Approach Document and Usage Guide Oracle FLEXCUBE Universal Banking Release 12.3.0.0.0 [December] [2016]



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#### 1. Introduction

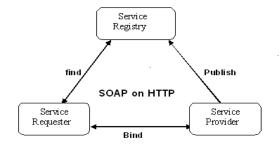
A Web service is a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-readable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

UDDI is a flexible yet structured solution that provides a foundational description and discovery infrastructure for Web services.

 UDDI Services maximize the visibility of existing code and applications; it helps to realize the vision of reusing code and development resources. UDDI Services provide a powerful tool that can help manage Web services across an organization.

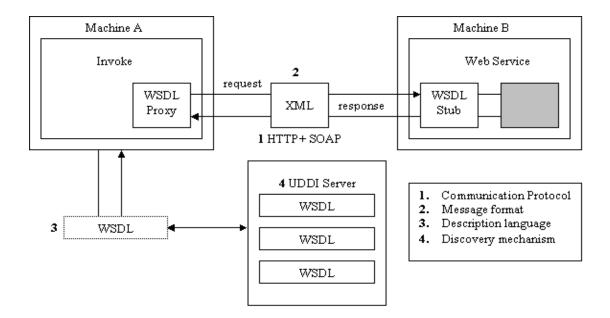
The Oracle Service Registry provides a UDDI v3-compliant platform for publishing, categorizing and discovering Web services and related resources across the enterprise.

Oracle Service Registry is the key component of Service Oriented Architecture, It enables service providers to expose and advertise service offerings and allows service consumers to find access and/or invoke services that meet defined criteria.



Web services an Example:





### 1.1 Need for UDDI Registry

UDDI Registry is necessary to publish the Web services on to the Application Server.

- The UDDI registry can help to address these issues and provides the following benefits:
- It delivers visibility when identifying which services within the organization can be reused to address a business need. It promotes reuse and prevents reinvention. It accelerates development time and improves productivity. This ability of UDDI to categorize a growing portfolio of services makes it easier to manage them. It helps you understand relationships between components, supports versioning and manages dependencies.
- It supports service configurability and adaptability by using the service-oriented architectural
  principle of location and transport independence. Users can dynamically discover services stored
  in the UDDI registry.
- It allows you to understand and manage relationships between services, component versions and dependencies.
- It makes it possible to manage the business service lifecycle. For example, the process of moving services through each phase of development, from coding to public deployment.

### 1.2 Application of a UDDI Registry

A UDDI registry stores data and metadata about business services. A UDDI registry offers a standards-based mechanism to classify, catalog and manage Web services so that they can be discovered and consumed by other applications. As part of a generalized strategy of indirection among services-based applications, UDDI offers several benefits to IT managers at both design-time and run-time, including increasing code reuse and improving infrastructure management by:

- Publishing information about Web services and categorization rules (taxonomies) specific to an organization.
- Finding Web services that meet given criteria.



- Determining the security and transport protocols supported by a given Web service and the parameters necessary to invoke the service.
- Providing a means to insulate applications (and providing fail-over and intelligent routing) from failures or changes in invoked services

#### 1.2.1 Benefits of UDDI

- Allows category-related support allows the consumers makes easier and faster to locate a target web service.
- Publisher assigned keys This is very important for lifecycle maintenance of a Web service. For
  example, it enables the same key to be used in a development registry, a test registry and a
  production registry.
- Category Bags & Binding Templates This is valuable as it can allow searching of Web services based on the technical details of how it is exposed (e.g. restricting Web services to those exposed via WS-Reliable Messaging).
- Category groups and derivations of categories This enables more structured and rich descriptions of services.
- Wildcard searching against entities and taxonomies This indeed provides huge value for enterprises managing large amount of services.



## 2. Document Overview

The document describes the following

- Installation of Oracle Service Registry
- Creation of User Accounts
- Adding New Business / Provider
- Taxonomy Creation
- Publishing Web services
- Associating Classification to Web services
- Discovering Web services based on the categorization



# 3. Requirements

Publishing of FCUBS Gateway Web services on to Oracle Service Registry.



## 4. Prerequisites

## 4.1 Hardware / Software Required

• Oracle Service Registry 11.1.1.5 http://www.oracle.com/technetwork/middleware/registry/osr111productdocumentation-159992.pdf

The underlying hardware and software requirements of Oracle Service Registry can be found at the above mentioned URL.



