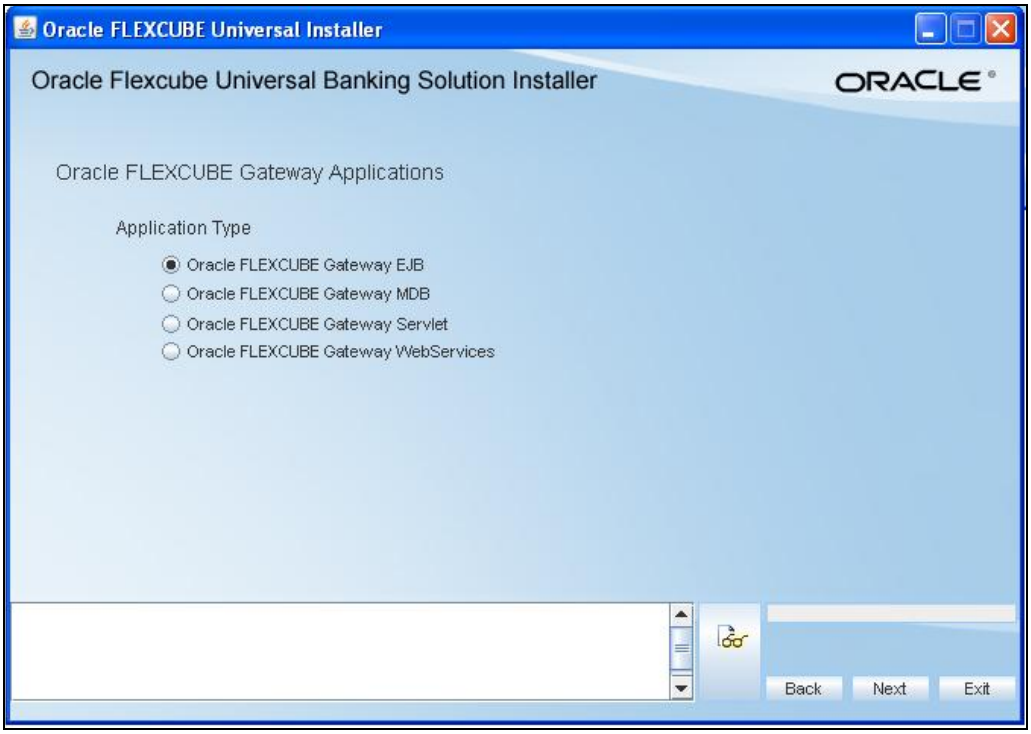
- Step-6.a –Select Oracle FLEXCUBE Gateway



- Step-6.b –Select Build EAR file

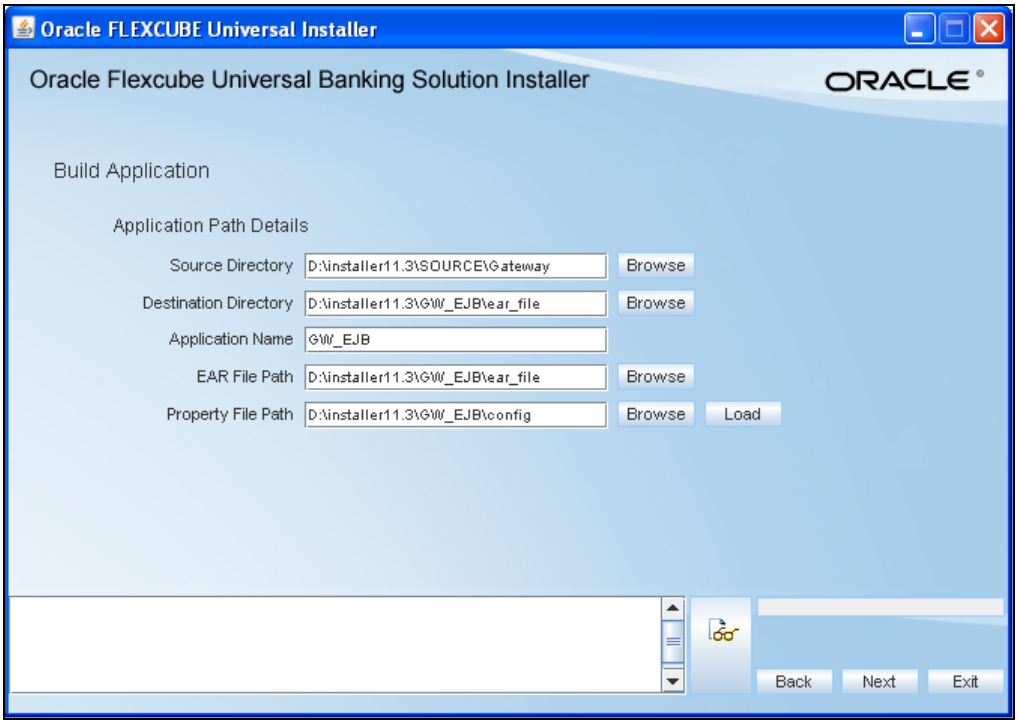


- Step-7 –Select Oracle FLEXCUBE Gateway EJB

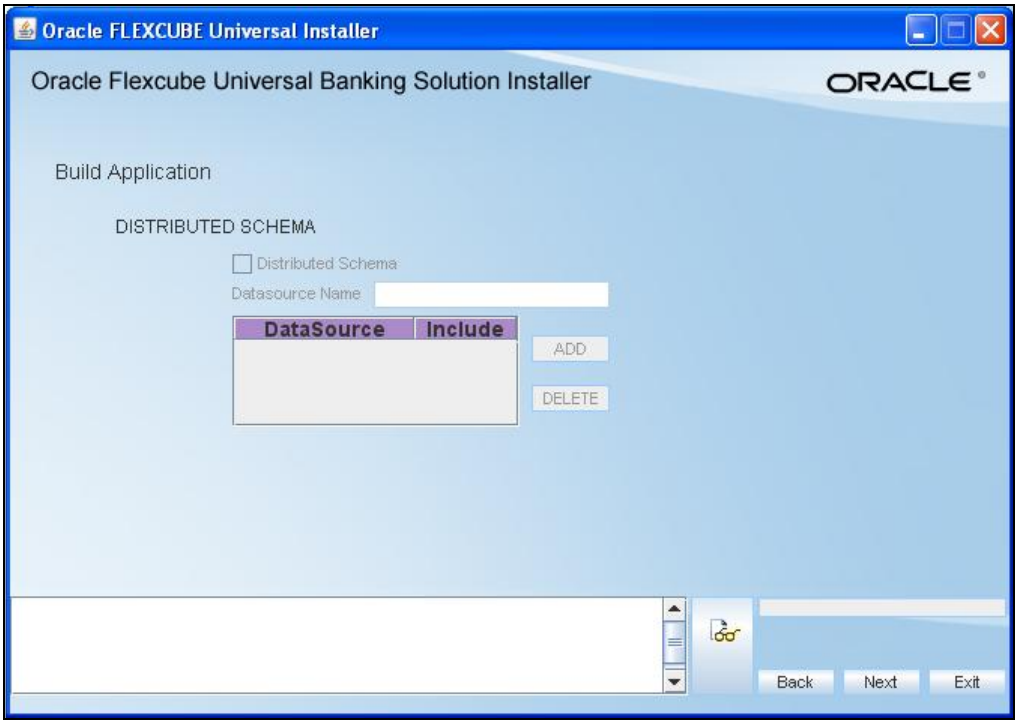


- Step-8 Provide Application build details

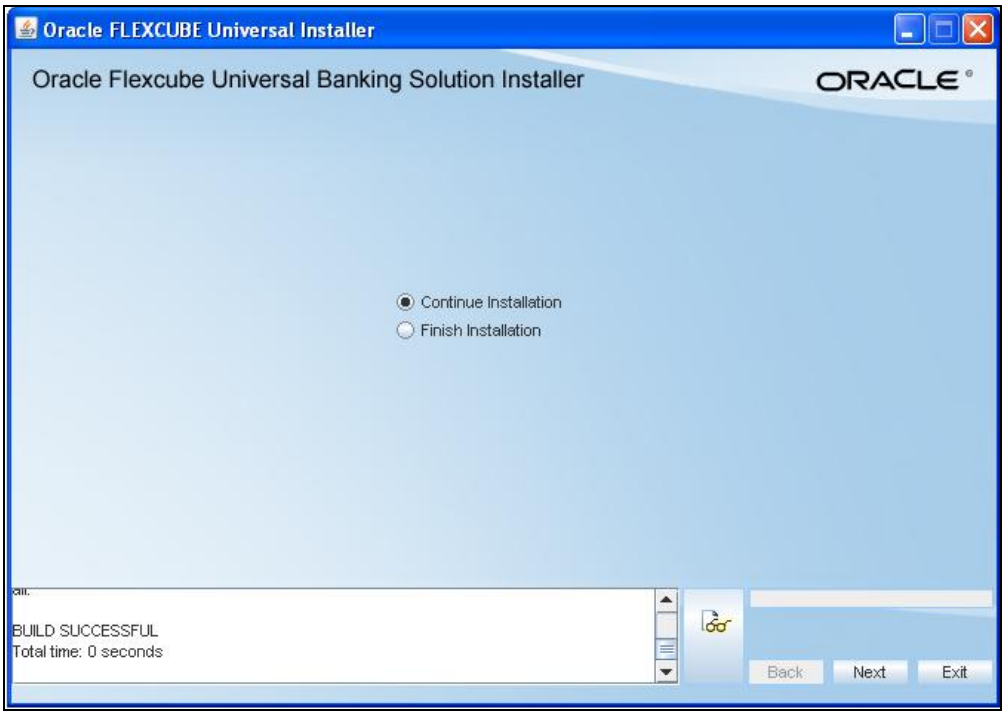
- Source directory: Source from which it will generate files.
- Destination directory: Location where the files will be generated.
- Application name: Name for the EJB application that is created.
- EAR file path: Location where the EAR file will be generated.
- Property file path: Location of Property file generated for EJB application.



- Step-9 – Select Next

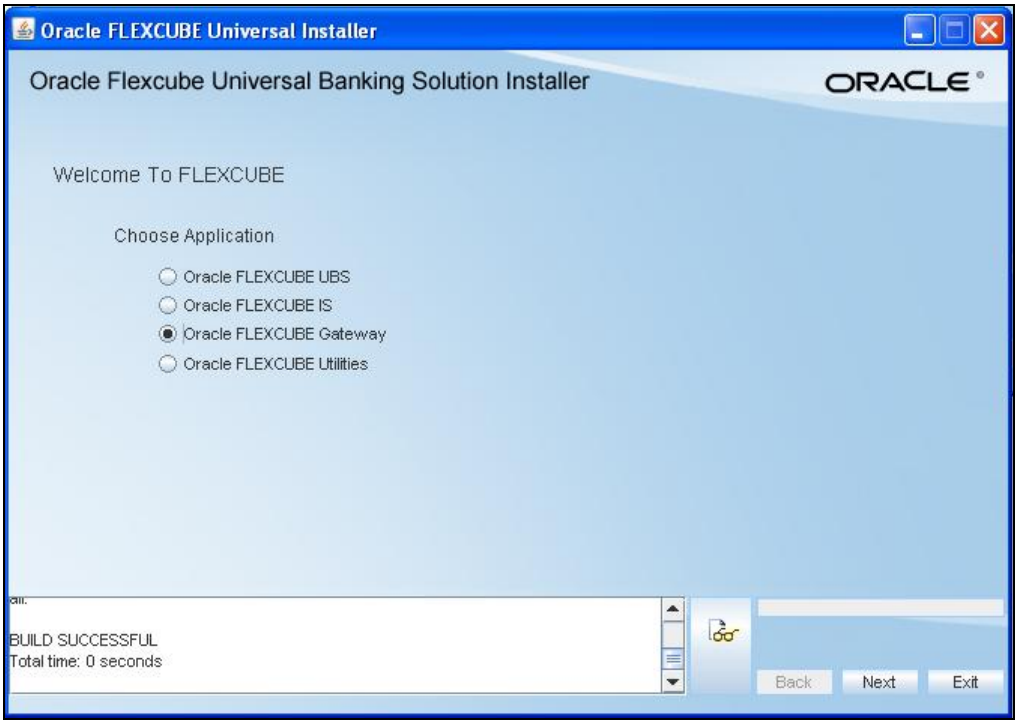


- Step-10 – Ensure message. BUILD SUCCESSFUL

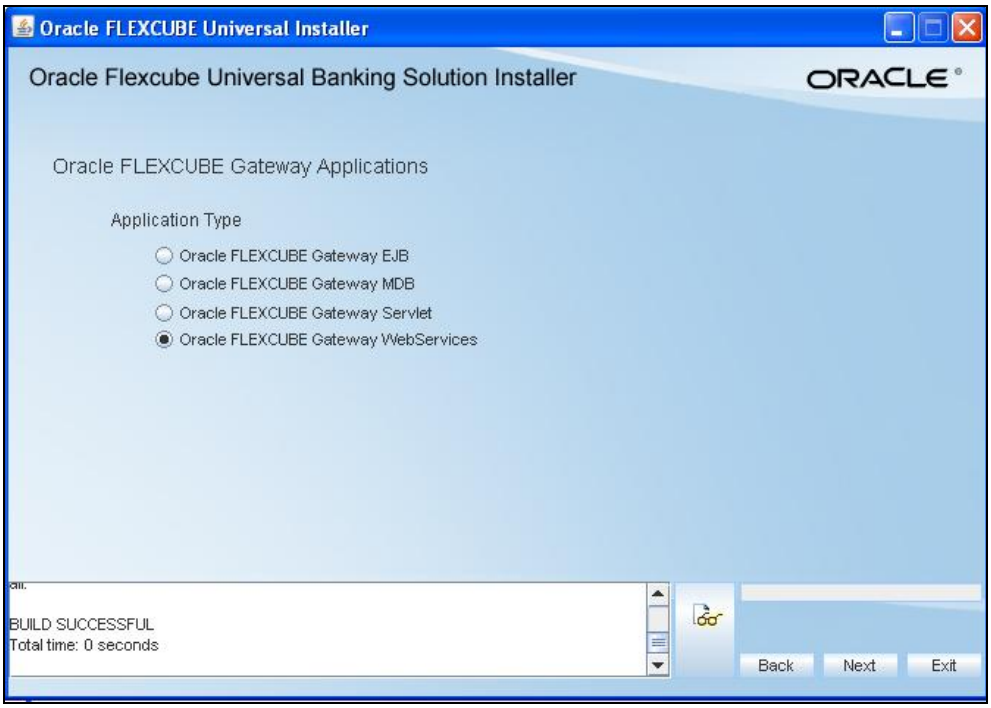


5.4.5 Creation of Web Service property file

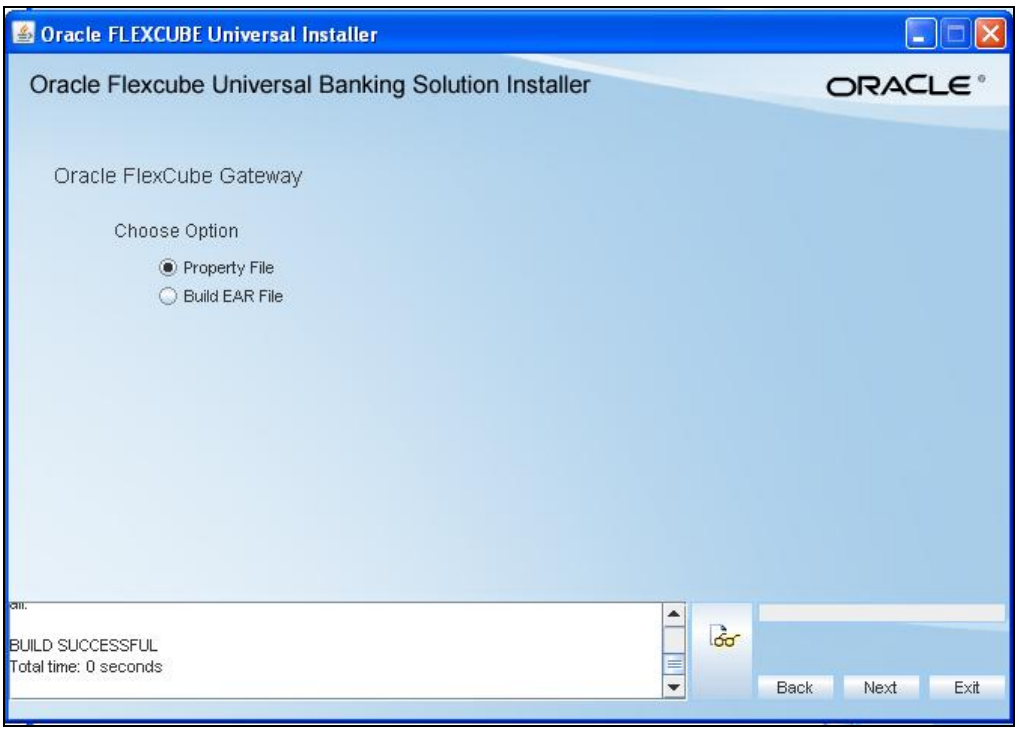
Step-a.1) Select Oracle FLEXCUBE Gateway



