Web Services Generator Tool Software Requirements Specification		TEM 008
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Revision History

Change Description	Section Numbers Changed	Version No.	Date of Revision	Revised By	Approving Authority
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Baseline Draft	Functional Requirements	0.2	20-11-2017	Saurabh/ Nagaraja	Censof
Baseline Draft	Functional Requirements	0.3	23-11-2017	Saurabh/ Nagaraja	Censof
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Baseline Final Version	Every Section	0.7	22-12-2017	Saurabh/ Nagaraja/ Ayushman	Censof
Baseline Final Version	Sections related to Phase - II	0.8	05-01-2018	Saurabh/ Nagaraja/	Censof
Final Version 0.1	Sections related as per the feedback from Censof	0.9	06-02-2018	Saurabh/ Nagaraja/	Censof
Final Version 0.2	Sections related to Reading the parameters from other WSDL and WADL files to generate the SOAP and REST services – User Interfaces added	0.10	09-03-2018	Saurabh	Censof
Final Version	Sections updated: 1. Creating client to call SOAP web services 2. UI integration with back end client code for SOAP web services	0.11	11-03-2018	Saurabh	Censof

Change Description	Section Numbers Changed	Version No.	Date of Revision	Revised By	Approving Authority
	3. Creating client to call REST web services 4. UI integration with back end client code for REST web services 5. Reading the parameters from other WSDL and WADL files to generate the SOAP and REST services				
Final Extended	Section Updated: Business Rules (Method Chaining)	0.12	14-06-2018	Saurabh Bagchi	Censof
Final Extended 2	1. Section Updated: Business Rules (Method Chaining) 2. User Management 3. Deployment Automation 4. Updated Class Diagram - Design	0.13	30-07-2018	Ashwin M and Saurabh Bagchi	Censof
Final Extended 3	User Edit Added	0.14	09-08-2018	Ashwin M and Saurabh Bagchi	Censof
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Final 5 – Phase-I with corrections as per feedback of Censof	As per feedback of Censof	0.16	18-09-2018	Ashwin M and Saurabh Bagchi	Censof

Change Description	Section Numbers Changed	Version No.	Date of Revision	Revised By	Approving Authority
Final Phase-I with corrections as per feedback of Censof	As per feedback of Censof	1.0	01-10-2018	Ashwin M and Saurabh Bagchi	Censof

Contents

1. Introduction

1.1 Purpose

Purpose of this document is to capture the Software requirements of the **WebServiceGenerator and Deployment Tool** in detail. The specifications and the technical requirements mentioned in the document are derived from the technical discussions, documents and email communications exchanged between Mindteck and Censof, and the proposal submitted to Censof by Mindteck.

1.2 Scope

The scope of the project includes the following:

1) Develop a tool to generate WebService based on predefined Templates. This is for a system where many WebServices needs to be written and this tool will eliminate the tedious work of writing the WebServices, WSDL& WADL code.
2) The WSGD Tool shall be a wizard based tool to support Web Services, and Multiple Databases. This tool shall have the following features:
3) Creating a web service, Compiling the source code, Editing the properties files, Creating the war file, Downloading the war file, Deploying the war file in the configured server, Uploading the template files, Adding, editing and deleting the users.
4) Develop a Test Automation framework. The TestNG framework shall be used.
5) UI for testing the WebService by end-user/client.
6) Code quality analysis report shall be generated for the generated source code using SonarQube.
7) Generated source code shall be committed to version control SVN. UI shall be provided to Deploy the generated source code.
8) For CI+CD, Jenkins shall be used.

1.3 Definitions, Acronyms, and Abbreviations

The abbreviations used in this document are noted below:

NO.	ACRONYMS / TERMS	DEFINITIONS
1	SRS	Software Requirement Specifications
2	OSGI	Open Service Gateway Initiative
3	XML	Extensible Mark-up Language
4	TestNG	TEST Next Generation
5	WSGD	Web Service Generation and Deployment Tool
6	WSDL	Web Service Definition Language

7	WADL	Web Application Definition Language
8	SVN	SubVersion
9	REST	Representational State Transfer
10	SOAP	Simple Object Access Protocol

2. General Description

2.1 Overview

The overview of the project is to develop a tool which will generate source code, compile source code and build the OSGI bundle file for SOAP and Restful web services to deploy in the JBoss Fuse and Fabric server. The WSGD Tool shall generate WebService based on predefined Templates. The WSGD Tool shall be a wizard based tool to support Web Services and Multiple Databases. This tool shall have the following features:
Creating a web service, Compiling the source code, Editing the properties files, Creating the war file, Downloading the war file, Deploying the war file in the configured server, Uploading the template files, Adding and deleting the users. There shall be a Test Automation framework and UI for testing the WebService by end-user.
Code quality analysis report shall be generated for the generated source code using Sonar Cube.
Generated source code shall be committed to version control SVN.
For CI+CD, Jenkins shall be used.

2.2 Product Perspective

The tool web service generate and deployment tool shall allow the user to create web service using data source as database and data source as web service that can be deployed in JBoss fuse server.
The following are the main features that are included in service generate and deployment.

- Creating a web service.
- Compiling the source code.
- Creating the OSGI bundle file.
- Downloading the OSGI bundle file.
- Deploying the OSGI bundle file in the configured server.
- Uploading the template files.
- Adding, editing and deleting the users will be performed by Admin user. The user shall be authorized to login and use the application. User shall be authenticated before login. The general user shall only view the user details.
- Logged In Admin User shall not be allowed to edit and delete his own profile but can edit and delete the other users/admins profile.
- There shall be a Test Automation framework and UI for testing the Web Service by end-user.
- Code quality analysis report shall be generated for the generated source code using Sonar Cube.
- Jenkins configuration for build and deployment.