## 5. System Description

#### 5.1 About Oracle Service Registry

Oracle Service Registry is the only fully V3-compliant implementation of UDDI (Universal Description, Discovery and Integration), and is a key component of a Service Oriented Architecture (SOA). Oracle Service Registry is an easy-to-use, standards-based mechanism for publishing and discovering Web services and related resources like XML Schemas or XSLT transformations.

Oracle Service Registry fully implements the OASIS UDDI V3 standard. Oracle Service Registry can be deployed in almost any Java environment and works with all popular database systems. In addition, the registry has been designed specifically for enterprise deployment and includes many advanced features that make it easy to configure, deploy, manage and secure.

Oracle Service Registry is a platform-independent solution that can easy be deployed in a wide variety of settings. Oracle Service Registry (OSR) provides the following capabilities.

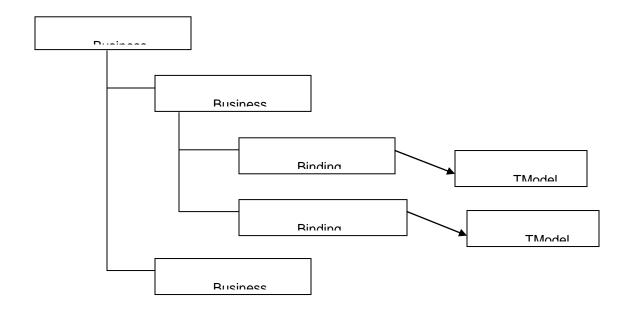
- OSR allows creating the account for user who wants to access the oracle registry.
- OSR allows publishing web services, by uploading WSDL (one at a time).
- OSR allows creating the Taxonomy Structure (defines the classification to be used while classifying the services published).
- OSR allows associating the classification created (using the previous step) to the services published into the Oracle Service Registry.

Using JAXR, some of the OSR capabilities can be performed such as

- Publishing Web services by uploading the WSDL.
- Classification of Web services published based on the categorization.



### 5.2 **Design Architecture**



Business Entity: A top-level data structure that holds descriptive information about a business,

Service descriptions and technical information are expressed within a business Entity.

- Business Service: The Business Service represents a logical service and contains descriptive information in business terms. A Business Service is the logical child of a single Business Entity.
- Binding Template: The Binding Templates structure for a given Business Service holds the technical descriptions of the Web services that constitute the Business Service.
- tModel: One common use for tModel entities is to represent technical specifications or concepts. For example, a tModel can be used to represent a specification that defines wire protocols, interchange formats and interchange sequencing rules.

The creation of user account is the first step that has to be performed after Installing the Oracle Service Registry. When creating users through Account management in OSR Tool, you'll be asked to enter values for the items discussed above. A snapshot of values for the above items is shown below



Assertions limit:	10
Bindings limit:	2
Businesses limit:	1
Services limit:	4
Subscriptions limit:	5
TModels limit:	100

Business limit is the number of Business that you can maintain. Services limit is the number of services that a Business can have and Bindings limit is the number of bindings that can be attached to each Service that has been published. The values to these details are defaulted by Oracle Service Registry as shown below; you can change these values accordingly.



### 6. Installation

### 6.1 Oracle Service Registry Setup

#### 6.1.1 <u>Introduction</u>

Installing the oracle service registry involves creating a database and creating a schema for UDDI registry and deploying the service registry into the specified oracle application server.

#### 6.1.2 Installing Oracle Service Registry

Oracle Service Registry can be downloaded from:

http://www.oracle.com/technetwork/middleware/registry/downloads/index.html

The document for installing the oracle service registry (Registry.pdf) can be downloaded from the link above.

Additional detail to be noted while Installing Oracle Service Registry

- During Installation the Service Registry Installer will ask for details to create the Administrator account, kindly make a note of the details that you enter.
- Make sure all jar files are included while submitting JDBC Drivers Path.



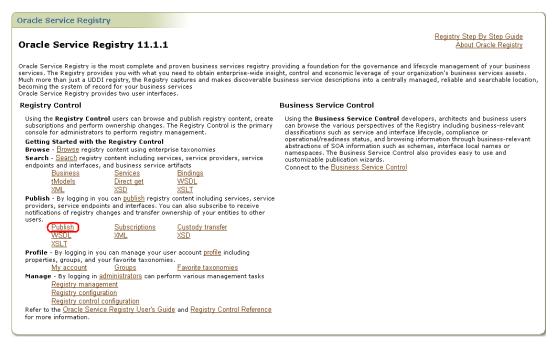
## 7. Configuration and Deployment

### 7.1 System Configurations

#### 7.1.1 Adding New Business / Provider

Before starting with Adding New Business / Provider the following item must be done.