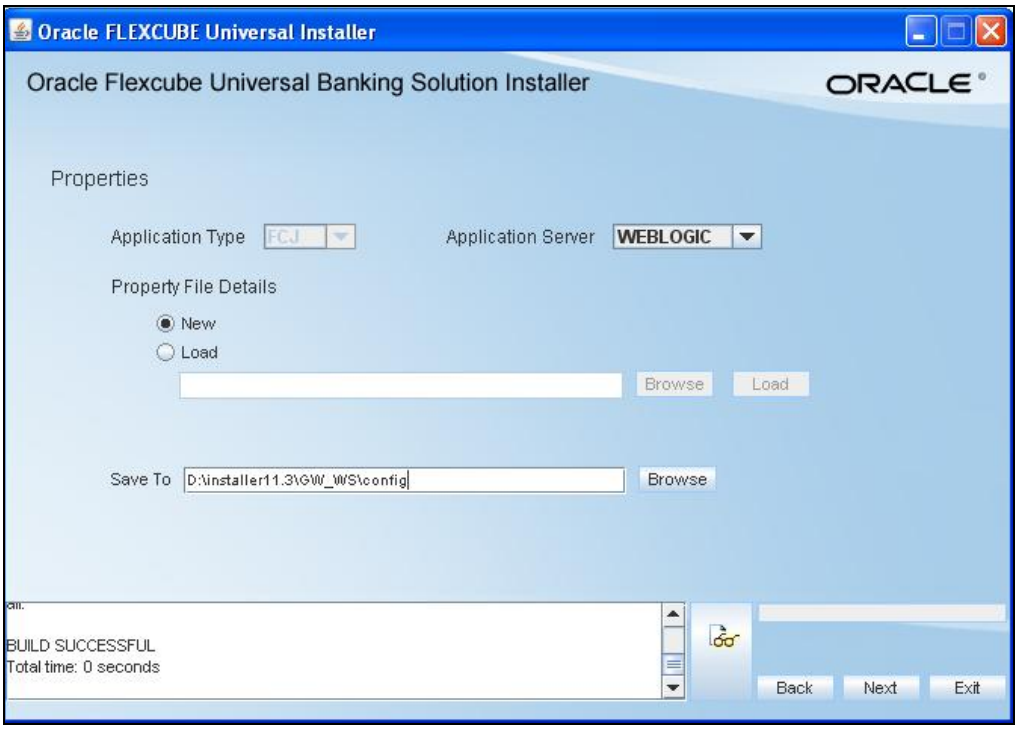
Step-a.2) Select Oracle FLEXCUBE Gateway Web Services



Step-b - Select Property file

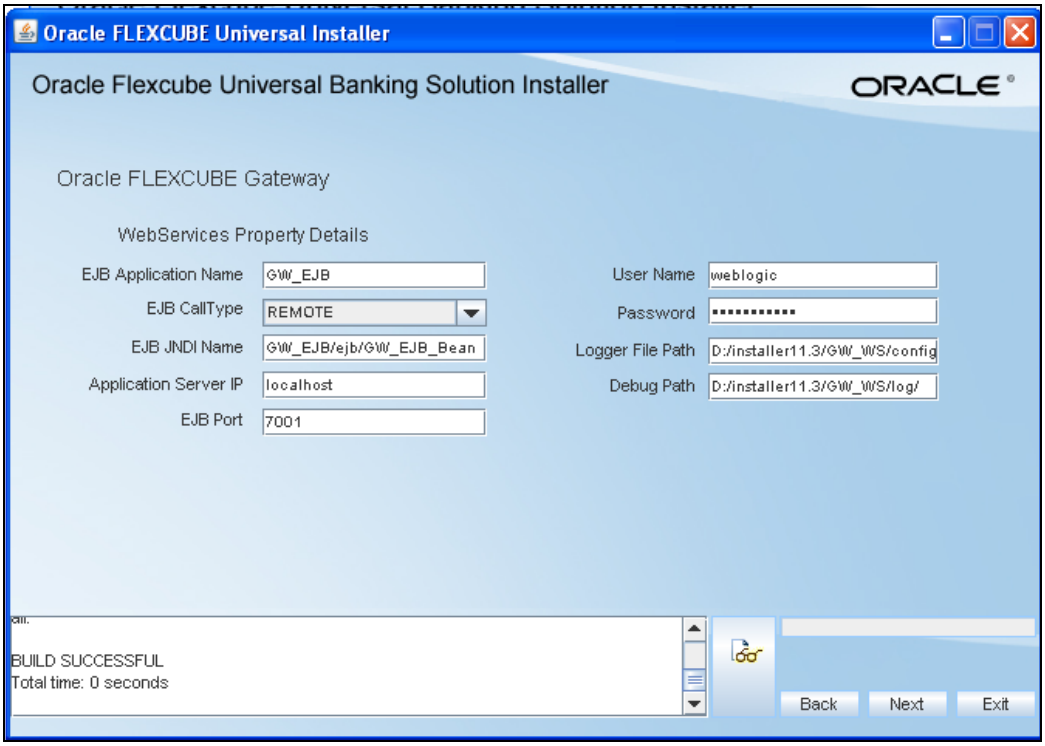


Step-c - Specify the location for property file generation

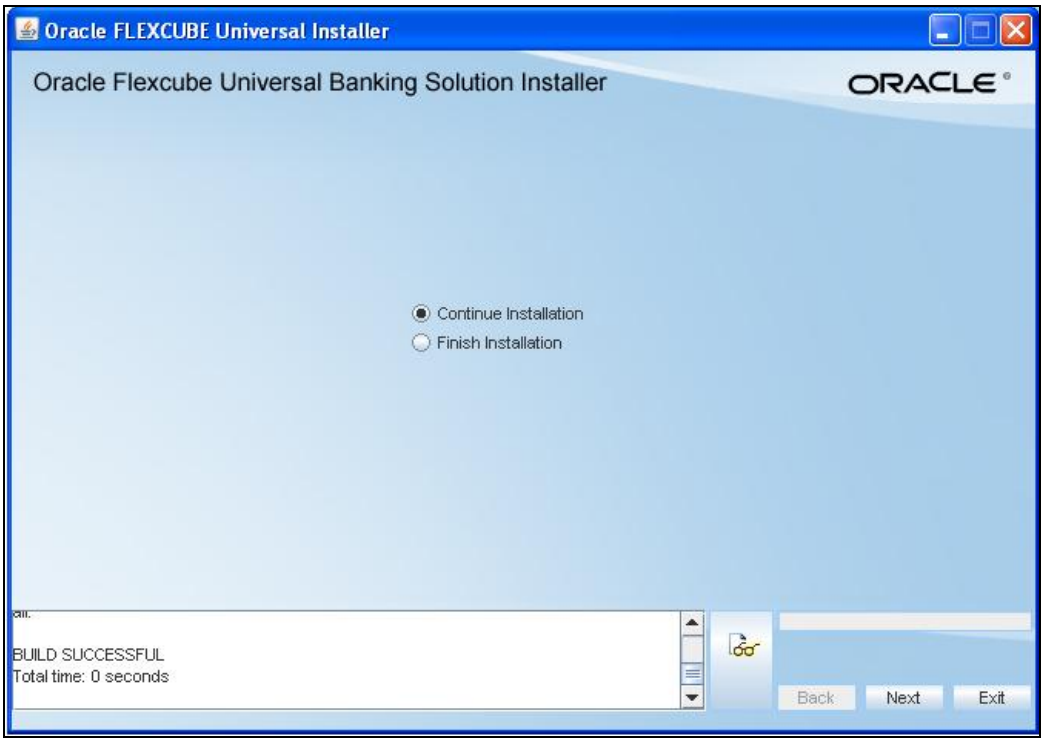


Step-d - Mention Gateway EJB Name and details

Application sever name needs to be mentioned along with the path where the log and debug file for the WebServices needs to be stored

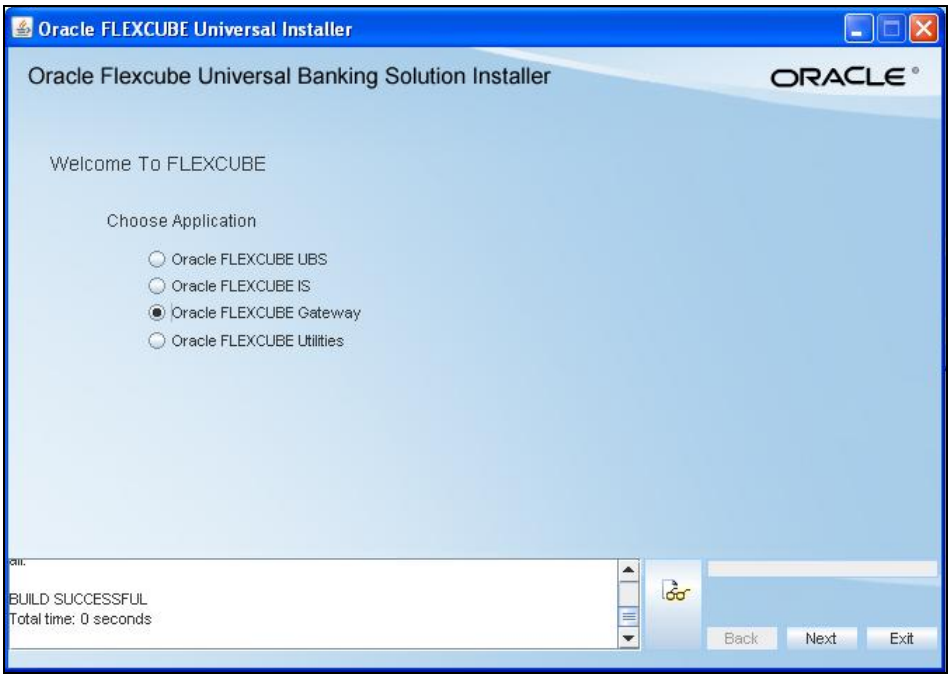


Step-e – select continue to build EAR file for web service

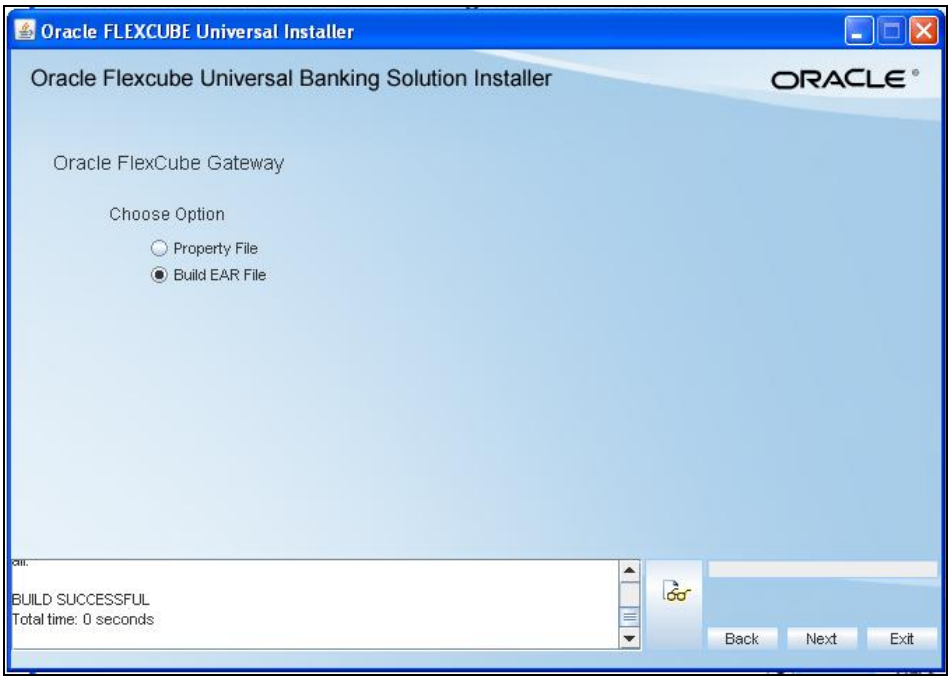


5.4.6 Creation of Web Service EAR file

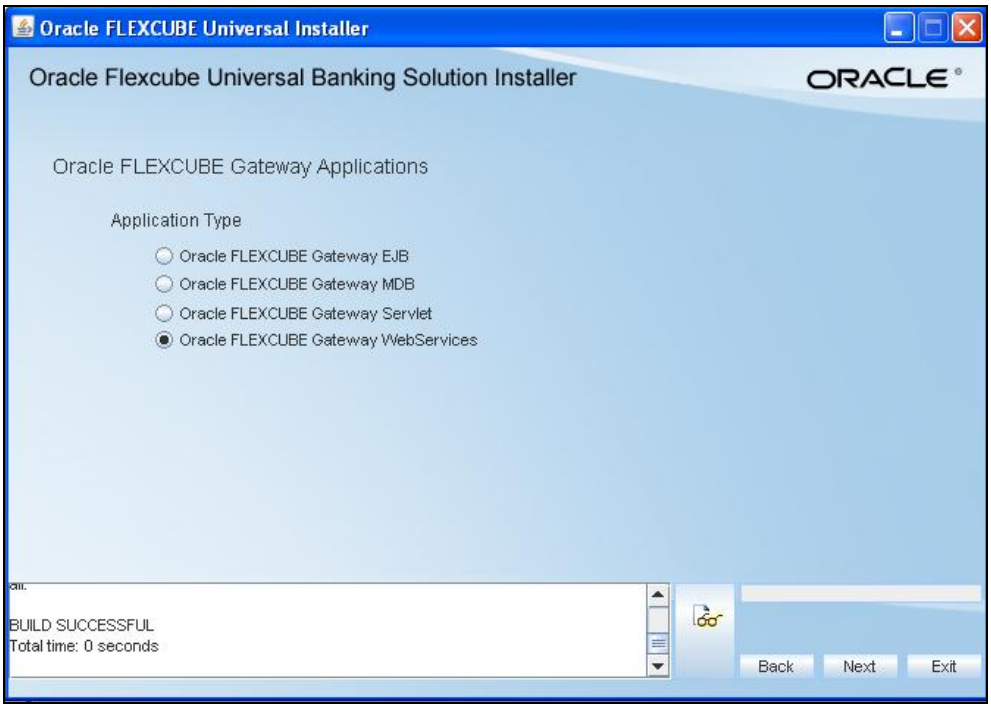
Step-f -Select Oracle FLEXCUBE Gateway



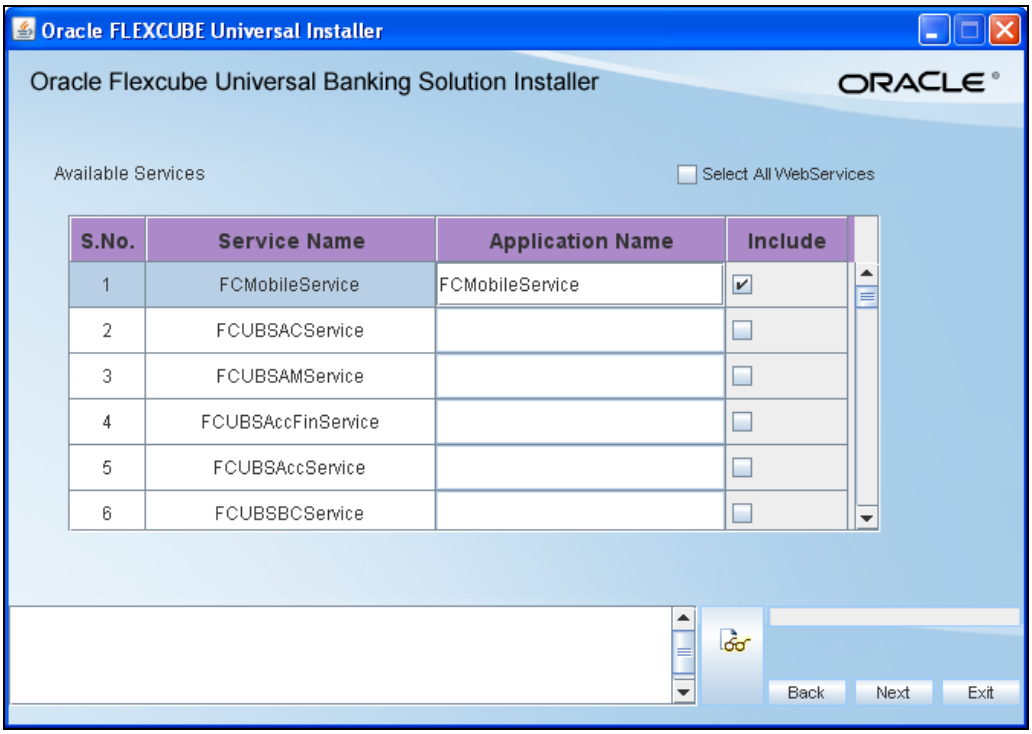
Step-g – Select Build EAR file.



Step-h –Select Gateway WebServices



Step-I – Select the Web service name.