2.3 Product Functions

The main functionality of this product is to develop a tool which will generate source code, compile source code and build the OSGI bundle file for SOAP and Restful web services to deploy in the JBoss Fuse and Fabric server. The WSGD Tool shall generate WebService based on predefined Templates. The WSGD Tool shall be a wizard based tool to support Web Services and Multiple Databases.
This tool shall have the following features:

- Creating a web service, Compiling the source code, Editing the properties files, Creating the war file, Downloading the war file, Deploying the war file in the configured server, Uploading the template files, Adding and deleting the users, Adding, updating deleting the Dependency list. There shall be a Test Automation framework and UI for testing the WebService by end-user.

  Along with the tool, there is also the need for:
  - Developing a Test Automation framework
  - Develop UI for testing the web service by end user/client
- The tool shall allow the user to specify the following
  - Name of the Webservice
  - Name of the Method
  - Input request parameters like Rows, Filters, Measure, Group by
  - Output parameters and their data types

The Business Rule (Method Chaining) may have the following features:

1. The WSGDT shall be able to create Web Services (REST, SOAP) where the Data Source Category may be Database (Postgres (Version PostgreSQL 10.3), MySQL(Version 5.7.21), MSSQL(Version SQL Server 2017 14.0), Oracle (Version Oracle 12 Release 2: 12.2.0.1)) or any other third-party Web Services.

2. The Business logic flow may consume the web methods of the Web Services created by Step 1 by the WSGDT, chain wise sequentially.

3. There shall be no limitation to the method chaining call.

4. The user shall be able to define the Request Parameters from the UI.

5. The very first Web Method which is part of a Web Service created by the WSGDT shall use the Request Parameters as input parameters for the Web Method.

6. From the Second Web Method (form other Web Services created by the WSGDT having either database as data source category or any other third-party web service as data source category) onwards the WSGDT may use either the Response

parameter of the just previous Web Method and/or Request Parameters defined by the user in the Request Parameters in the as input parameters for the Web Method.

7. The Step 6 may be repeated multiple number of times with other desired Web Methods of the Web Services created by the WSGDT until the destination Web Method of the Web Service is reached by the user to achieve the desired output.
8. The WSGD Tool shall support Mapping Request / Response parameters for web service method chaining assuming Single thread implementation, sequential call of multiple web services with Unique key dependencies only.
9. The WSGD Tool will support Implementation of the Aggregate Results / Business Logic that is when Webservice response is a List (Example multiple values from Web service input to next Web service and so on) considering only unique key field with one to one mapping of fields.
10. If any Web Method is returning a Data Table containing multiple Fields say F1, F2, F3…Fn, then the WSGDT shall be able to concatenate any of the combination of Fields to pass it on to the subsequent Web Method of another Web Service to perform some action over there.
11. The WSGD Tool may be able to support Generation of Model Classes (Request and Response) Using WADL file for REST Web Services.
12. The WSGD Tool may be able to support Generation of Model Classes (Request and Response) Using WSDL file for SOAP Web Services.
13. The WSGD Tool shall be able to Generate Client to call the Web Service(s).
14. The WSGD Tool shall Deploy & Configure REST Services to JBOSS Fuse.
15. The WSGD Tool shall Deploy & Configure SOAP Services to JBOSS Fuse

To explain the scenario, the following example may be considered:

Business Logic Flow Example
Objective:

Let us assume a scenario where:

- There is a database table, say “tbl_Schools”, which give the details of all Schools of a State (Province)
- There is a 3rd party Webservice which gives the list of students for a School

Also assume that we need to generate a Web Service which has the objective to Get Students of State based in StateID and Gender.
To meet the objective the tool will create a project which will have three Methods as follows:

1. **GetSchoolsForState (StateID).**

   Description: This method will have Database table "tbl_Schools" as the Data source and will return the schools of a state

2. **GetStudentsForSchool (SchoolID, Gender).**

   Description: This method will have the 3rd Party WebService as the Data source and will return the Students for a school.

3. **GetStudentsForState (StateID, Gender) – This is the proposed new type of Method**

   Description: This method will return the Students for State using StateID and Gender.

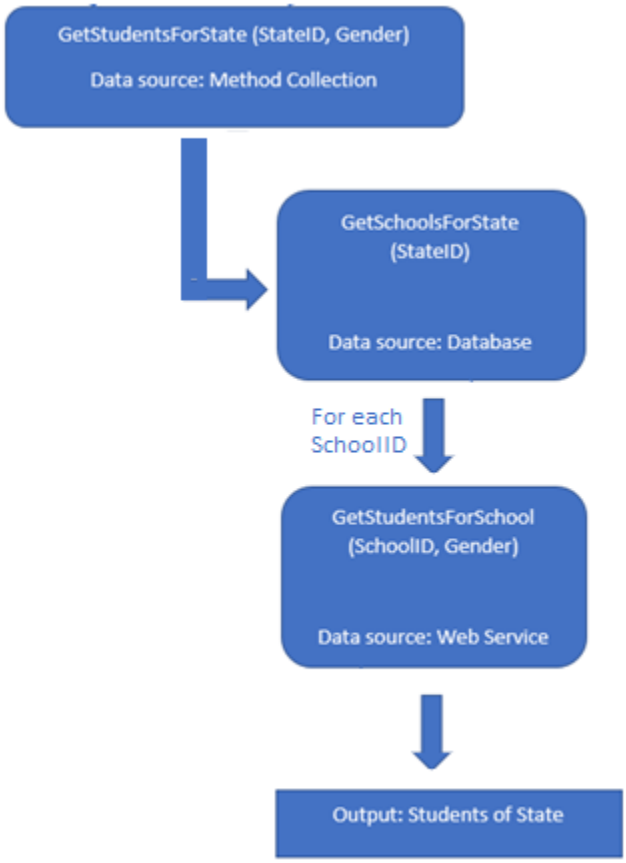
   This method will actually call internally first call the method GetSchoolsForState (StateID)
   Then for each SchoolID it will call the method GetStudentsForSchool (SchoolID, Gender)
   Then it will collate all the output to get the desired output.