- 1. User must be created and sufficient rights must be given to the user.
- 2. In order to Add New Business the user has to login into the Publish space from the home page as shown below i.e. Home > Publish as shown below.

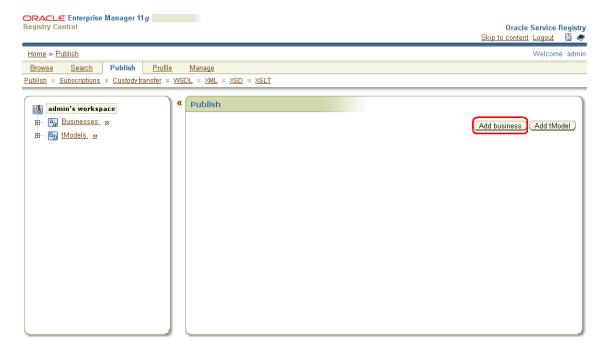


3. On click of Publish, the following screen will be displayed where the user has to submit credentials i.e. username & password (username & password that was submitted during OSR Installation).

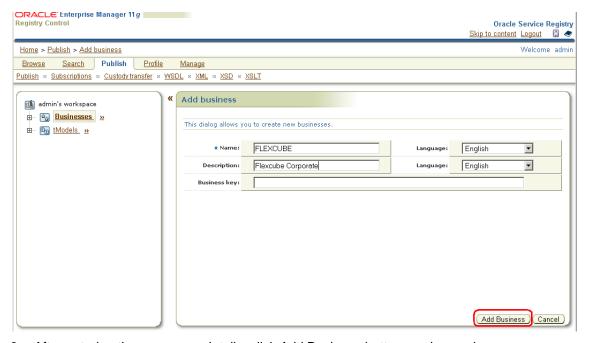


4. On successful submission of credentials, the following page will be displayed.



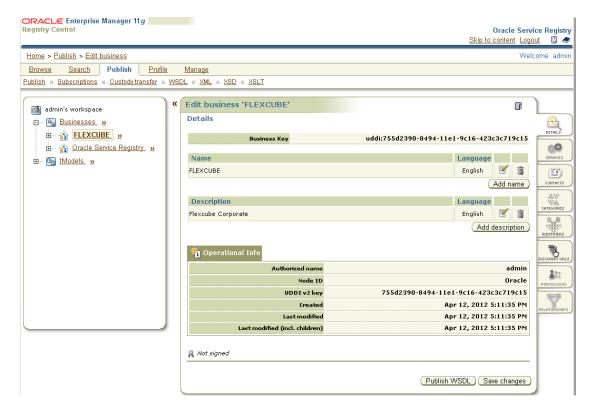


5. On click of Add Business button, the following screen will be displayed where in you'll be asked to enter details for adding a new Business as shown below.



- 6. After entering the necessary details, click Add Business button as shown above.
- 7. If the above business has been created successfully you'll be able to view the same on the left pane i.e. admin workspace as shown below.





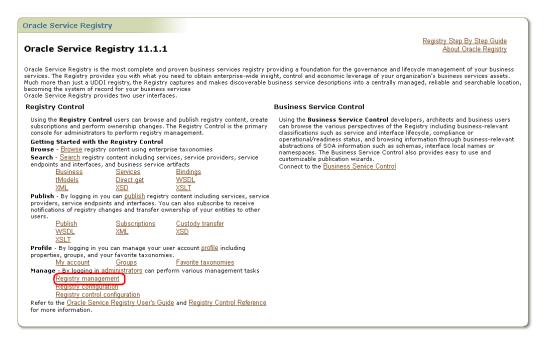
This completes the step of Adding New Business / Provider.

#### 7.2 Taxonomy Creation

Taxonomy creation is functionality that will be used to create the user defined classification structure. Once the taxonomy is created, services will be classified in any one of the classification, this facilitates easy way of searching the services published into Oracle Service Registry.

In order to create a taxonomy you'll have to login into Registry Management from the home page as shown below i.e. Home > Registry Management.





8. On click of Registry Management, the following screen will be displayed where the user has to submit credentials i.e. username & password (username & password that was submitted during OSR Installation).