5.4.7 Adding New Service to the List

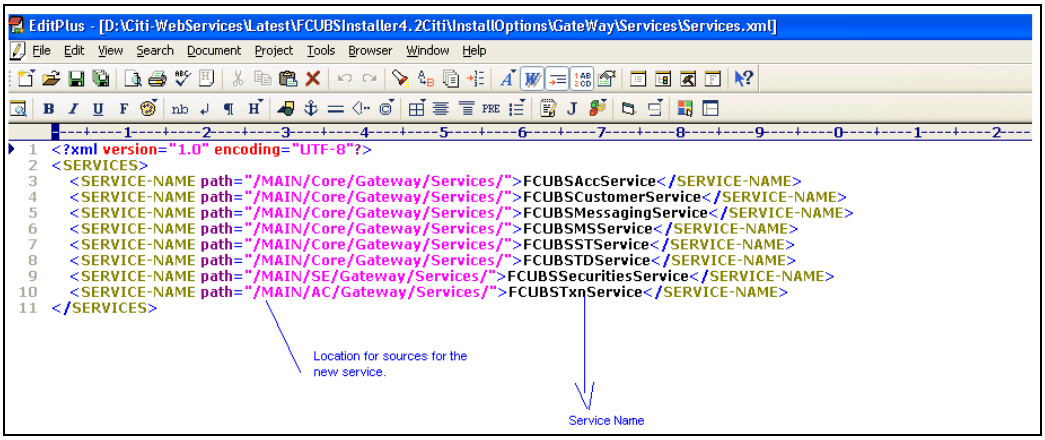
To add a new service to the pick list, change the Services.xml which present in the installer sources. This file can be found at "<Installer Source Area>\InstallOptions\GateWay\Services\Services.xml"

Add your new service to the existing list by using **<Service-Name>** tag.

Example:

<SERVICE-NAME

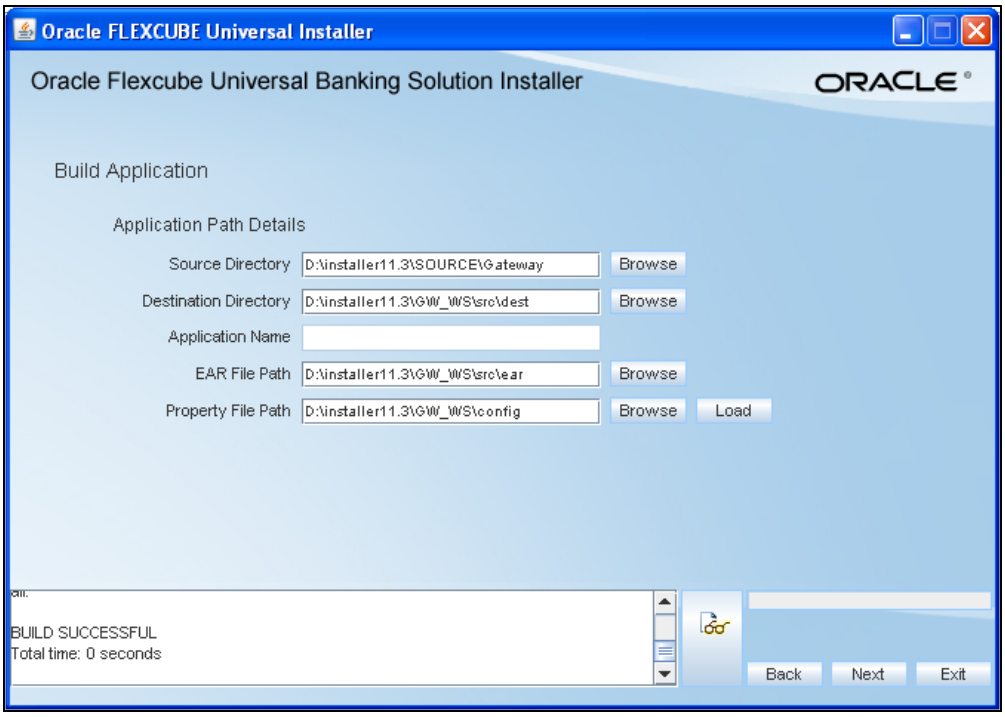
path="/MAIN/CORE/GATEWAY/SERVICES/">FCMobileService</SERVICE-NAME>



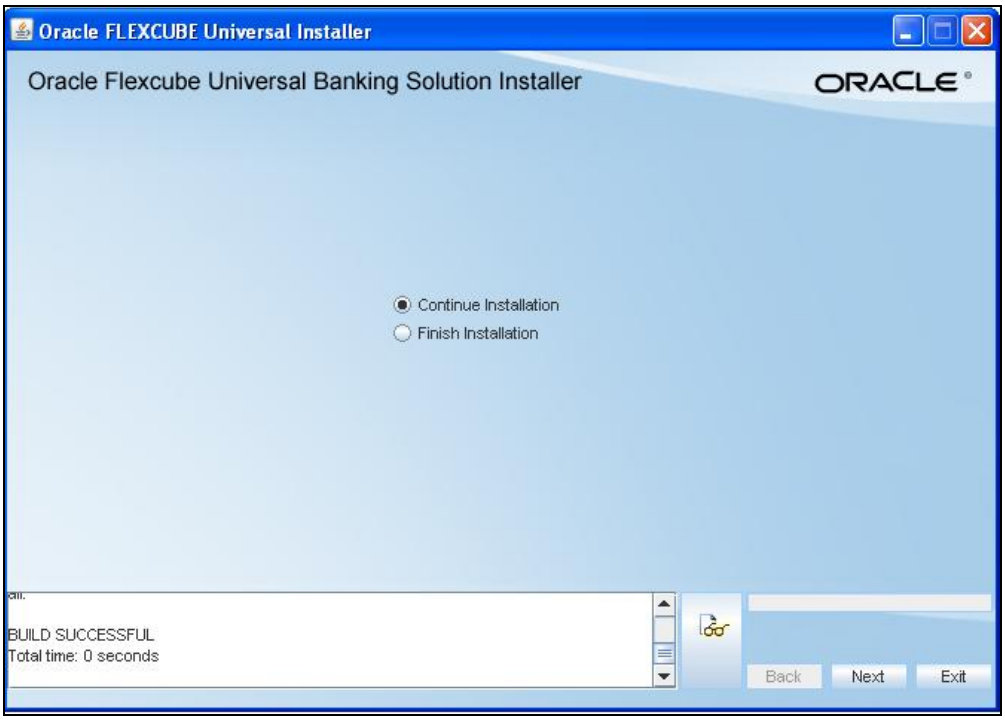
Step-j – Provide path details

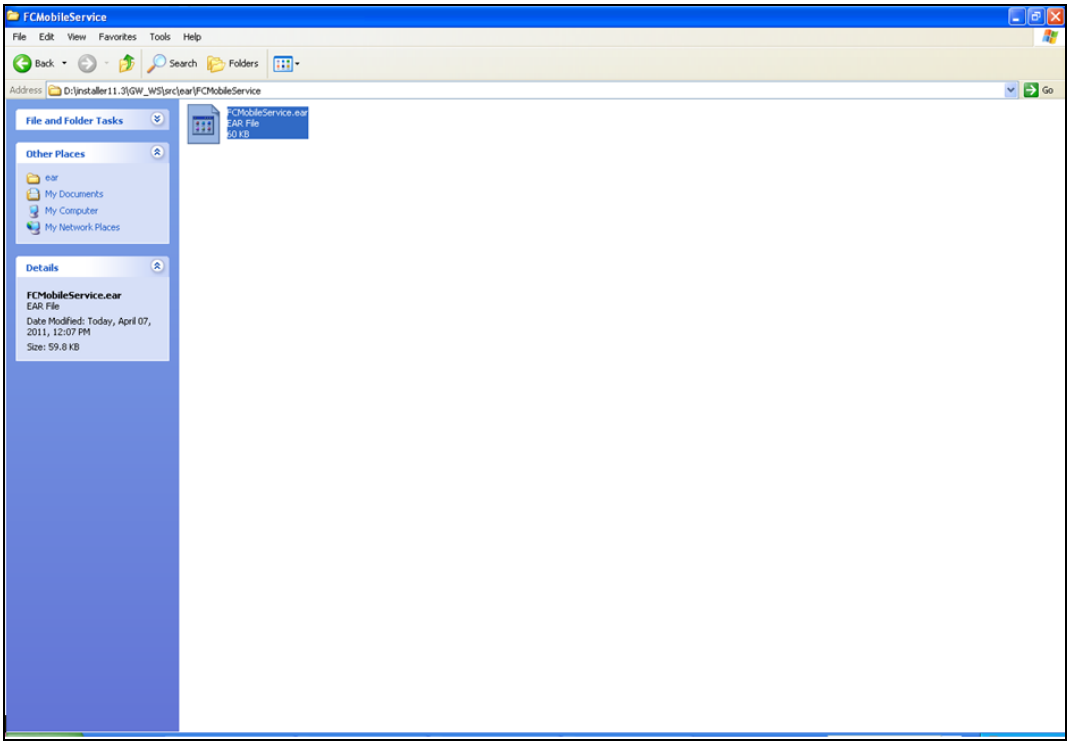
- Source directory: Source from which it will generate files.

- Destination directory: Location where the files will be generated.
- EAR file path: Location where the EAR file will be generated.
- Property file path: Location of Property file that available



Step-k – Ensure build successful and EAR file generated





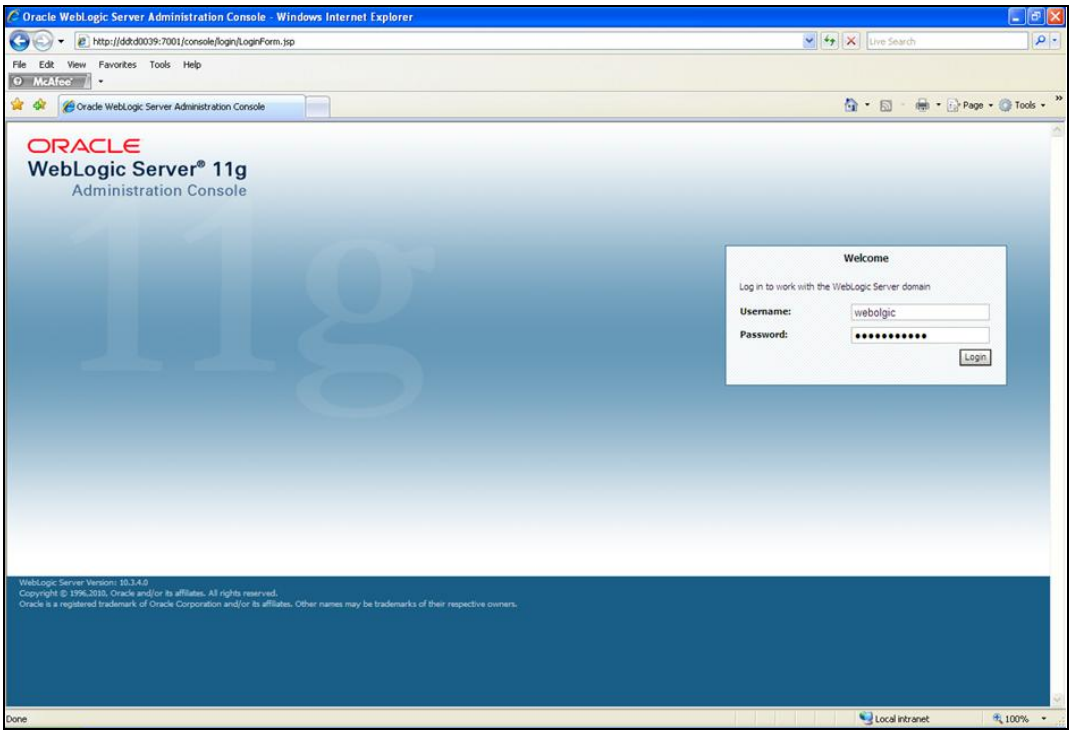
5.5 Deploying of EAR file

This section explains the steps to deploy the Web service EAR files on Oracle Weblogic Application server 11g

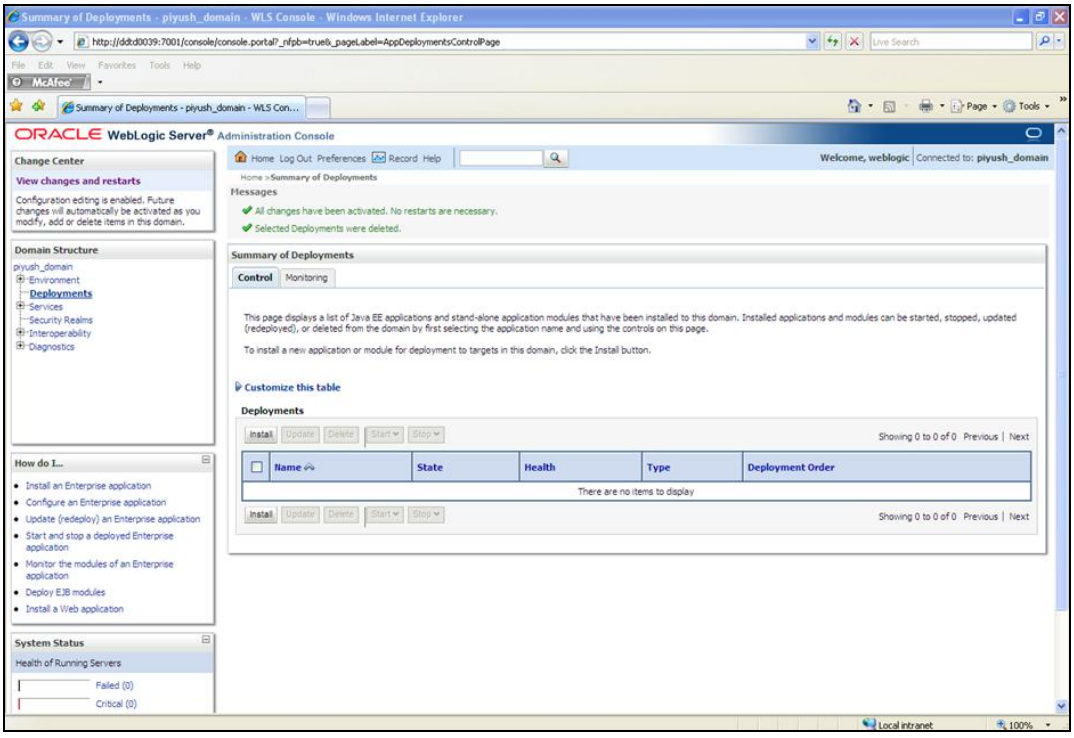
5.5.1 Deploying of Gateway EJB EAR file

This section discusses the deployment steps of Gateway EJB file. Skip this section if the Gateway EJB is already deployed in Target FLEXCUBE environment.

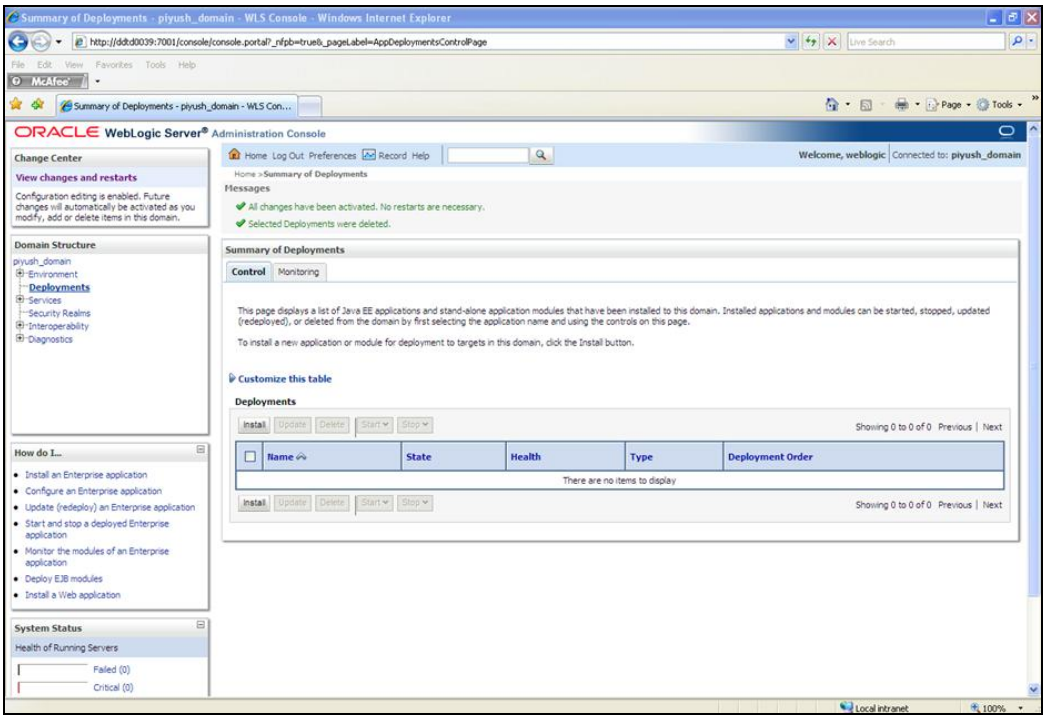
Step-1 – Login to Web logic application server