   The User will specify while creating this Method the mapping of the nested Method Parameters as follows:

   For first call:
   GetSchoolsForState(StateID) <= GetStudentsForState (StateID, Gender)

   For second call:
   GetStudentsForSchool (SchoolID, Gender) <= GetSchoolsForState(StateID)'s output parameter SchoolID
   GetStudentsForSchool (SchoolID, Gender) <= GetStudentsForState (StateID, Gender)

Diagrammatic Representation:



The assumptions for the implementation of the Business Rule may be considered as follows:

i) Any form of cyclic and/or self-referencing of any data models or fields shall be excluded for the current implementation.

- Once all inputs are available, the tool shall be able to compile the Java code, create a deployable Webservice OSGI Bundle file and deploy the Webservice in the JBoss Fuse server.
- The destination where the Webservice needed to be created and deployed may be configurable.
- The system shall give the user an UI to enter above mentioned details and then give an option to generate and deploy the Webservices in the JBOSS server.
- Each time the Webservice is edited and regenerated, a backup copy of the earlier version may be backed up in case the user wants to go back to the immediate prior version.
- The system shall use the JBoss Fuse as the server to host the application and it may support ESB also.

- The Generator may create both SOAP and REST web services and both may support XML and JSON response format.
- For SOAP, the system shall use the CXF framework.
- For REST, the system shall use the CXF(JAX-RS) framework.
- Automation Testing Framework shall be developed using TestNG.
- Jenkins shall be used for build and deployment.
- Template shall have the header parameter information and list of validation error code and error description.
- Since this is a Government-related high-security project, adequate measures for data security shall be built in so that the data is secure. To provide the security agency_app_auth_private_key and agency_app_auth_key shall be validated.
- The tool shall support multiple databases like Postgres, Oracle, MySQL and MSSql only.
- The tool shall generate the DAO classes to communicate with above mentioned database layers too and shall implement connection pooling.
- Sonar integration shall also be a part of the tool.
- Reading the parameters from other WSDL and WADL files to generate the SOAP and REST services shall also be part of the tool.
- CI/CD and Version Control. SVN shall be used for Version Controlling.
- Jenkins shall be used for CI/CD.

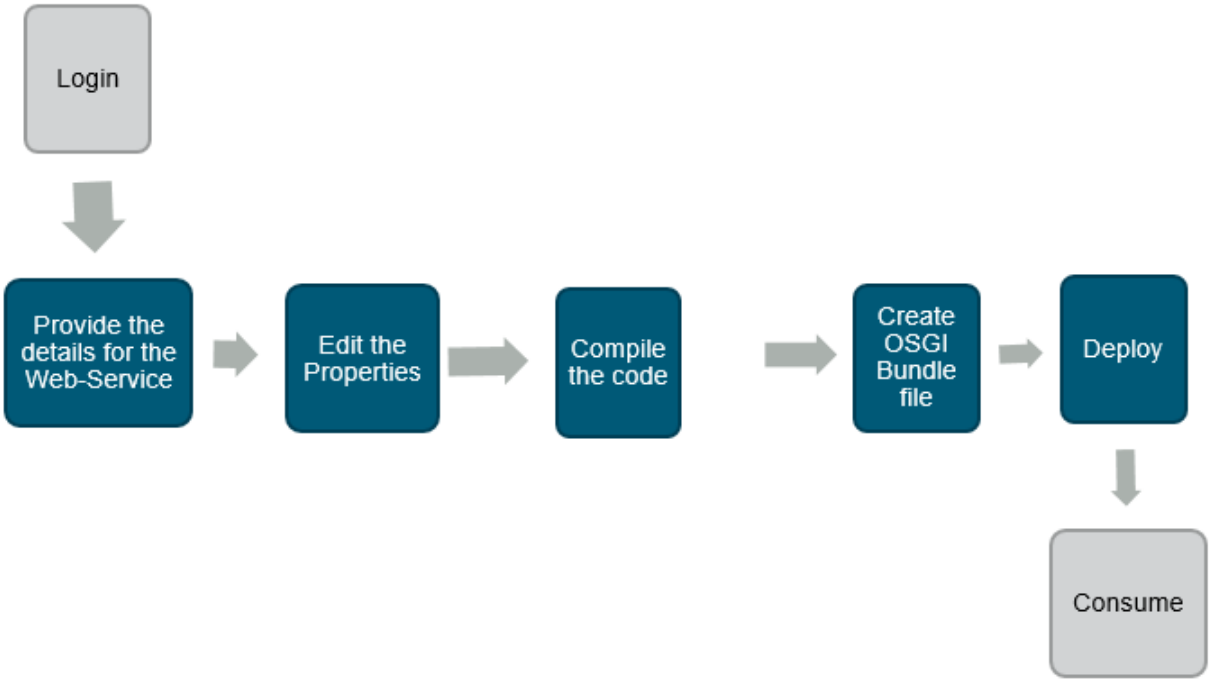
2.4 Requirements Change Management Strategy

Mindteck Standard CR process shall be followed. The CR process document shall be shared separately.