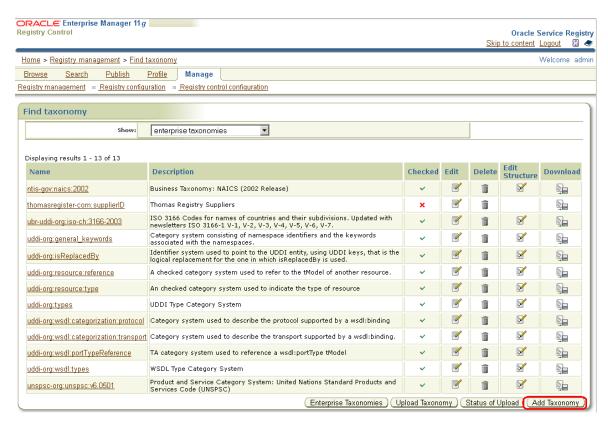


9. On successful login, you'll be routed to the screen below where you can find a button called Taxonomy Management as shown below.



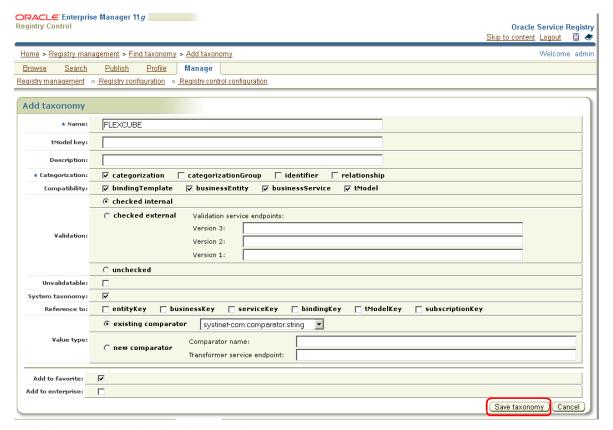


10. On click of this button you'll be routed to the next page where you can find a button called Add Taxonomy at the bottom of the page as shown below.



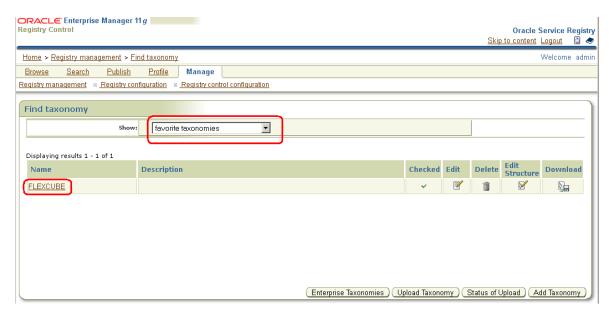
11. On click of Add Taxonomy the next page appears where the user has to enter details for creating Taxonomy as shown below.



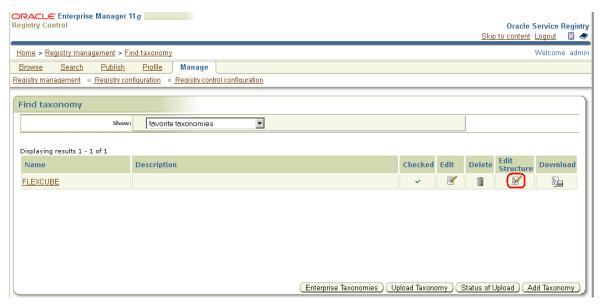


- 12. While submitting details please make sure,
  - The checked internal radio button is selected for validation else you'll have to write your own validation service. It's better if you use the internal validation.
  - Do not check any of the check boxes for "Reference to" detail.
  - Check the Add to favorite check box because searching for the taxonomy will be easier.
- 13. Once details are entered click the Save taxonomy button as shown above. Once the Taxonomy is saved you can find the same as shown below. Choose show favorite taxonomies to view the created Taxonomy.





14. In order to create a Taxonomy structure - Click on Edit Structure button as shown below.

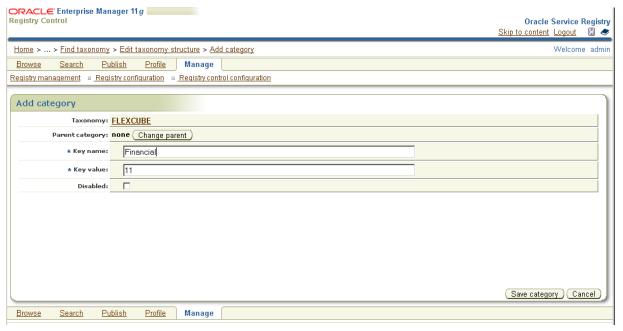


15. On click of the Edit Structure, the next page opens where there is a button Add category, using which you'll be able to create a Taxonomy Structure as shown below.