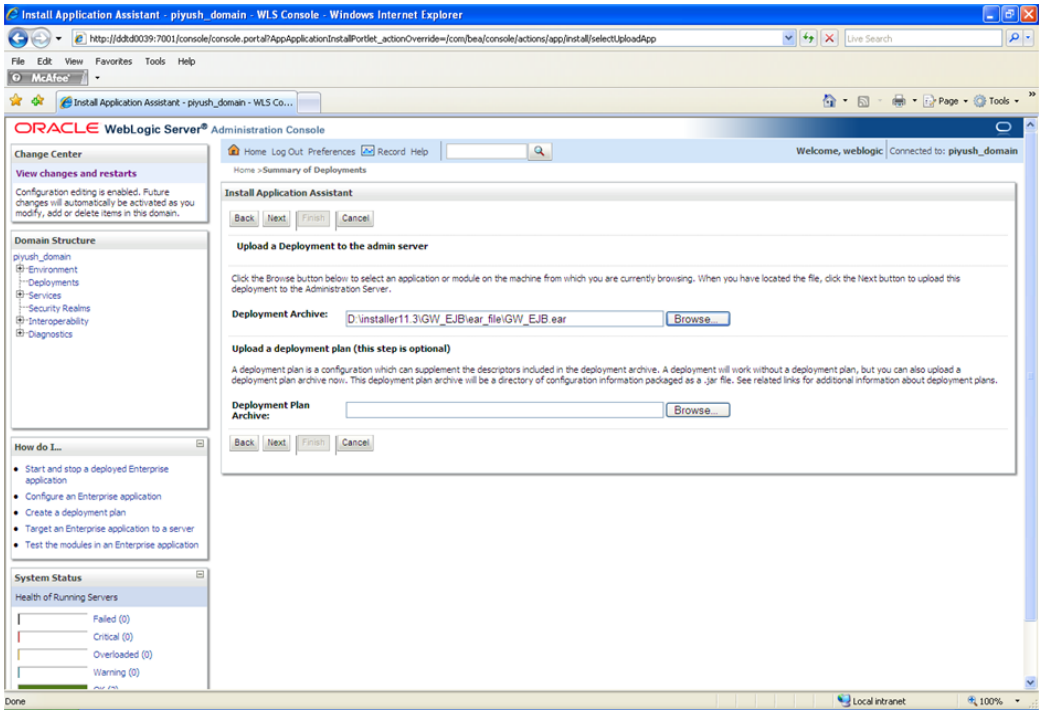
Step-2 – Select Deployments and Install



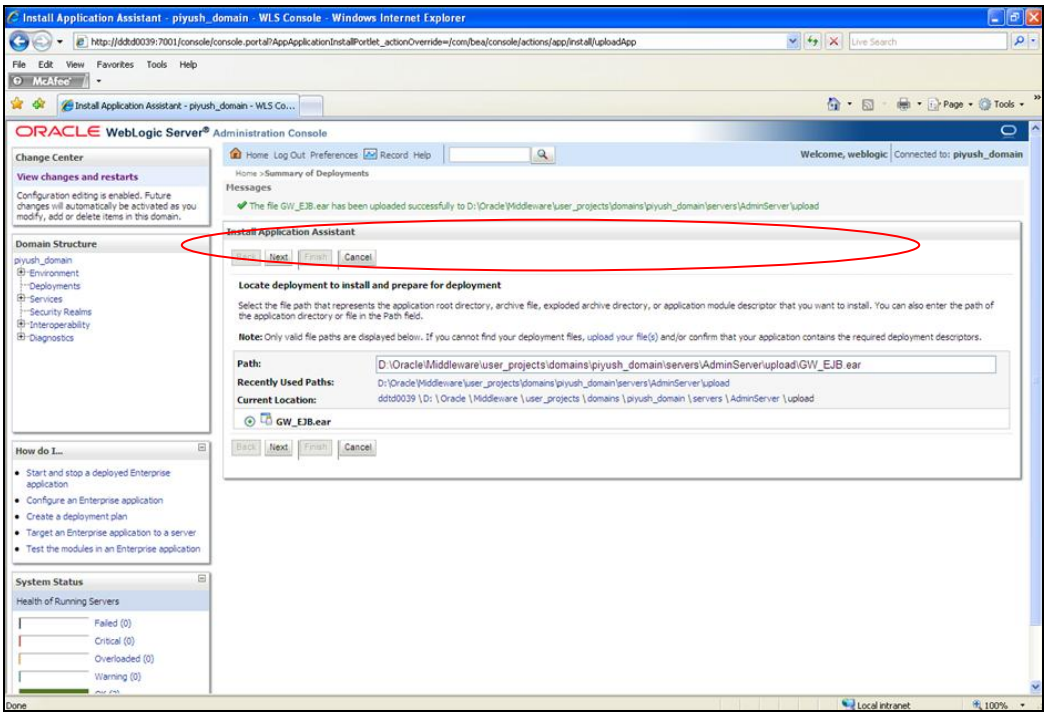
Step-3 –Select Upload your file



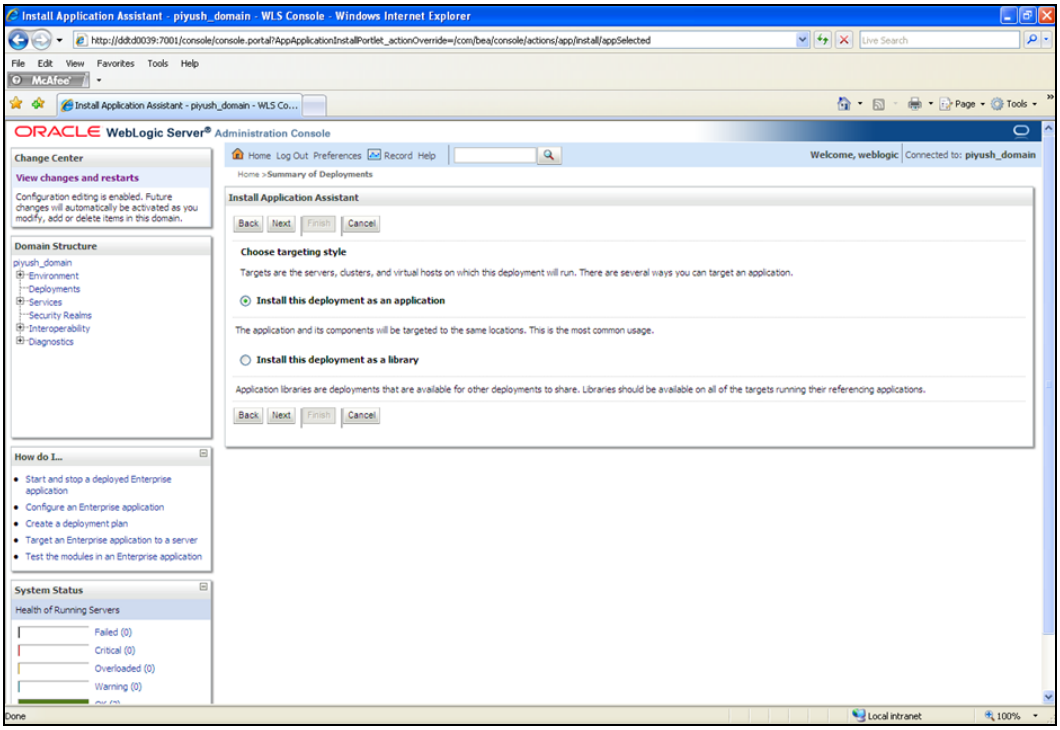
Step-4 – Select the path where Gateway EJB EAR generated



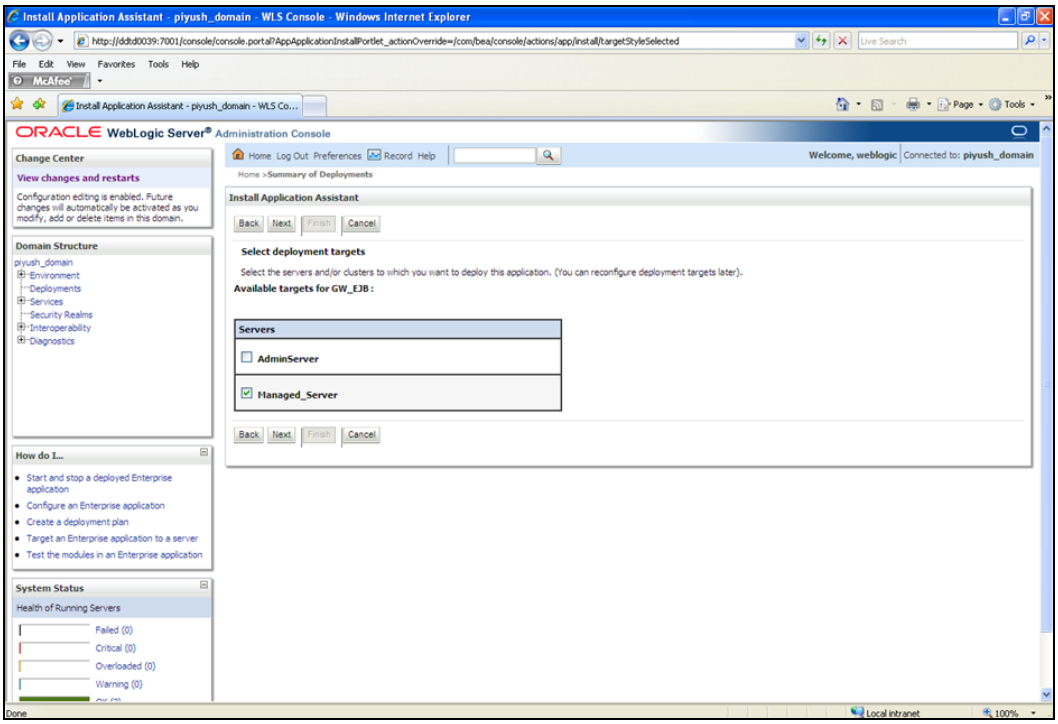
Step-5 – Ensure upload success and select Next



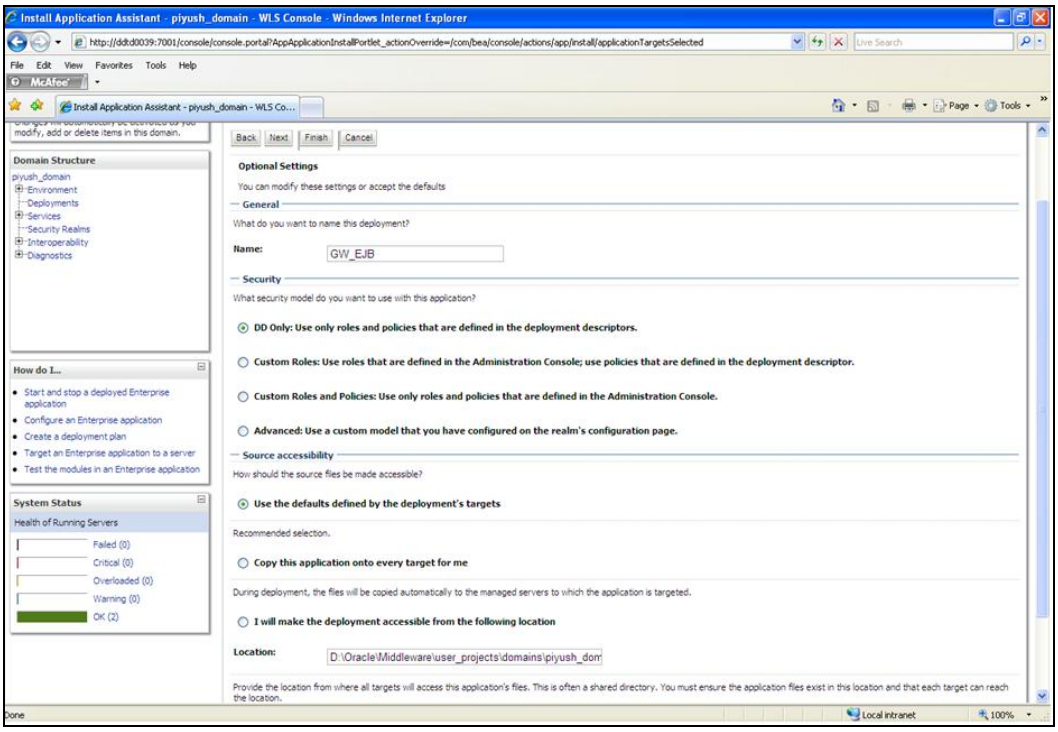
Step-6 – Select Install the deployment as an application



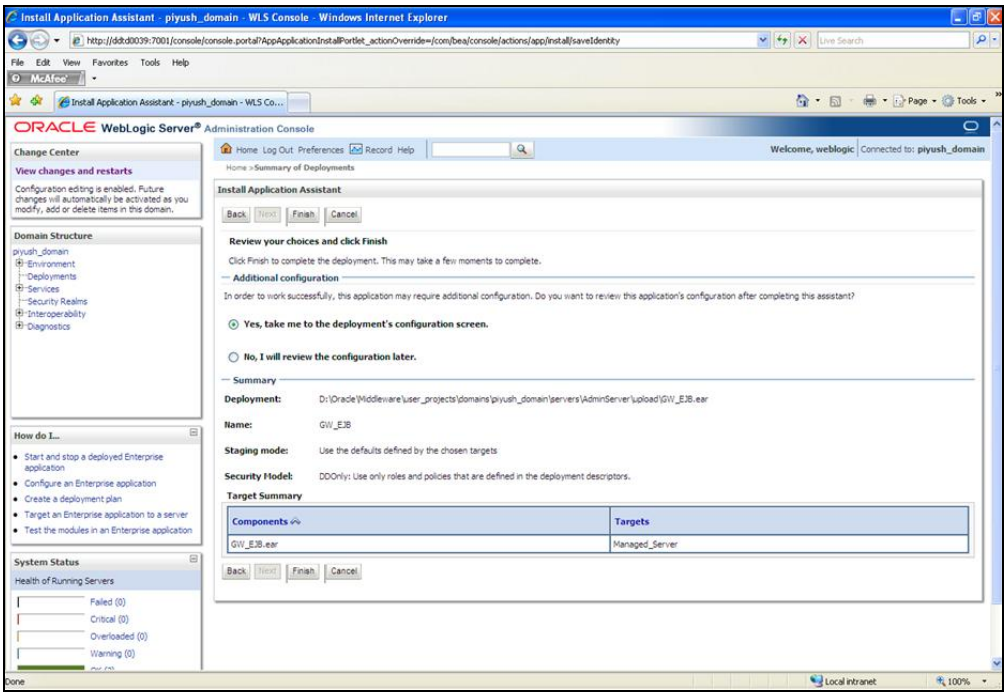
Step-7 – Select the appropriate Server where application need to be deployed