2.5 Bidirectional Traceability of Requirements

Mindteck shall prepare a RTM document for traceability requirements. Mindteck Standard RTM shall be followed. The RTM document shall be shared separately. For Traceability Template please refer to Appendix 2.

2.6 Operational Concepts and Scenarios



2.7 Acceptance Criteria

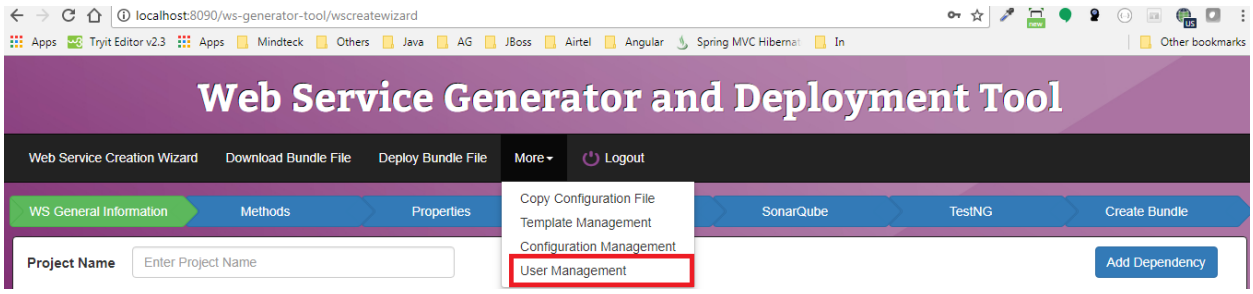
Mindteck shall prepare a system test case document for testing the Web Services Generator Tool. These test cases shall be executed for every release against the features that are developed. The results of the test cases shall be shared with Censof for acceptance. The test strategy shall be agreed upon between Mindteck and Censof. The Test case document will be shared separately. For Test case template please refer to Appendix 2.

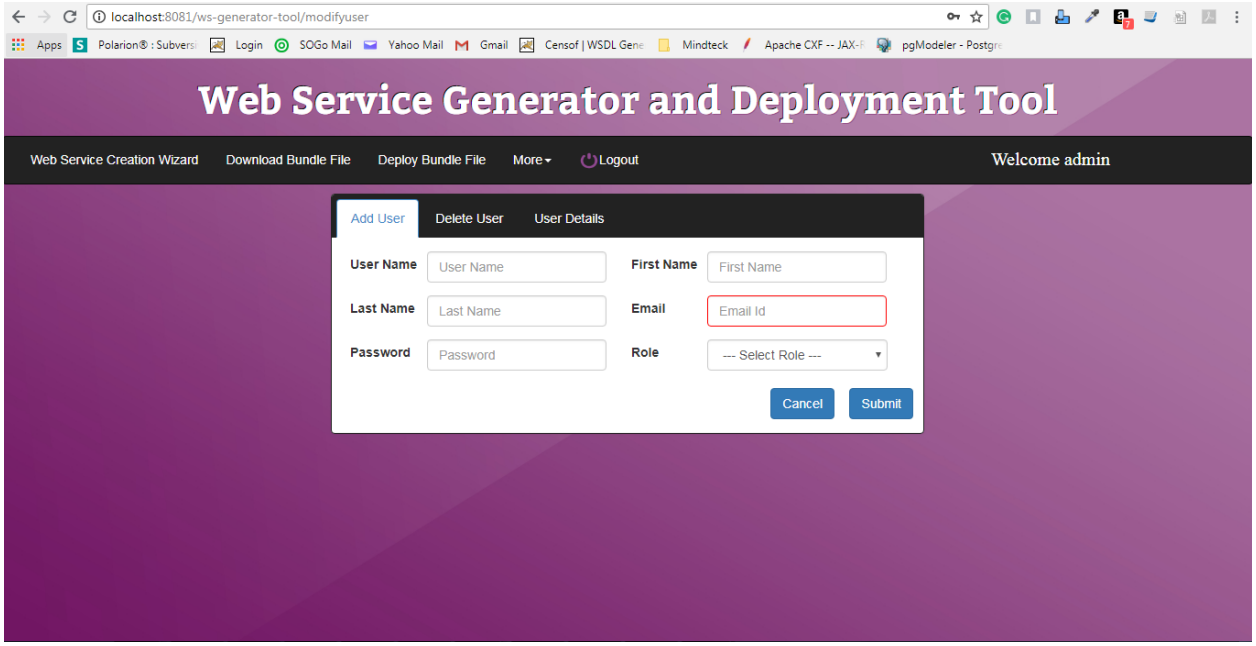
Exit Criteria	Requirement	Actual	Conformance
Test Case execution in UAT	100% UAT test cases executed.	100% Test Cases have been executed	
100% test coverage (as proven by the traceability provided in the test cases document).	100% test coverage	100% test coverage is taken care and RTM is provided in Test case Document	

Exit Criteria	Requirement	Actual	Conformance
UAT test cases pass rate.	90% UAT test cases pass rate.	100% UAT test case pass rate is there	
Impact area test cases	Impact Area test cases to be executed as part of regression testing due to fixing a defect	Impact area test cases have been traced and executed on the build	
Critical defects.	Zero (0) critical defects.	All the critical issues have been resolved	
Major defects.	Zero (0) Major defects.	All Major issues have been resolved	

2.8 User Characteristics

This Application shall be used by users only created from this Tool.