16. On click of the Add Category button the following screen is displayed where you'll have to enter details to create category as shown below.



17. While providing details to Add Category if you check the disabled check box, you cannot use this particular category for classification. Once the details are entered click Save category button as shown above.

A sample Taxonomy Structure is shown below.





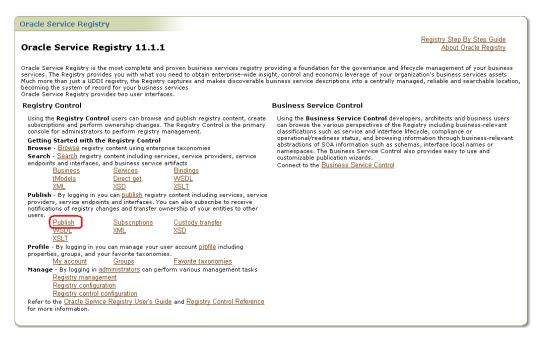
### 7.3 Publishing and Discovery of Services

#### 7.3.1 Publish WSDL

Before starting with publishing the WSDL's the following items must be done.

- 1. User must be created and sufficient rights must be given to the user.
- 2. Web services that have to be published should already be deployed into the Application Server.
- 3. In order to do Publish the WSDL the user has to login into the Publish space from the home page as shown below i.e. Home > Publish



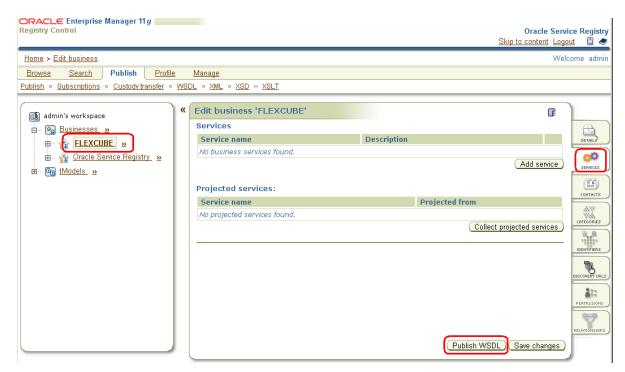


4. On click of Publish, the following screen will be displayed where the user has to submit credentials i.e. username & password (username & password that was submitted during OSR Installation).

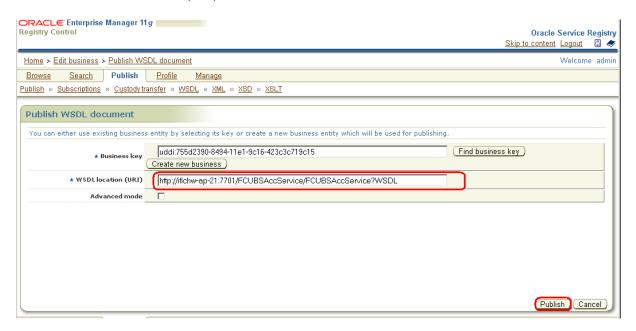


- 5. On successful submission of credentials, the following page will be displayed, where you can find the Business that you have created on the left pane i.e. admin's workspace.
- 6. In order to publish a WSDL you'll have to click the Publish WSDL button as shown below.





7. On click of Publish WSDL button the following screen will be displayed where you will be asked to enter the WSDL location (URI) as shown below.



The WSDL (URI) looks something like this

http://iflchw-ap-21:7701/FCUBSAccService/FCUBSAccService?WSDL where

<Hostname> : iflchw-ap-21

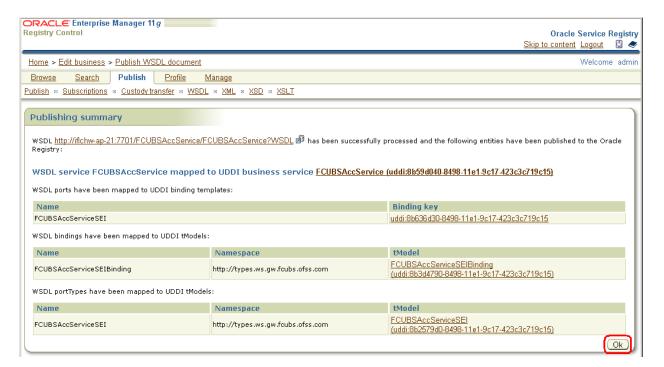


<Port> : 7701

<Service Name>: FCUBSAccService

As you have already deployed the web services into the Application Server, in case you want to cross check for the WSDL (URI) you can copy paste the same link onto the Internet Explorer, but make sure that you change the <Hostname>: <Port> & <Service Name> accordingly. This link will generate an xml message on the browser.