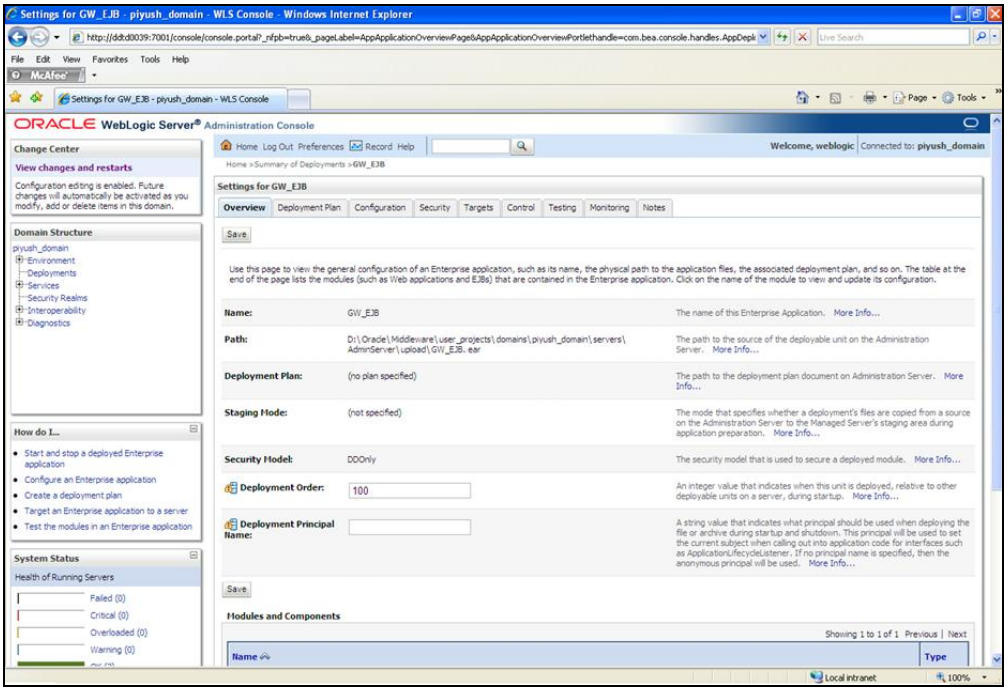
Step-8 – Select Next



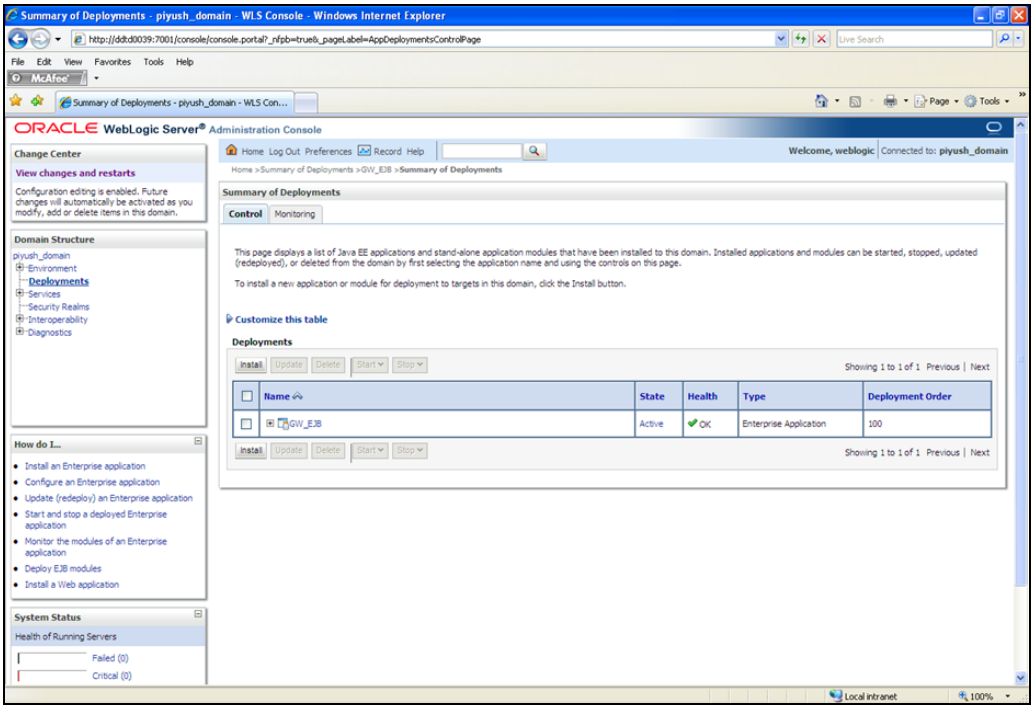
Step-9 - Select Finish



Step-10 – Select Save



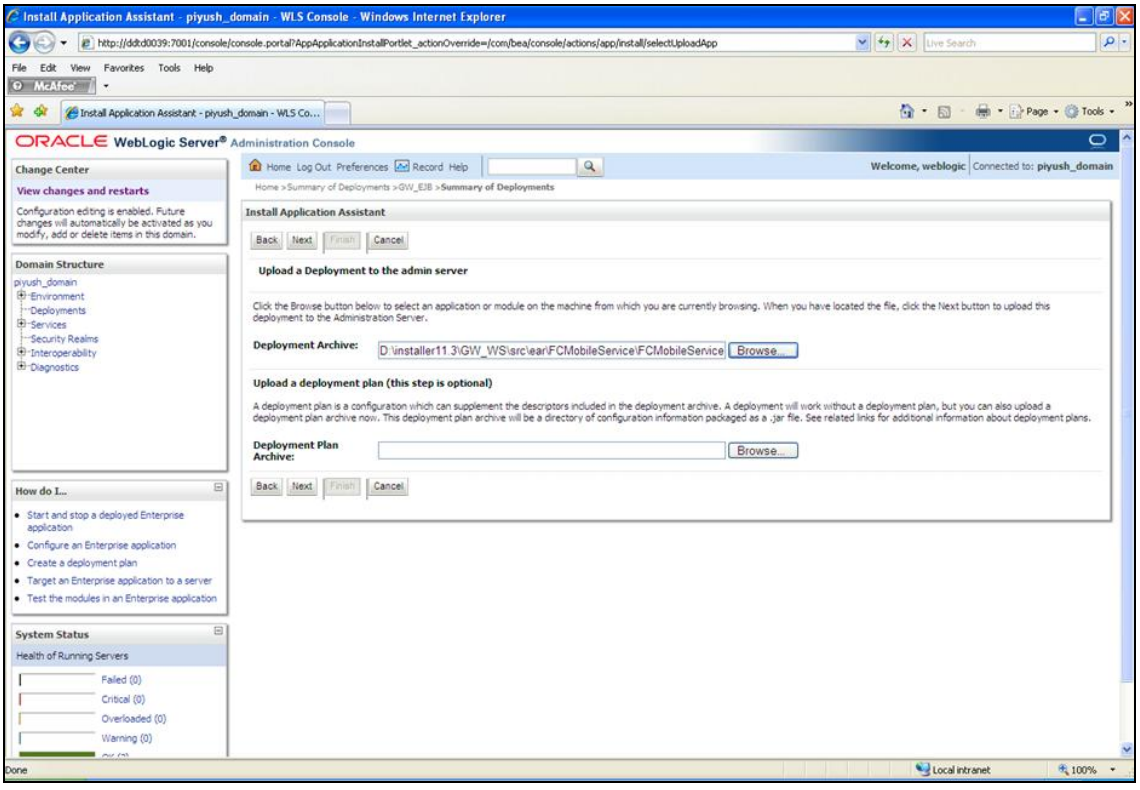
Step-11 – Ensure the GW_EJB application is Active and health OK



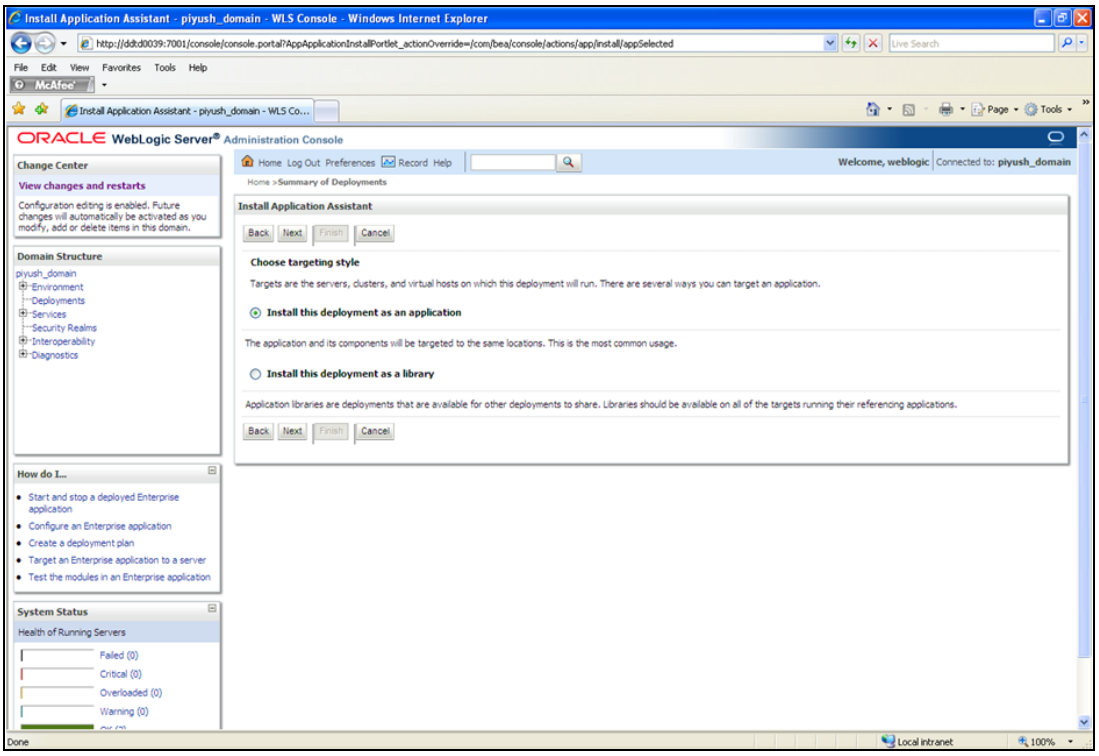
5.5.2 Deploying of Web Service EAR file

This section describes the steps to deploy the Web service EAR file.

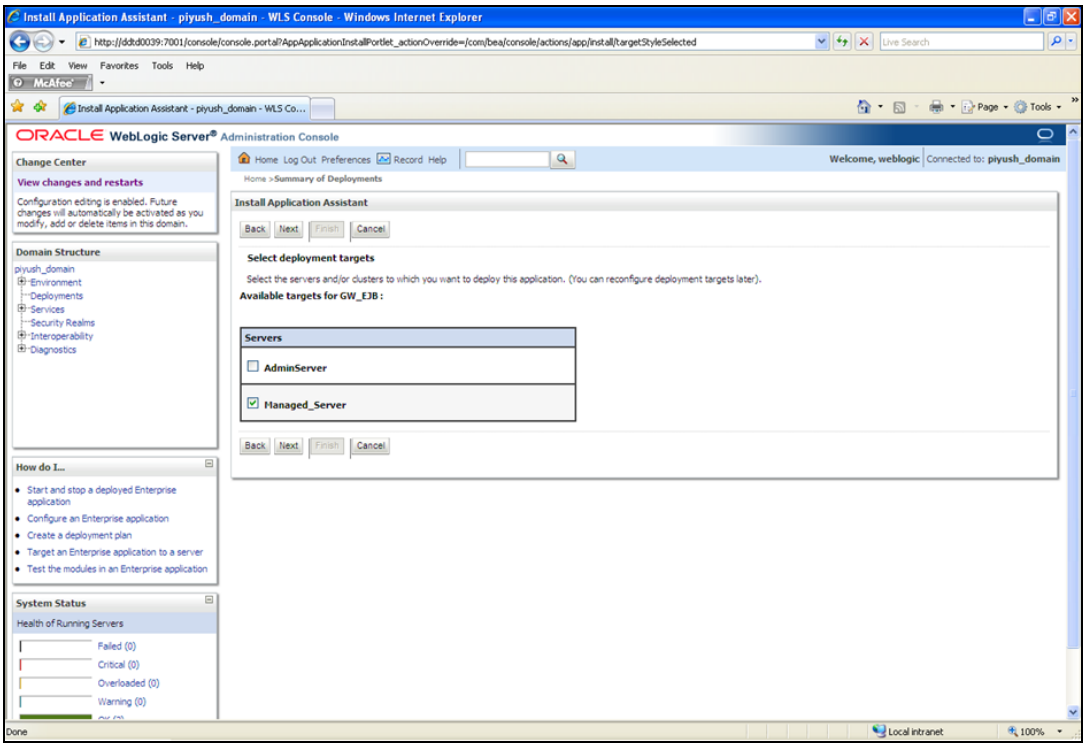
Step-a – Select upload your file and pick the web service EAR file



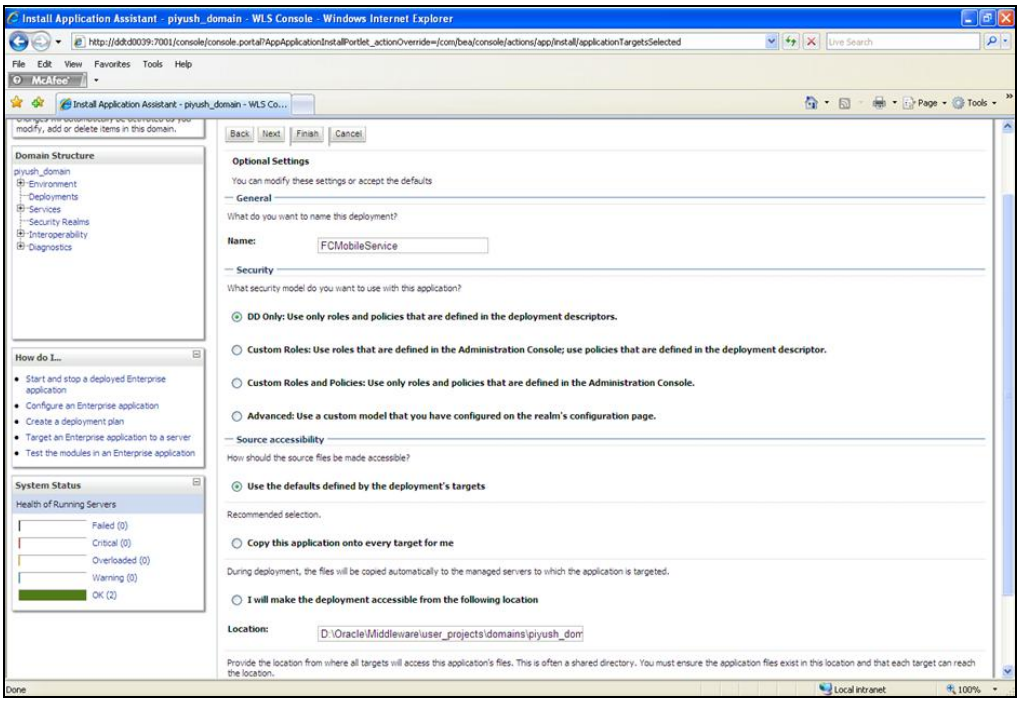
Step-b – Select Install the deployment as an application



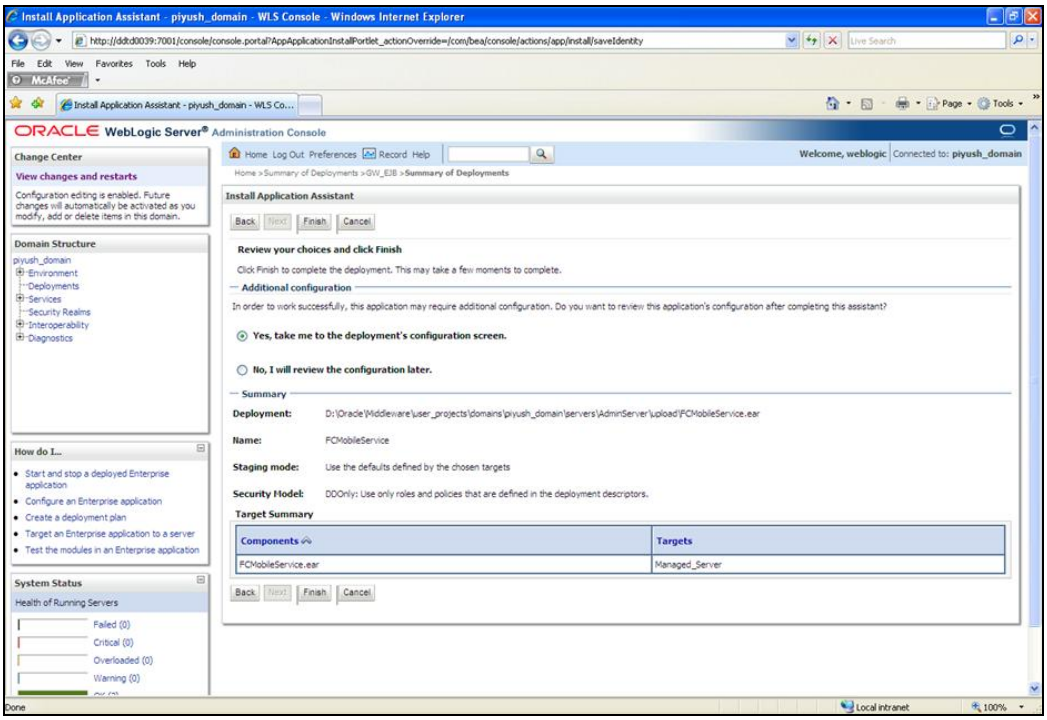
Step-c – Select the Server appropriately