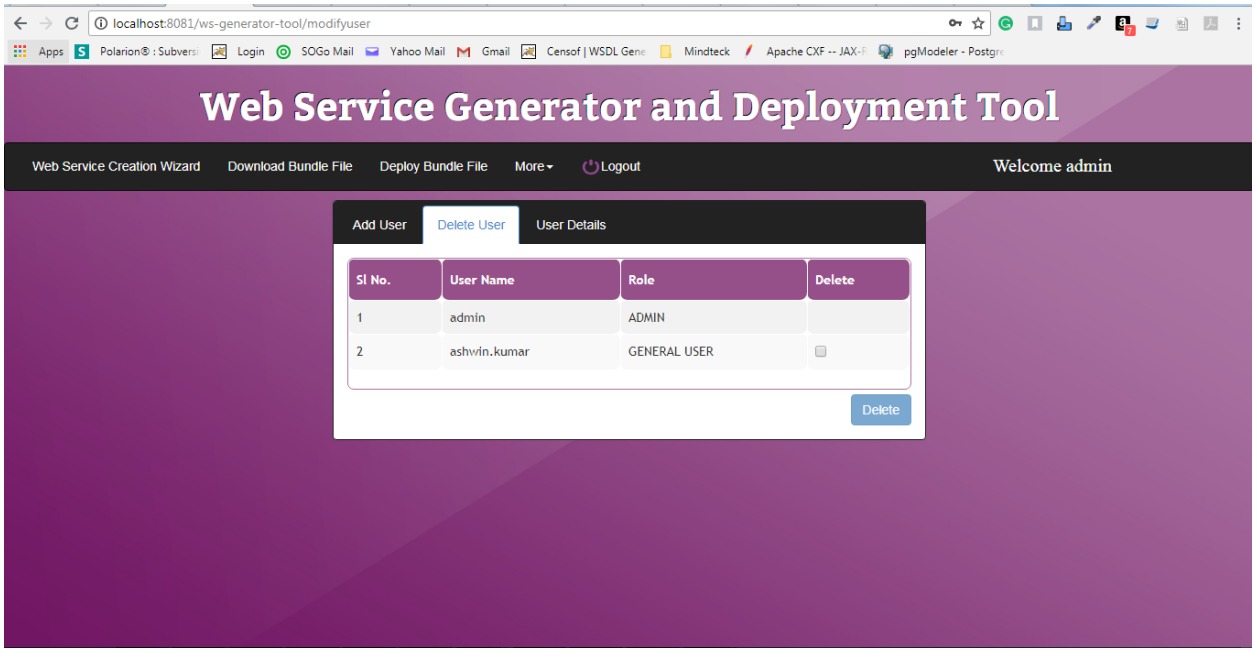


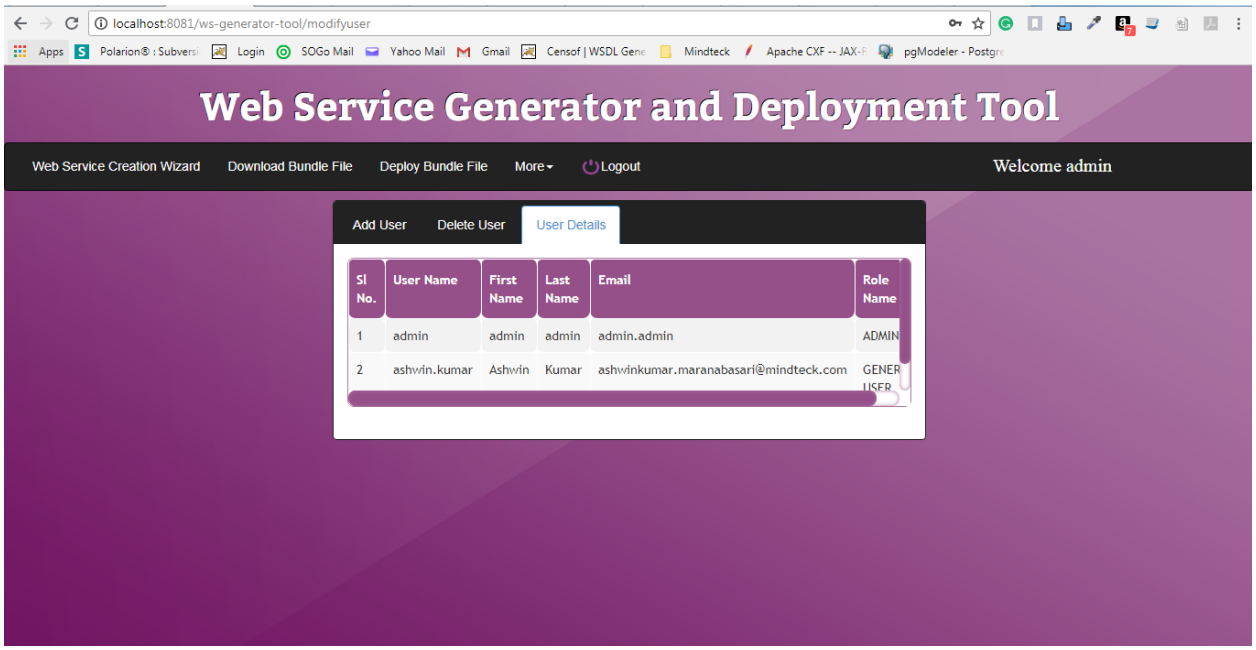


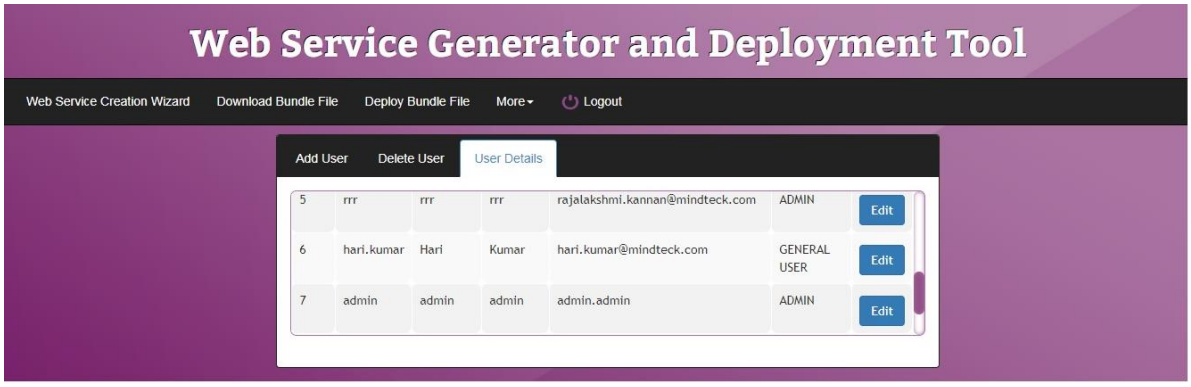
User roles and their responsibilities.

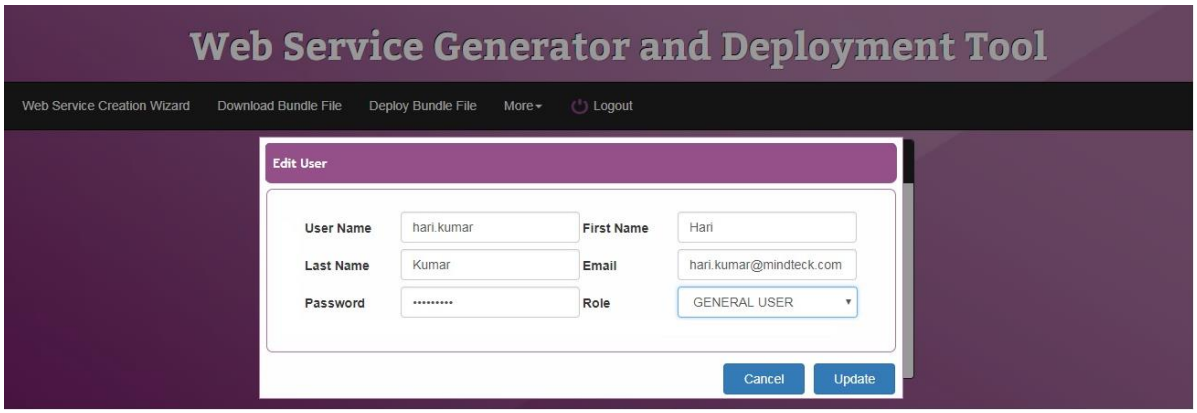
There are two roles

- Admin
  - Admin user can add new user, delete the existing user and can edit the existing user.
- General User
  - General User can only view the users who can use the tool.
  - General User don't have privileges to add, edit and delete the user




localhost:8081/ws-generator-tool/modifyuser
Web Service Generator and Deployment Tool
Web Service Creation Wizard
Download Bundle File
Deploy Bundle File
More
Logout
Welcome admin
Add User
Delete User
User Details
Sl No.
User Name
First Name
Last Name
Email
Role Name
1 admin admin admin admin.admin ADMIN
2 ashwin.kumar Ashwin Kumar ashwinkumar.maranabasari@mindteck.com GENER USER


Web Service Generator and Deployment Tool
Web Service Creation Wizard
Download Bundle File
Deploy Bundle File
More
Logout
Add User
Delete User
User Details
5 rrr rrr rrr rajalakshmi.kannan@mindteck.com ADMIN Edit
6 hari.kumar Hari Kumar hari.kumar@mindteck.com GENERAL USER Edit
7 admin admin admin admin.admin ADMIN Edit


Web Service Generator and Deployment Tool
Web Service Creation Wizard
Download Bundle File
Deploy Bundle File
More
Logout
Edit User
User Name
hari.kumar
First Name
Hari
Last Name
Kumar
Email
hari.kumar@mindteck.com
Password
Role
GENERAL USER
Cancel
Update

2.9 General Constraints

For ease of understanding of any Business Logics, it is assumed that Censof would make available all documentation, APIs or resources of the existing system to Mindteck.
The documents & business logic will include items like:

1. Sample Database design/structure document from where we can get the data.
2. Information to communicate with messaging queue like queue name, IP, port number, payload information (Parameters to send as part of the payload)
3. Discuss and finalize the structure of the template so that the template should have a logic to fetch the data and it may contain the ESB information or Database information. We need to finalize detailed information regarding template structure. e.g. how to identify template is having ESB information or database information.
4. Sample APIs from where data needs to be read.
5. Timely responses from Censof for any clarifications raised by Mindteck.

2.10 Assumptions and Dependencies

1. For ease of understanding of any Business Logics, it is assumed that Censof would make available all documentation, APIs or resources of the existing system to Mindteck. The documents will include items like:
   a. Sample Database design/structure document from where we can get the data
   b. ESB document for the payload information
   c. Detailed structure for the template
   d. Sample APIs from where data needs to be read
2. The detailed dependencies for the project which may affect project Schedule will be mutually discussed and their timeline availability agreed upon at the start of each Sprint.
3. Censof shall provide DB dump for development and may not provide any VPN access to the main servers.