8. Specify the same link for publishing the WSDL and click the Publish button in the Oracle Service Registry Tool. This completes the WSDL publishing & in turn web services.



#### 7.3.2 Associate Classification

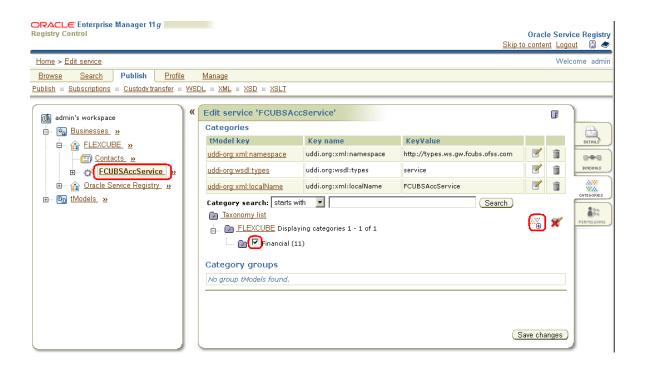
Once Taxonomy is created using Taxonomy Management, user can Associate classification to the services that have been published. First step to follow is to find your way to this particular page shown below i.e. Home > Publish.

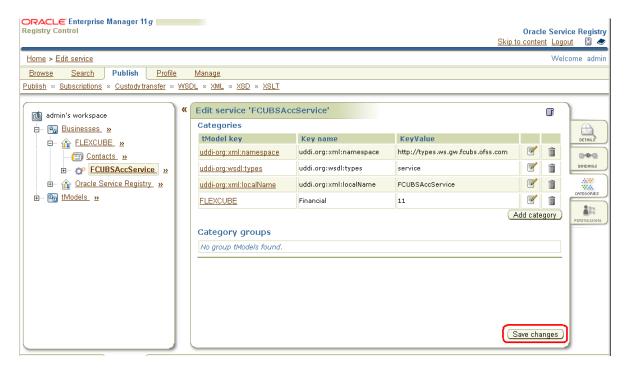




9. On this page you'll see Add Category on the right pane, Click it. Here choose the taxonomy that you have created by selecting the correct value from the drop down menu. Once the above step is completed all you have to do is check the particular category that you want to associate the web service & save the same as shown below.





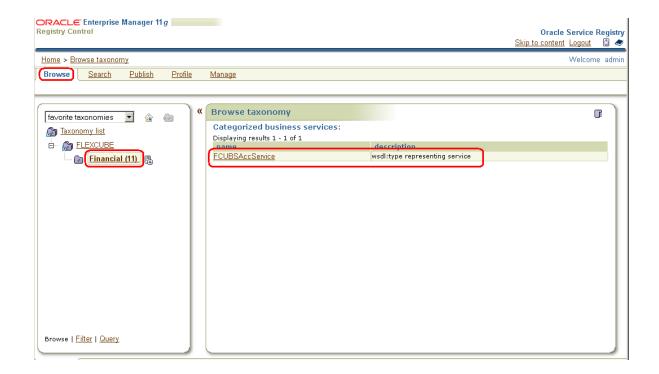


This completes Associating Classification to Web services.



#### 7.3.3 Discovering Services

Based on Classification criteria, user can search for services. Oracle Service Registry returns all the services which meet the defined search criteria. For achieving this go to the particular page shown below i.e. Home>Browse. Here you can find the Taxonomy that you have created & click on any of the categories that has been maintained; on the right pane you can find the list of services that have been associated with the particular category.





## 8. Reference

- 1. <a href="http://java.sun.com/developer/technicalArticles/WebServices/WSPack/">http://java.sun.com/developer/technicalArticles/WebServices/WSPack/</a>
- 2. <a href="http://safari.oreilly.com/0321146182/ch19#X2ludGVybmFsX1NIY3Rpb25Db250ZW50P3htbGlkPTAz">http://safari.oreilly.com/0321146182/ch19#X2ludGVybmFsX1NIY3Rpb25Db250ZW50P3htbGlkPTAz</a> <a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.oreilly.com/0321146182<a href="http://safari.oreilly.com/0321146182">http://safari.or





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