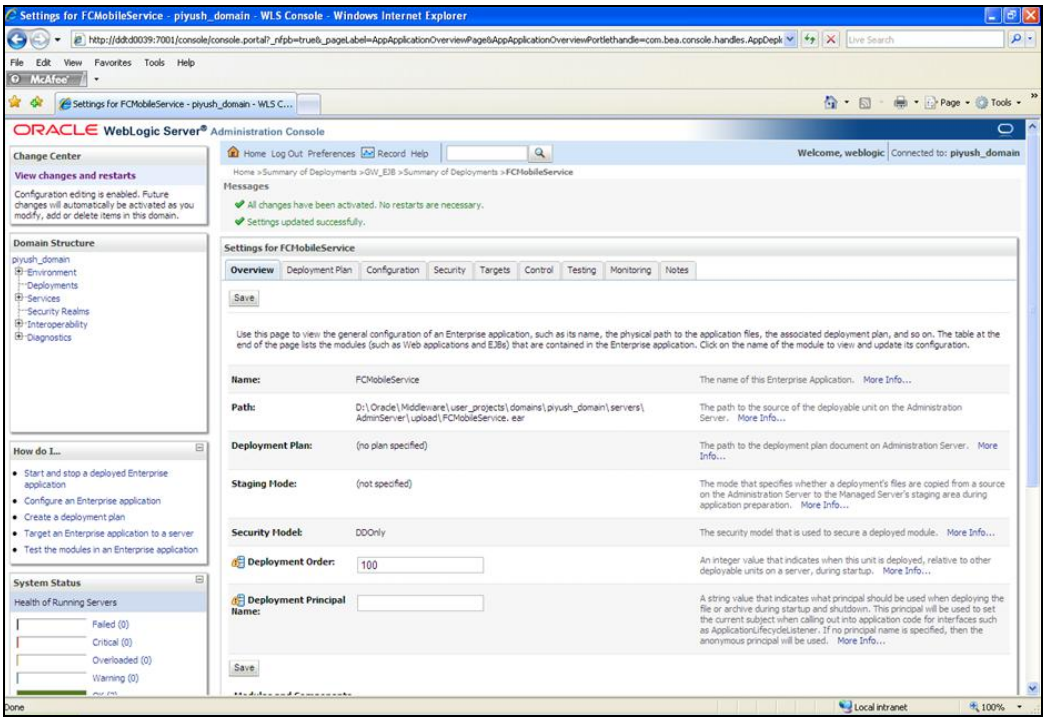
Step-d – Select Next



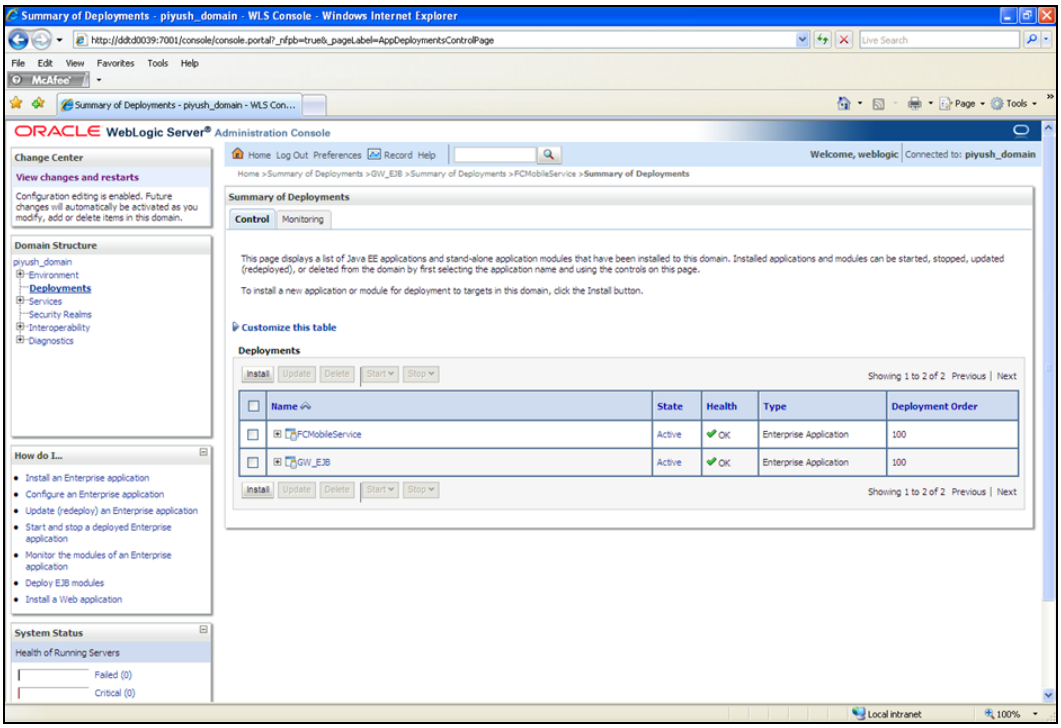
Step-e – Select Finish



Step-f – Ensure successful messages shown



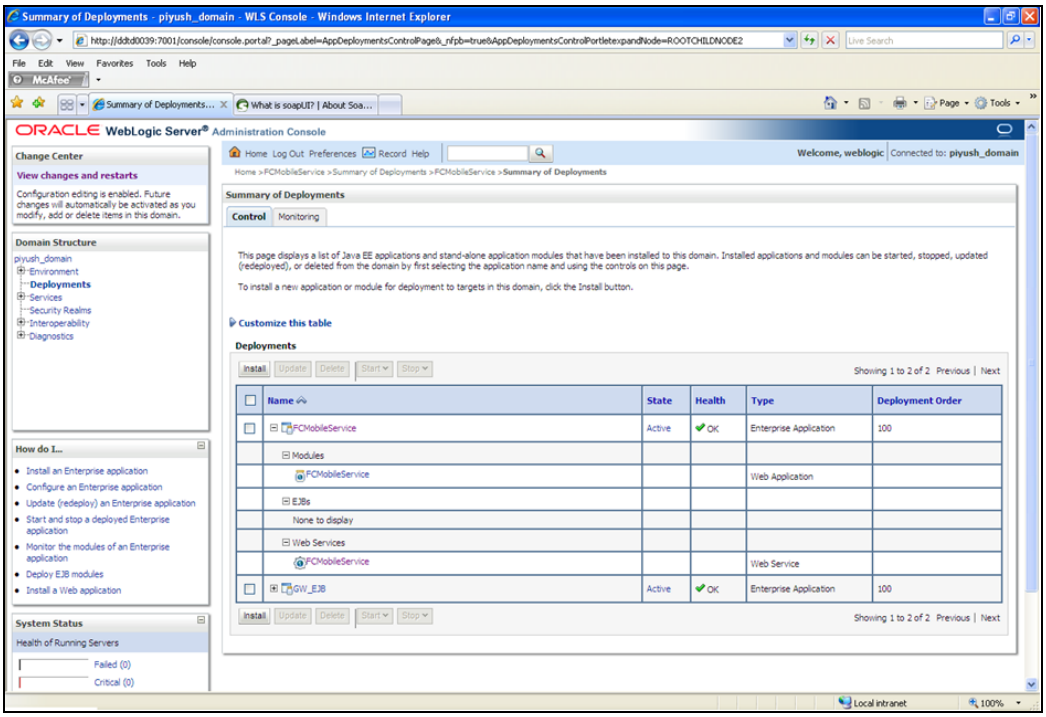
Step-g – Save the deployment and ensure it started OK



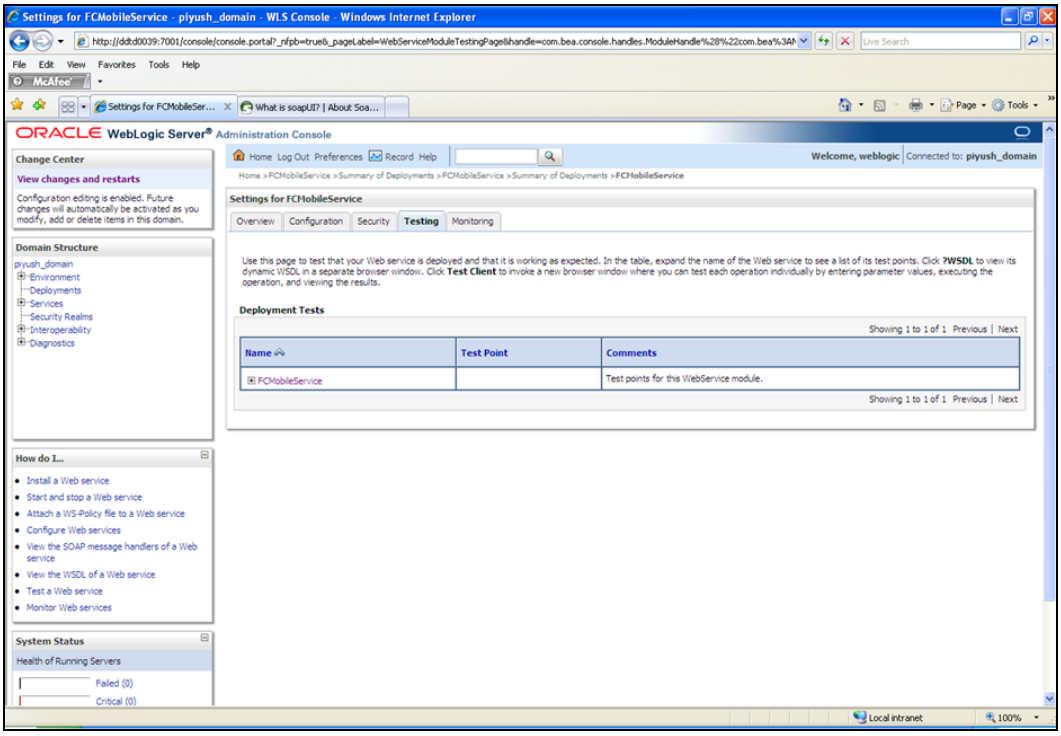
5.6 Testing the Web Service

This section describes the steps to test the web service in Web logic application server.

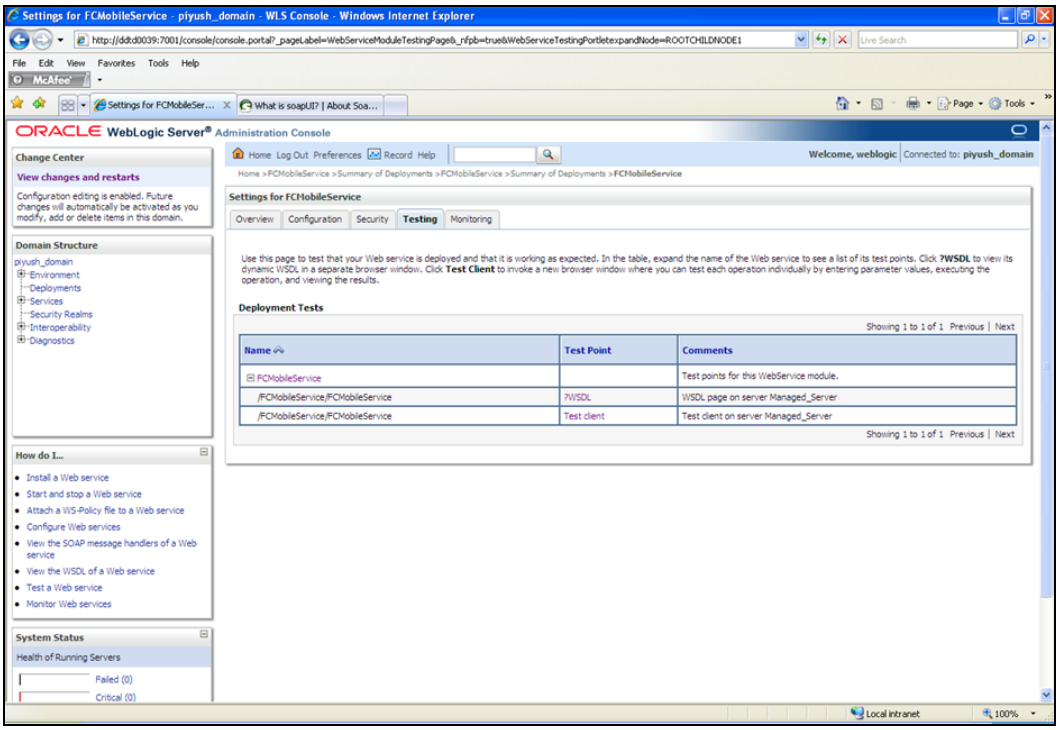
Step-1 – expand Web service and select Web service that need to be tested



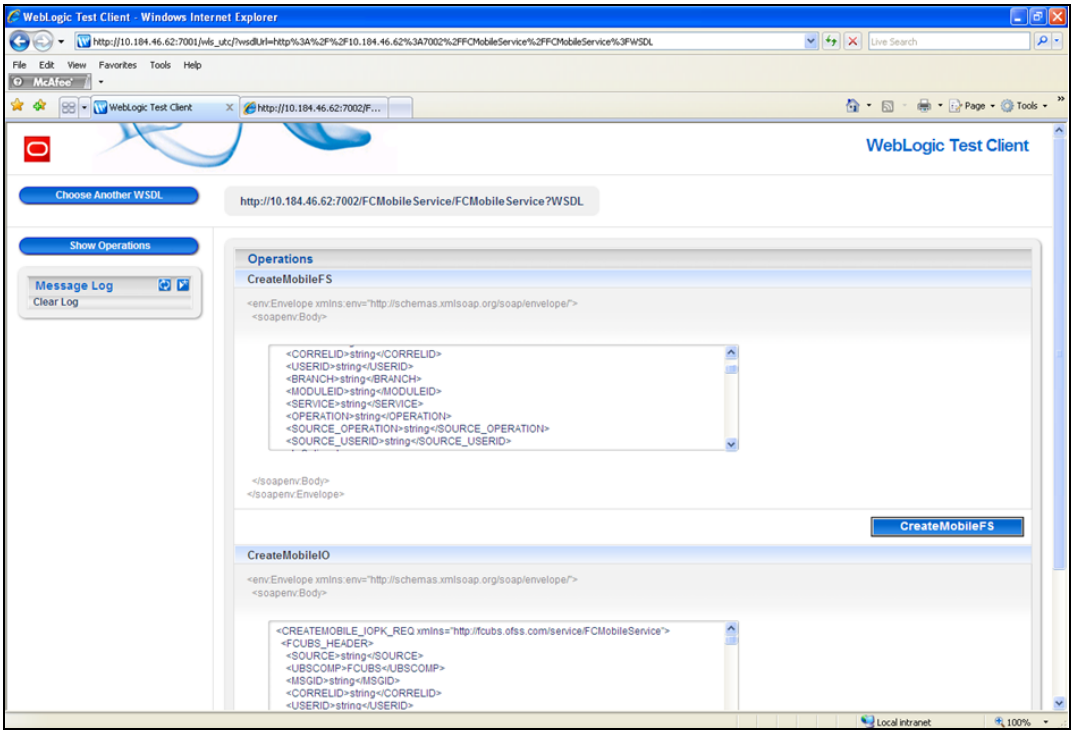
Step-2 – Select Testing



Step-3 – Select Test Client



Step-4 – Populate the request XML message with business data and select Operation. Check the response XML thrown.

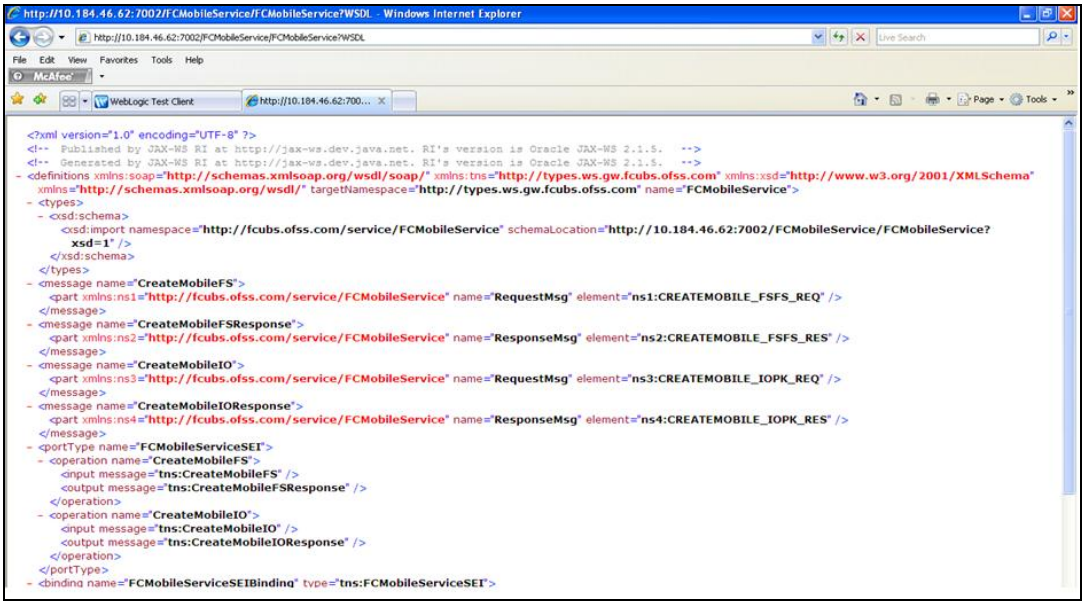


Also Copy & paste the WSDL Url onto a browser to check whether the Web service is running.

WSDL Url: http://<IP address>:<Port>/<Service_Name>/<Service_Name>?WSDL

Example: http://10.184.46.62:7002/FCMobileService/ FCMobileService?WSDL

On pasting the WSDL URL, the WSDL should be displayed in the browser, which confirms the status of Web service to be running.