3. Specific Requirements

The requirement of the project is to develop below features:

Web Services Generator Tool: This application is used to generate Restful and SOAP web services dynamically based on the inputs provided by user and based on the uploaded template. This application shall also compile the generated source code and build the OSGI bundle file. Using this tool, the user can also select the list of OSGI bundle files to deploy in the selected JBoss server.

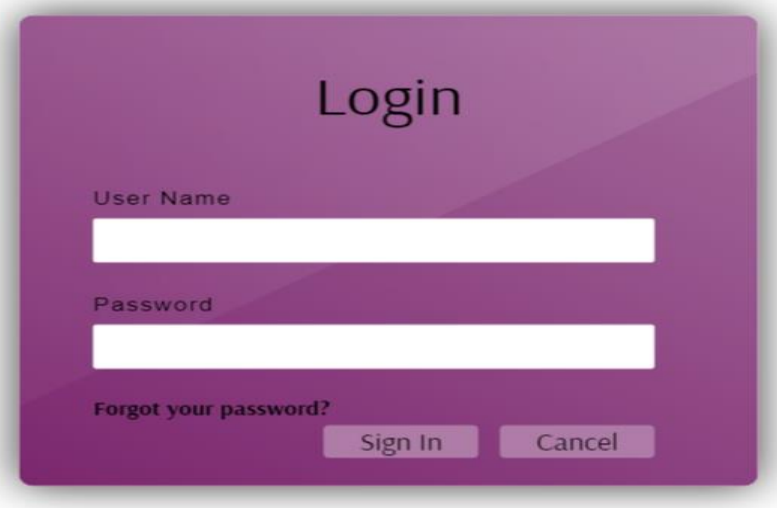
Web Application for testing SOAP and Restful services: This web application is used to test the deployed Restful and SOAP web services. This web application is mainly used by the end-user.

TestNG framework: Develop an automation framework using TestNG to test the Restful and SOAP web service. There shall be a screen for TestNG. In this screen user shall be able to enter the test data for all the methods. TestNG framework shall generate the scripts and call the generated source code by using the entered test data. This framework shall show the results by running the dynamically generated test scripts.