6. Annexure A – FCMobileService – Sample files

6.1 XSD files

6.1.1 CS-Mobil-Types.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">

   <xs:annotation>

      <xs:documentation xml:lang="en">All Types of JKDMOBIL

      </xs:documentation>

   </xs:annotation>




   <xs:complexType name="Mobil-PK-Type">

      <xs:sequence>

         <xs:element name="CELL_NO" type="xs:decimal"/>

         <xs:element name="CUSTOMER_NO" minOccurs="1">

            <xs:simpleType>

               <xs:restriction base="xs:string">

                  <xs:maxLength value="9"/>

               </xs:restriction>

            </xs:simpleType>

         </xs:element>

      </xs:sequence>

   </xs:complexType>




   <xs:complexType name="Mobil-Full-Type">

      <xs:sequence>
```

```
<xs:element name="CUSTOMER_NO" minOccurs="1">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="9"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="CELL_NO" minOccurs="1" type="xs:decimal"/>
<xs:element name="MAKER" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="12"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="MAKERSTAMP" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="35"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="CHECKER" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="12"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="CHECKERSTAMP" minOccurs="0">
```

```
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="35"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="MODNO" minOccurs="0" type="xs:decimal"/>
         <xs:element name="TXNSTAT" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="1"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="AUTHSTAT" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="1"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="Jktm-Junk-Mobil-Dtl" minOccurs="0"
maxOccurs="unbounded">
            <xs:complexType>
               <xs:sequence>
                  <xs:element name="CUSTOMER_NO" minOccurs="1">
                     <xs:simpleType>
                        <xs:restriction base="xs:string">
                           <xs:maxLength value="9"/>
                        </xs:restriction>
```

```
   </xs:simpleType>
</xs:element>
<xs:element name="ACCOUNT_NO" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="20"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="NAME" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="105"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="TXNDETL" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="7"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="STATUS" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="10"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
```

```
            <xs:element name="CELL_NO" minOccurs="0" type="xs:decimal"/>
         </xs:sequence>
      </xs:complexType>
   </xs:element>
   <xs:element name="Jktm-Junk-Mobile-Dtl2" minOccurs="0">
      <xs:complexType>
         <xs:sequence>
            <xs:element name="CUSTOMER_NO" minOccurs="1">
               <xs:simpleType>
                  <xs:restriction base="xs:string">
                     <xs:maxLength value="9"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:element>
            <xs:element name="CUSTOMER_NAME" minOccurs="0">
               <xs:simpleType>
                  <xs:restriction base="xs:string">
                     <xs:maxLength value="105"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:element>
            <xs:element name="CUSTOMER_CATEGORY" minOccurs="0">
               <xs:simpleType>
                  <xs:restriction base="xs:string">
                     <xs:maxLength value="10"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:element>
            <xs:element name="ADDRESS" minOccurs="0">
               <xs:simpleType>
```

```
                        <xs:restriction base="xs:string">
                           <xs:maxLength value="105"/>
                        </xs:restriction>
                     </xs:simpleType>
                  </xs:element>
                  <xs:element name="CITY" minOccurs="0">
                     <xs:simpleType>
                        <xs:restriction base="xs:string">
                           <xs:maxLength value="30"/>
                        </xs:restriction>
                     </xs:simpleType>
                  </xs:element>
                  <xs:element name="COUNTRY" minOccurs="0">
                     <xs:simpleType>
                        <xs:restriction base="xs:string">
                           <xs:maxLength value="25"/>
                        </xs:restriction>
                     </xs:simpleType>
                  </xs:element>
               </xs:sequence>
            </xs:complexType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>



   <xs:complexType name="Mobil-Query-IO-Type">
      <xs:sequence>
         <xs:element name="CUSTOMER_NO" minOccurs="1">
            <xs:simpleType>
```

```
                <xs:restriction base="xs:string">
                   <xs:maxLength value="9"/>
                </xs:restriction>
             </xs:simpleType>
          </xs:element>
          <xs:element name="CELL_NO" minOccurs="1" type="xs:decimal"/>
       </xs:sequence>
    </xs:complexType>



    <xs:complexType name="Mobil-Create-IO-Type">
       <xs:sequence>
          <xs:element name="CUSTOMER_NO" minOccurs="1">
             <xs:simpleType>
                <xs:restriction base="xs:string">
                   <xs:maxLength value="9"/>
                </xs:restriction>
             </xs:simpleType>
          </xs:element>
          <xs:element name="CELL_NO" minOccurs="1" type="xs:decimal"/>
          <xs:element name="Jktm-Junk-Mobil-Dtl" minOccurs="0"
maxOccurs="unbounded">
             <xs:complexType>
                <xs:sequence>
                   <xs:element name="CUSTOMER_NO" minOccurs="1">
                      <xs:simpleType>
                         <xs:restriction base="xs:string">
                            <xs:maxLength value="9"/>
                         </xs:restriction>
                      </xs:simpleType>
```

```
</xs:element>
<xs:element name="ACCOUNT_NO" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="20"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="NAME" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="105"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="TXNDETL" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="7"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="STATUS" minOccurs="0">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:maxLength value="10"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="CELL_NO" minOccurs="0" type="xs:decimal"/>
```

```
      </xs:sequence>
   </xs:complexType>
</xs:element>
<xs:element name="Jktm-Junk-Mobile-Dtl2" minOccurs="0">
   <xs:complexType>
      <xs:sequence>
         <xs:element name="CUSTOMER_NO" minOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="9"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="CUSTOMER_NAME" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="105"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="CUSTOMER_CATEGORY" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="10"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="ADDRESS" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
```

```
                        <xs:maxLength value="105"/>
                     </xs:restriction>
                  </xs:simpleType>
               </xs:element>
               <xs:element name="CITY" minOccurs="0">
                  <xs:simpleType>
                     <xs:restriction base="xs:string">
                        <xs:maxLength value="30"/>
                     </xs:restriction>
                  </xs:simpleType>
               </xs:element>
               <xs:element name="COUNTRY" minOccurs="0">
                  <xs:simpleType>
                     <xs:restriction base="xs:string">
                        <xs:maxLength value="25"/>
                     </xs:restriction>
                  </xs:simpleType>
               </xs:element>
            </xs:sequence>
         </xs:complexType>
      </xs:element>
   </xs:sequence>
</xs:complexType>



<xs:complexType name="Mobil-Modify-IO-Type">
   <xs:sequence>
      <xs:element name="CUSTOMER_NO" minOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
```


ORACLE

```
                <xs:maxLength value="9"/>
             </xs:restriction>
          </xs:simpleType>
       </xs:element>
       <xs:element name="CELL_NO" minOccurs="1" type="xs:decimal"/>
       <xs:element name="MAKER" minOccurs="0">
          <xs:simpleType>
             <xs:restriction base="xs:string">
                <xs:maxLength value="12"/>
             </xs:restriction>
          </xs:simpleType>
       </xs:element>
       <xs:element name="MAKERSTAMP" minOccurs="0">
          <xs:simpleType>
             <xs:restriction base="xs:string">
                <xs:maxLength value="35"/>
             </xs:restriction>
          </xs:simpleType>
       </xs:element>
    </xs:sequence>
</xs:complexType>



<xs:complexType name="Mobil-Authorize-IO-Type">
    <xs:sequence>
       <xs:element name="CUSTOMER_NO" minOccurs="1">
          <xs:simpleType>
             <xs:restriction base="xs:string">
                <xs:maxLength value="9"/>
             </xs:restriction>
```

```
            </xs:simpleType>
         </xs:element>
         <xs:element name="CELL_NO" minOccurs="1" type="xs:decimal"/>
         <xs:element name="CHECKER" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="12"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="CHECKERSTAMP" minOccurs="0">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="35"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="MODNO" minOccurs="0" type="xs:decimal"/>
      </xs:sequence>
   </xs:complexType>
</xs:schema>
```

6.1.2 CS-CreateMobil-Req-Full-MSG.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://fcubs.ofss.com/service/FCMobileService"
targetNamespace="http://fcubs.ofss.com/service/FCMobileService"
elementFormDefault="qualified">

   <xs:include schemaLocation="UBS-Messaging.xsd"/>

   <xs:include schemaLocation="CS-Mobil-Types.xsd"/>

   <xs:element name="CREATEMOBIL_FSFS_REQ">

      <xs:complexType>
```

```
         <xs:sequence>
            <xs:element name="FCUBS_HEADER" type="FCUBS_HEADERType"/>
            <xs:element name="FCUBS_BODY">
               <xs:complexType>
                  <xs:sequence>
                     <xs:annotation>
                        <xs:documentation xml:lang="en">This XSD Gives
Information about Full Request
                        </xs:documentation>
                     </xs:annotation>
                     <xs:element name="Jktm-Junk-Mobile-Full" type="Mobil-Full-
Type"/>
                  </xs:sequence>
               </xs:complexType>
            </xs:element>
         </xs:sequence>
      </xs:complexType>
   </xs:element>
</xs:schema>
```

6.1.3 CS-CreateMobil-Req-IO-MSG.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://fcubs.ofss.com/service/FCMobileService"
targetNamespace="http://fcubs.ofss.com/service/FCMobileService"
elementFormDefault="qualified">

   <xs:include schemaLocation="UBS-Messaging.xsd"/>

   <xs:include schemaLocation="CS-Mobil-Types.xsd"/>

   <xs:element name="CREATEMOBIL_IOPK_REQ">

      <xs:complexType>

         <xs:sequence>

            <xs:element name="FCUBS_HEADER" type="FCUBS_HEADERType"/>

            <xs:element name="FCUBS_BODY">
```

```
                <xs:complexType>
                   <xs:sequence>
                      <xs:annotation>
                         <xs:documentation xml:lang="en">This XSD Gives
Information about IO Request
                         </xs:documentation>
                      </xs:annotation>
                      <xs:element name="Jktm-Junk-Mobile-IO" type="Mobil-Create-
IO-Type"/>
                   </xs:sequence>
                </xs:complexType>
             </xs:element>
          </xs:sequence>
       </xs:complexType>
    </xs:element>
</xs:schema>
```

6.1.4 CS-CreateMobil-Res-Full-MSG.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://fcubs.ofss.com/service/FCMobileService"
targetNamespace="http://fcubs.ofss.com/service/FCMobileService"
elementFormDefault="qualified">

   <xs:include schemaLocation="UBS-Messaging.xsd"/>

   <xs:include schemaLocation="CS-Mobil-Types.xsd"/>

   <xs:element name="CREATEMOBIL_FSFS_RES">

      <xs:complexType>

         <xs:sequence>

            <xs:element name="FCUBS_HEADER" type="FCUBS_HEADERType"/>

            <xs:element name="FCUBS_BODY">

               <xs:complexType>

                  <xs:sequence>

                     <xs:annotation>
```

```
                        <xs:documentation xml:lang="en">This XSD Gives
Information about Full Response

                        </xs:documentation>

                    </xs:annotation>

                    <xs:element name="Jktm-Junk-Mobile-Full" type="Mobil-Full-
Type"/>

                    <xs:element name="FCUBS_ERROR_RESP" type="ERRORType"
minOccurs="0" maxOccurs="unbounded"/>

                    <xs:element name="FCUBS_WARNING_RESP" type="WARNINGType"
minOccurs="0" maxOccurs="unbounded"/>

                </xs:sequence>

            </xs:complexType>

        </xs:element>

    </xs:sequence>

  </xs:complexType>

</xs:element>

</xs:schema>
```

6.1.5 CS-CreateMobil-Res-PK-MSG.xsd

```
<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://fcubs.ofss.com/service/FCMobileService"
targetNamespace="http://fcubs.ofss.com/service/FCMobileService"
elementFormDefault="qualified">

   <xs:include schemaLocation="UBS-Messaging.xsd"/>

   <xs:include schemaLocation="CS-Mobil-Types.xsd"/>

   <xs:element name="CREATEMOBIL_IOPK_RES">

      <xs:complexType>

         <xs:sequence>

            <xs:element name="FCUBS_HEADER" type="FCUBS_HEADERType"/>

            <xs:element name="FCUBS_BODY">

               <xs:complexType>

                  <xs:sequence>
```

```
                    <xs:annotation>

                       <xs:documentation xml:lang="en">This XSD Gives
Information about PK Response

                       </xs:documentation>

                    </xs:annotation>

                    <xs:choice>

                       <xs:element name="Jktm-Junk-Mobile-PK" type="Mobil-PK-
Type"/>

                       <xs:element name="Jktm-Junk-Mobile-IO" type="Mobil-
Create-IO-Type"/>

                    </xs:choice>

                    <xs:element name="FCUBS_ERROR_RESP" type="ERRORType"
minOccurs="0" maxOccurs="unbounded"/>

                    <xs:element name="FCUBS_WARNING_RESP" type="WARNINGType"
minOccurs="0" maxOccurs="unbounded"/>

                 </xs:sequence>

              </xs:complexType>

           </xs:element>

        </xs:sequence>

     </xs:complexType>

  </xs:element>

</xs:schema>
```

6.2 WSDL file

6.2.1 FCMobileService.wsdl

```
<?xml version= "1.0" encoding="UTF-8"?>

 <wsdl:definitions name="FCMobileService"

 targetNamespace = "http://types.ws.gw.fcubs.ofss.com"

 xmlns:tns = "http://types.ws.gw.fcubs.ofss.com"

 xmlns:wsdlsoap = "http://schemas.xmlsoap.org/wsdl/soap/"

 xmlns:wsdl = "http://schemas.xmlsoap.org/wsdl/"

 xmlns:xs = "http://www.w3.org/2001/XMLSchema"
```

```
 xmlns="http://schemas.xmlsoap.org/wsdl/"
 xmlns:ns="http://fcubs.ofss.com/service/FCMobileService">

<wsdl:types>
   <xs:schema>
      <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
       schemaLocation="../XSD/CS-CreateMobil-Req-Full-MSG.xsd"/>
   </xs:schema>
    <xs:schema>
          <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
           schemaLocation="../XSD/CS-CreateMobil-Res-Full-MSG.xsd"/>
    </xs:schema>
   <xs:schema>
          <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
          schemaLocation="../XSD/CS-CreateMobil-Req-IO-MSG.xsd"/>
   </xs:schema>
    <xs:schema>
         <xs:import namespace="http://fcubs.ofss.com/service/FCMobileService"
          schemaLocation="../XSD/CS-CreateMobil-Res-PK-MSG.xsd"/>
    </xs:schema>
</wsdl:types>

<wsdl:message name="CreateMobileFSReq">
    <wsdl:part name="RequestMsg" element="ns:CREATEMOBILE_FSFS_REQ"/>
</wsdl:message>

<wsdl:message name="CreateMobileFSRes">
    <wsdl:part name="ResponseMsg" element="ns:CREATEMOBILE_FSFS_RES"/>
</wsdl:message>
```

```
<wsdl:message name="CreateMobileIOReq">
    <wsdl:part name="RequestMsg" element="ns:CREATEMOBILE_IOPK_REQ"/>
</wsdl:message>

<wsdl:message name="CreateMobilePKRes">
    <wsdl:part name="ResponseMsg" element="ns:CREATEMOBILE_IOPK_RES"/>
</wsdl:message>

<wsdl:portType name="FCMobileServiceSEI" >
  <wsdl:operation name="CreateMobileIO">
       <wsdl:input message="tns:CreateMobileIOReq"/>
       <wsdl:output message="tns:CreateMobilePKRes"/>
  </wsdl:operation>

  <wsdl:operation name="CreateMobileFS">
       <wsdl:input message="tns:CreateMobileFSReq"/>
       <wsdl:output message="tns:CreateMobileFSRes"/>
  </wsdl:operation>

</wsdl:portType>

<wsdl:binding name="FCMobileService" type="tns:FCMobileServiceSEI">
 <wsdlsoap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
 <wsdl:operation name="CreateMobileFS">
     <wsdlsoap:operation soapAction=""/>
         <wsdl:input>
            <wsdlsoap:body use="literal"/>
         </wsdl:input>
         <wsdl:output>
```

```
            <wsdlsoap:body use="literal"/>
        </wsdl:output>
    </wsdl:operation>

    <wsdl:operation name="CreateMobileIO">
         <wsdlsoap:operation soapAction=""/>
            <wsdl:input>
              <wsdlsoap:body use="literal"/>
            </wsdl:input>
           <wsdl:output>
              <wsdlsoap:body use="literal"/>
           </wsdl:output>
    </wsdl:operation>

</wsdl:binding>

    <wsdl:service name="FCMobileService">
       <wsdl:port name="FCMobileServiceSEI" binding="tns:FCMobileService">
          <wsdlsoap:address
location="http://localhost:9080/FCMobileService/services/FCMobileService"/>
       </wsdl:port>
</wsdl:service></wsdl:definitions>
```

6.3 Implementation Java files

6.3.1 FCMobileServiceImpl.java

```
/*
* Class Name: FCMobileServiceImpl
*
* Date:       July 11, 2006 1:09:20 PM
```


ORACLE

```
*
* Copyright 2005-2011 Oracle Financial Services Software Limited
*            10-11, SDF I, SEEPZ, Andheri (East),
*            Mumbai - 400 096.
*            India
*
* This source is part of the General Framework and is copyrighted by
* Oracle Financial Services Software Limited.
*
* All rights reserved.  No part of this work may be reproduced, stored in a
 * retrieval system, adopted or transmitted in any form or by any means,
* electronic, mechanical, photographic, graphic, optic recording or otherwise,
* translated in any language or computer language, without the prior written
* permission of Oracle Financial Services Software Limited.
*/

package com.ofss.fcubs.gw.ws.types;

import com.iflex.fcubs.gwservices.ejb.GWEJBClient;
import com.iflex.fcubs.gwutil.GWGenUtils;
import com.iflex.fcubs.gwutil.GWProperties;
import com.iflex.fcubs.gwutil.GWPropertiesConstants;
import com.iflex.fcubs.gwutil.GWPropertiesUtil;
import com.iflex.fcubs.gwutil.logging.GWLogger;
import com.iflex.fcubs.gwutil.logging.GWLoggerProperties;
import com.iflex.fcubs.gwutil.xml.GWXMLUtils;
import com.iflex.fcubs.gwutil.JAXBContextFactory;

import javax.xml.bind.JAXBContext;
import javax.xml.bind.JAXBException;
```


ORACLE

```
import javax.xml.bind.Marshaller;

import javax.xml.bind.Unmarshaller;


import java.io.ByteArrayInputStream;

import java.io.ByteArrayOutputStream;


import javax.annotation.PostConstruct;

import javax.annotation.PreDestroy;


import javax.jws.WebService;

import javax.xml.ws.BindingType;


@WebService(

portName="FCMobileServiceSEI",

serviceName="FCMobileService",

targetNamespace="http://types.ws.gw.fcubs.ofss.com",

endpointInterface="com.ofss.fcubs.gw.ws.types.FCMobileServiceSEI")

@BindingType("http://schemas.xmlsoap.org/wsdl/soap/http")


public class FCMobileServiceImpl  implements FCMobileServiceSEI

{


//====================== CLASS VARIABLES ==================================


 private final String g_className = "FCMobileServiceImpl";

 private final String g_serviceName = "FCMobileService";

 private String EJB_CALL_TYPE = "LOCAL";

 private String g_operationName = null;

 private GWProperties g_GWProperties = null;

 private GWLoggerProperties g_GWLoggerProp = null;
```


ORACLE

```
 private JAXBContext context = null;


//====================== INITIALIZE METHODS ================================


@PostConstruct

 public void init()

   {

        try{

     initializeComp();

            }

        catch(Exception ex){

        ex.printStackTrace();

            }

    }


@PreDestroy

 public void destroy() {

    g_GWProperties = null;

    g_GWLoggerProp = null;

 }


 public void initializeComp() throws Exception {

   String l_confp = GWPropertiesUtil.getGWPropPath() +
GWPropertiesConstants.GW_WS_PROP_FILENAME;

   g_GWProperties = new GWProperties(l_confp);

   String loggerPath =
g_GWProperties.getProperty(GWPropertiesConstants.LOGGER_PATH);

   g_GWLoggerProp = new GWLoggerProperties(loggerPath);

   EJB_CALL_TYPE =
g_GWProperties.getProperty(GWPropertiesConstants.EJB_CALL_TYPE,GWPropertiesCons
tants.EJB_LOCAL_CALL);

 }
```


ORACLE

```
 public CREATEMOBILEFSFSRES createMobileFS(CREATEMOBILEFSFSREQ requestMsg)

 {

   g_operationName = "CreateMobile";

   String l_methodName = "createMobileFS(CREATEMOBILEFSFSREQ requestMsg)";

   CREATEMOBILEFSFSRES responseMsg = null;

   String l_req_msg = null;

   String l_resp_msg = null;

   GWLogger g_gwLog = null;


        try {

            if(g_gwLog == null)

            {

            g_gwLog = new GWLogger (
g_GWLoggerProp,GWPropertiesConstants.WS_GATEWAY + "_");

            }

            g_gwLog.println (g_className,l_methodName, " - ---START - ---");


             //Marshalling Request Object to XML

             context =
JAXBContextFactory.getInstance().getContext("com.ofss.fcubs.gw.ws.types");

             Marshaller marsh = context.createMarshaller();

             marsh.setProperty(Marshaller.JAXB_FORMATTED_OUTPUT, true);

             ByteArrayOutputStream output = new ByteArrayOutputStream();

             marsh.marshal(requestMsg, output);


             l_req_msg = output.toString("utf-8");

             g_gwLog.println (g_className,l_methodName,"Request XML Message:
\n" + l_req_msg + "\n");

             l_resp_msg = callEJB(l_req_msg, g_gwLog);

             g_gwLog.println (g_className,l_methodName,"Response XML Message:
\n" + l_resp_msg + "\n");
```

```
            //Unmarshalling Response XML to Object

            ByteArrayInputStream input = new ByteArrayInputStream
(l_resp_msg.getBytes());

            Unmarshaller unmarsh = context.createUnmarshaller();

            responseMsg = (CREATEMOBILEFSFSRES)unmarsh.unmarshal(input);

            g_gwLog.println (g_className,l_methodName, "----END----");

            }


        catch (JAXBException e) {

            System.out.println("JAXBException: " + e.getMessage());

            e.printStackTrace();

            }


        catch(Exception ex) {

            g_gwLog.printStackTrace (g_className, l_methodName, ex);

            }


        finally {

            flushLogger(g_gwLog);

            }

        return responseMsg;

 }


 public CREATEMOBILEIOPKRES createMobileIO(CREATEMOBILEIOPKREQ requestMsg)

 {

   g_operationName = "CreateMobile";

   String l_methodName = "createMobileIO(CREATEMOBILEIOPKREQ requestMsg)";

   CREATEMOBILEIOPKRES responseMsg = null;

   String l_req_msg = null;
```

```
   String l_resp_msg = null;

   GWLogger g_gwLog = null;


        try {

            if(g_gwLog == null)

            {

            g_gwLog = new GWLogger (
g_GWLoggerProp,GWPropertiesConstants.WS_GATEWAY + "_");

            }

            g_gwLog.println (g_className,l_methodName, " - ---START - ---");


             //Marshalling Request Object to XML

             context =
JAXBContextFactory.getInstance().getContext("com.ofss.fcubs.gw.ws.types");

             Marshaller marsh = context.createMarshaller();

             marsh.setProperty(Marshaller.JAXB_FORMATTED_OUTPUT, true);

             ByteArrayOutputStream output = new ByteArrayOutputStream();

             marsh.marshal(requestMsg, output);


             l_req_msg = output.toString("utf-8");

             g_gwLog.println (g_className,l_methodName,"Request XML Message:
\n" + l_req_msg + "\n");

             l_resp_msg = callEJB(l_req_msg, g_gwLog);

             g_gwLog.println (g_className,l_methodName,"Response XML Message:
\n" + l_resp_msg + "\n");


             //Unmarshalling Response XML to Object

             ByteArrayInputStream input = new ByteArrayInputStream
(l_resp_msg.getBytes());

             Unmarshaller unmarsh = context.createUnmarshaller();

             responseMsg = (CREATEMOBILEIOPKRES)unmarsh.unmarshal(input);

             g_gwLog.println (g_className,l_methodName, "----END----");
```

```
            }


        catch (JAXBException e) {
            System.out.println("JAXBException: " + e.getMessage());
            e.printStackTrace();
            }


        catch(Exception ex) {
            g_gwLog.printStackTrace (g_className, l_methodName, ex);
            }


        finally {
            flushLogger(g_gwLog);
            }
        return responseMsg;
 }


 private String callEJB(String p_reqMsg, GWLogger g_gwLog)  throws Exception
{
     String l_methodName = "callEJB(String p_reqMsg,String g_gwLog)";
     String l_reqMsg = p_reqMsg;
     String l_respMsg = null;
     String l_replNS = "xmlns=\"http://fcubs.ofss.com/service/" + g_serviceName
+ "\"";


    g_gwLog.println (g_className,l_methodName,"----START----");
    String l_reqMsg_rootElement = GWGenUtils.getRootElement(l_reqMsg);
    String l_respMsg_rootElement =
l_reqMsg_rootElement.replaceAll("_REQ","_RES");


    String l_controlMetaData = " <FCUBS_CONTROL_METADATA> " +
```

```
                                "\n\t<COMM_DET> " +

                                "\n\t\t<GATEWAY>" +
GWPropertiesConstants.WS_GATEWAY + "</GATEWAY>" +

                                "\n\t</COMM_DET>" +

                                "\n\t<MSG_PROC_DET> " +

                                "\n\t\t<SERVICE>" + g_serviceName +
"</SERVICE>"+

                                "\n\t\t<OPERATION>" + g_operationName +
"</OPERATION>" +

                                "\n\t</MSG_PROC_DET>" +

                                "\n</FCUBS_CONTROL_METADATA>";



    g_gwLog.println (g_className, l_methodName,"l_controlMetaData = \n" +
l_controlMetaData + "\n");



    GWEJBClient l_GWEJBClient = new GWEJBClient(g_GWProperties);



    if ((GWPropertiesConstants.EJB_LOCAL_CALL).equals(EJB_CALL_TYPE))  {

        g_gwLog.println (g_className,l_methodName,"Calling
GWEJBClient.callLocalEJB");

        l_respMsg = l_GWEJBClient.callLocalEJB(l_reqMsg, l_controlMetaData);

        g_gwLog.println (g_className,l_methodName,"After calling
GWEJBClient.callLocalEJB");

    }

    else if ((GWPropertiesConstants.EJB_REMOTE_CALL).equals(EJB_CALL_TYPE))  {

        g_gwLog.println (g_className,l_methodName, "Calling
GWEJBClient.callRemoteEJB");

        l_respMsg = l_GWEJBClient.callRemoteEJB(l_reqMsg, l_controlMetaData);

        g_gwLog.println (g_className, l_methodName, "After calling
GWEJBClient.callRemoteEJB");

    }

    g_gwLog.println (g_className,l_methodName,"Response message from EJB: \n" +
l_respMsg + "\n");
```


ORACLE

```
    g_gwLog.println (g_className,l_methodName,"Calling GWGenUtils.replace");

    if(  l_respMsg.indexOf("<" + l_respMsg_rootElement) != -1) {

     l_respMsg = GWGenUtils.replace(l_respMsg, "<"+l_respMsg_rootElement,
">","<" +l_respMsg_rootElement+"\t" + l_replNS , false);

     }

    else {

        String l_errMsg = "Correct root tag (<"+l_respMsg_rootElement+">) "+"
missing in the Request Message";

        g_gwLog.println (g_className, l_methodName, l_errMsg + ":" +
l_respMsg);

    throw new Exception(l_errMsg);

        }

    g_gwLog.println (g_className, l_methodName, "----After Calling
GWGenUtils.replace----");



    g_gwLog.println (g_className, l_methodName, "Response message to be sent:
\n" + l_respMsg + "\n");

    g_gwLog.println (g_className, l_methodName, "----END----");

    return l_respMsg;

 }



 private void flushLogger(GWLogger g_gwLog)

 {

     if (g_gwLog != null)

     {

        g_gwLog.flushLogger ();

        g_gwLog = null;

     }

 }


}
```


ORACLE

6.4 Gateway static data from Open Development

6.4.1 GWTB_AMEND_FIELDS__JKDMOBIL.INC

```
DELETE GWTB_AMEND_FIELDS A  WHERE A.RAD_FUNCTION_ID = 'JKDMOBIL' ;

INSERT INTO
GWTB_AMEND_FIELDS(NODE_NAME,FIELD_NAME,SERVICE_NAME,OPERATION_CODE,RAD_FUNCTIO
N_ID) VALUES('JKTM_JUNK_MOBILE','MAKER_ID',NULL,'JKDMOBIL_MODIFY','JKDMOBIL');

INSERT INTO
GWTB_AMEND_FIELDS(NODE_NAME,FIELD_NAME,SERVICE_NAME,OPERATION_CODE,RAD_FUNCTIO
N_ID)
VALUES('JKTM_JUNK_MOBILE','MAKER_DT_STAMP',NULL,'JKDMOBIL_MODIFY','JKDMOBIL');

COMMIT;
```

6.4.2 GWTB_AMEND_NODES__JKDMOBIL.INC

```
DELETE GWTB_AMEND_NODES A  WHERE A.RAD_FUNCTION_ID = 'JKDMOBIL' ;

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE','N','N','Y',NULL,'JKDMOBIL_EXECUTEQUERY','JKDMOBIL')
;

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE_DTL','N','N','Y',NULL,'JKDMOBIL_EXECUTEQUERY','JKDMOB
IL');

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE_DTL2','N','N','Y',NULL,'JKDMOBIL_EXECUTEQUERY','JKDMO
BIL');

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE','N','N','Y',NULL,'JKDMOBIL_NEW','JKDMOBIL');

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE_DTL','N','N','Y',NULL,'JKDMOBIL_NEW','JKDMOBIL');

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE_DTL2','N','N','Y',NULL,'JKDMOBIL_NEW','JKDMOBIL');
```

```
INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE','N','N','Y',NULL,'JKDMOBIL_MODIFY','JKDMOBIL');

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE_DTL','N','N','Y',NULL,'JKDMOBIL_MODIFY','JKDMOBIL');

INSERT INTO
GWTB_AMEND_NODES(NODE_NAME,NEW_ALLOWED,DELETE_ALLOWED,ALL_RECORDS,SERVICE_NAME
,OPERATION_CODE,RAD_FUNCTION_ID)
VALUES('JKTM_JUNK_MOBILE_DTL2','N','N','Y',NULL,'JKDMOBIL_MODIFY','JKDMOBIL');

COMMIT;
```

6.4.3 GWTM_AMEND_FIELDS__JKDMOBIL.INC

```
DELETE GWTM_AMEND_FIELDS A  WHERE A.EXT_SYSTEM = 'FLEXCUBE' AND
RAD_FUNCTION_ID = 'JKDMOBIL' ;

INSERT INTO
GWTM_AMEND_FIELDS(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,FIELD_NAME,RAD_FUNCTIO
N_ID)
VALUES('FLEXCUBE','JKDMOBIL_MODIFY','JKTM_JUNK_MOBILE','MAKER_ID','JKDMOBIL');

INSERT INTO
GWTM_AMEND_FIELDS(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,FIELD_NAME,RAD_FUNCTIO
N_ID)
VALUES('FLEXCUBE','JKDMOBIL_MODIFY','JKTM_JUNK_MOBILE','MAKER_DT_STAMP','JKDMO
BIL');

COMMIT;
```

6.4.4 GWTM_AMEND_MASTER__JKDMOBIL.INC

```
DELETE GWTM_AMEND_MASTER A  WHERE A.EXT_SYSTEM = 'FLEXCUBE' AND
RAD_FUNCTION_ID = 'JKDMOBIL' ;

INSERT INTO
GWTM_AMEND_MASTER(EXT_SYSTEM,SOURCE_OPERATION,SERVICE_NAME,OPERATION_CODE,MAKE
R_ID,CHECKER_ID,MAKER_DT_STAMP,CHECKER_DT_STAMP,ONCE_AUTH,AUTH_STAT,RECORD_STA
T,MOD_NO,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_EXECUTEQUERY',NULL,'JKDMOBIL_EXECUTEQUERY','RADTOO
L','RADTOOL',TO_DATE('18-MAR-2011' ,'DD-MON-RRRR'),TO_DATE('18-MAR-2011' ,'DD-
MON-RRRR'),'Y','A','O',1,'JKDMOBIL');

INSERT INTO
GWTM_AMEND_MASTER(EXT_SYSTEM,SOURCE_OPERATION,SERVICE_NAME,OPERATION_CODE,MAKE
R_ID,CHECKER_ID,MAKER_DT_STAMP,CHECKER_DT_STAMP,ONCE_AUTH,AUTH_STAT,RECORD_STA
T,MOD_NO,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_NEW',NULL,'JKDMOBIL_NEW','RADTOOL','RADTOOL',TO_DA
TE('18-MAR-2011' ,'DD-MON-RRRR'),TO_DATE('18-MAR-2011' ,'DD-MON-
RRRR'),'Y','A','O',1,'JKDMOBIL');
```

```
INSERT INTO
GWTM_AMEND_MASTER(EXT_SYSTEM,SOURCE_OPERATION,SERVICE_NAME,OPERATION_CODE,MAKE
R_ID,CHECKER_ID,MAKER_DT_STAMP,CHECKER_DT_STAMP,ONCE_AUTH,AUTH_STAT,RECORD_STA
T,MOD_NO,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_MODIFY',NULL,'JKDMOBIL_MODIFY','RADTOOL','RADTOOL'
,TO_DATE('18-MAR-2011' ,'DD-MON-RRRR'),TO_DATE('18-MAR-2011' ,'DD-MON-
RRRR'),'Y','A','O',1,'JKDMOBIL');

COMMIT;
```

6.4.5 GWTM_AMEND_NODES__JKDMOBIL.INC

```
DELETE GWTM_AMEND_NODES A  WHERE A.EXT_SYSTEM = 'FLEXCUBE' AND RAD_FUNCTION_ID
= 'JKDMOBIL' ;

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_EXECUTEQUERY','JKTM_JUNK_MOBILE','N','N','Y','JKDM
OBIL');

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_EXECUTEQUERY','JKTM_JUNK_MOBILE_DTL','N','N','Y','
JKDMOBIL');

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_EXECUTEQUERY','JKTM_JUNK_MOBILE_DTL2','N','N','Y',
'JKDMOBIL');

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_NEW','JKTM_JUNK_MOBILE','N','N','Y','JKDMOBIL');

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_NEW','JKTM_JUNK_MOBILE_DTL','N','N','Y','JKDMOBIL'
);

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_NEW','JKTM_JUNK_MOBILE_DTL2','N','N','Y','JKDMOBIL
');

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_MODIFY','JKTM_JUNK_MOBILE','N','N','Y','JKDMOBIL')
;

INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_MODIFY','JKTM_JUNK_MOBILE_DTL','N','N','Y','JKDMOB
IL');
```

```
INSERT INTO
GWTM_AMEND_NODES(EXT_SYSTEM,SOURCE_OPERATION,NODE_NAME,NEW_ALLOWED,DELETE_ALLO
WED,ALL_RECORDS,RAD_FUNCTION_ID)
VALUES('FLEXCUBE','JKDMOBIL_MODIFY','JKTM_JUNK_MOBILE_DTL2','N','N','Y','JKDMO
BIL');

COMMIT;
```

Web Service Development
[Mayl] [2012]
Version 12.0

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:
Phone: +1.650.506.7000
Fax: +1.650.506.7200
www.oracle.com/ financial_services/

Copyright © [2012] Oracle Financial Services Software Limited. All rights reserved.

No part of this work may be reproduced, stored in a retrieval system, adopted or transmitted in any form or by any means, electronic, mechanical, photographic, graphic, optic recording or otherwise, translated in any language or computer language, without the prior written permission of Oracle Financial Services Software Limited.

Due care has been taken to make this document and accompanying software package as accurate as possible. However, Oracle Financial Services Software Limited makes no representation or warranties with respect to the contents hereof and shall not be responsible for any loss or damage caused to the user by the direct or indirect use of this document and the accompanying Software System. Furthermore, Oracle Financial Services Software Limited reserves the right to alter, modify or otherwise change in any manner the content hereof, without obligation of Oracle Financial Services Software Limited to notify any person of such revision or changes.

All company and product names are trademarks of the respective companies with which they are associated.