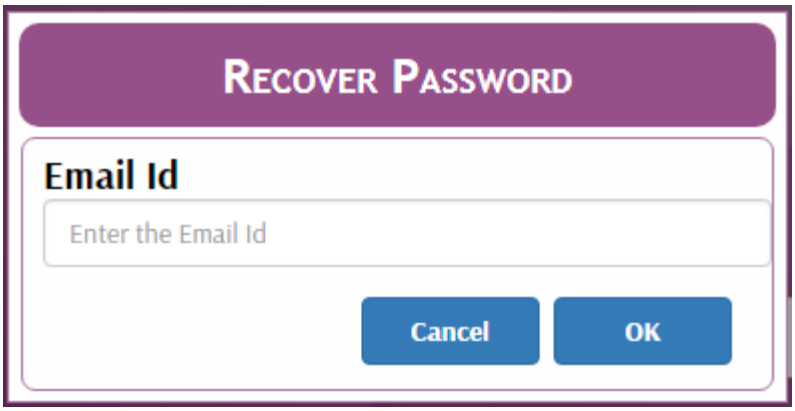
3.1 External Interface Requirements

3.1.1 User Interfaces

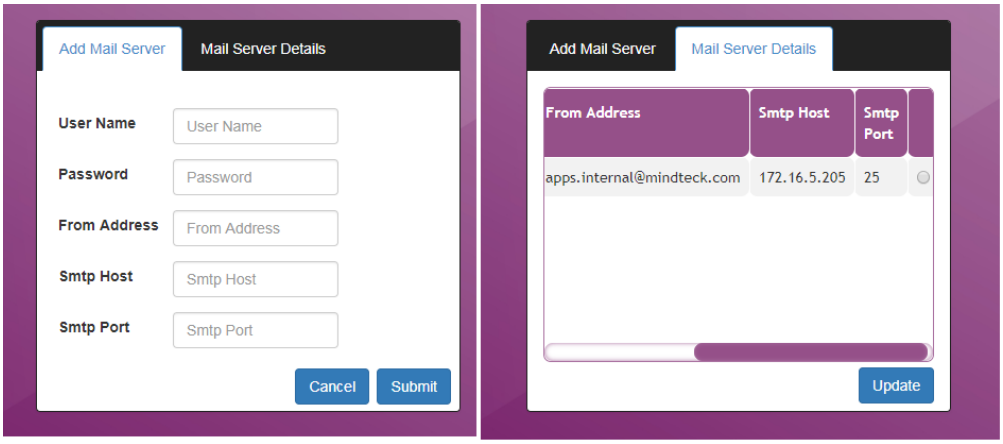
3.1.1.1 Login Screen



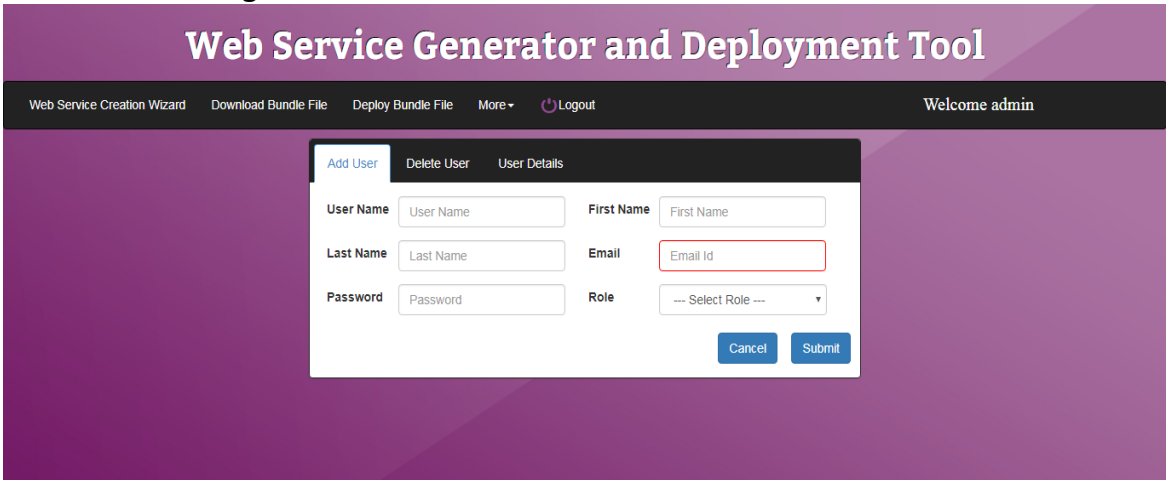
The user shall be allowed to retry five times to login the system if wrong password is supplied.
There shall be an option for Forgot Password to recover the password. The user shall be allowed to change the password by using the link that may be sent via e-mail.



Mail Server Settings: User may add multiple mail servers using the mail server feature and can activate which one is required in Mail server Details screen**.**



3.1.1.2 User Management- Create User screen



Admin User will be able add the users using the above screen with user details.

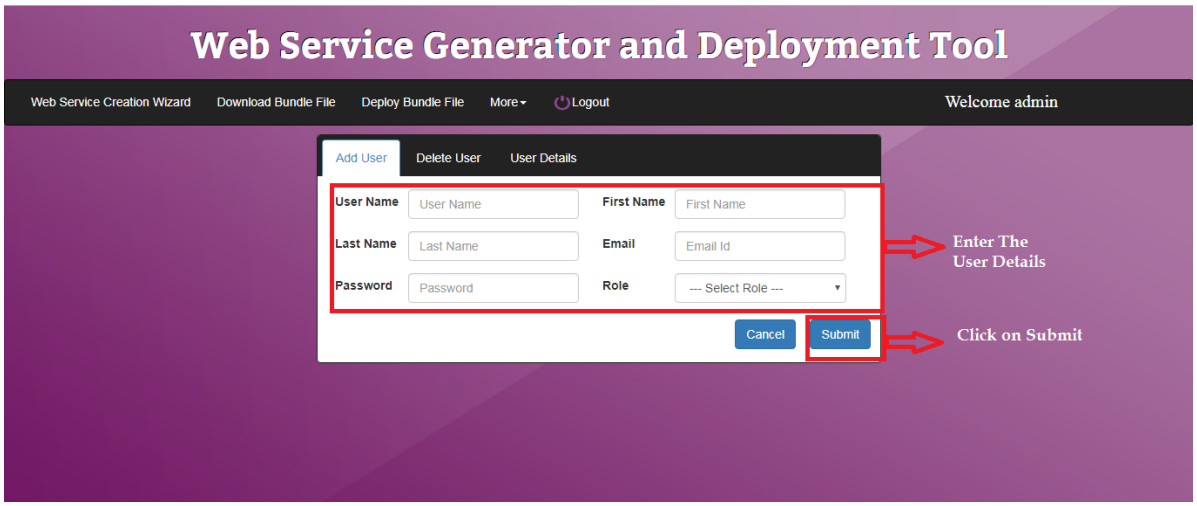
General user will be able to view only user.

The User Management screen shall have the following fields:

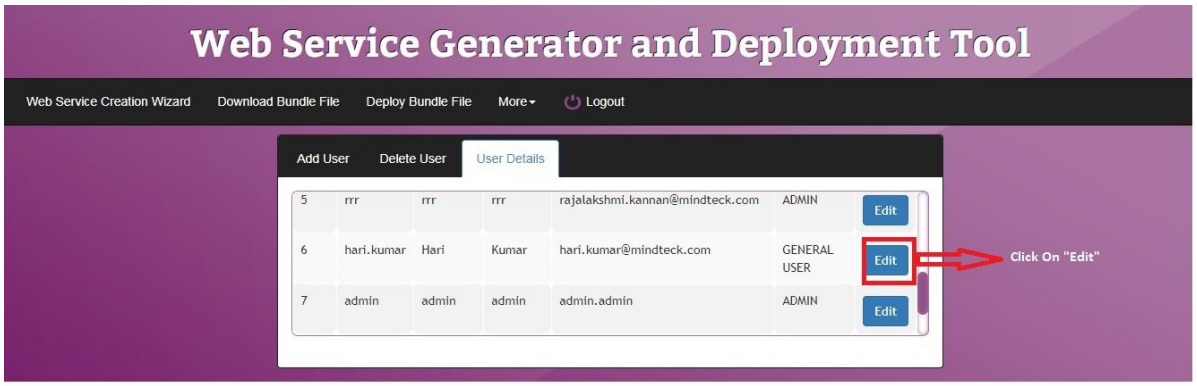
1. Name
2. Password – The password shall follow sha#2 algorithm. Password shall be strong and shall have the following characteristics
    - US-ASCII character encoding
    - At least eight characters
    - At least one uppercase character
    - At least one lowercase character
    - At least one number

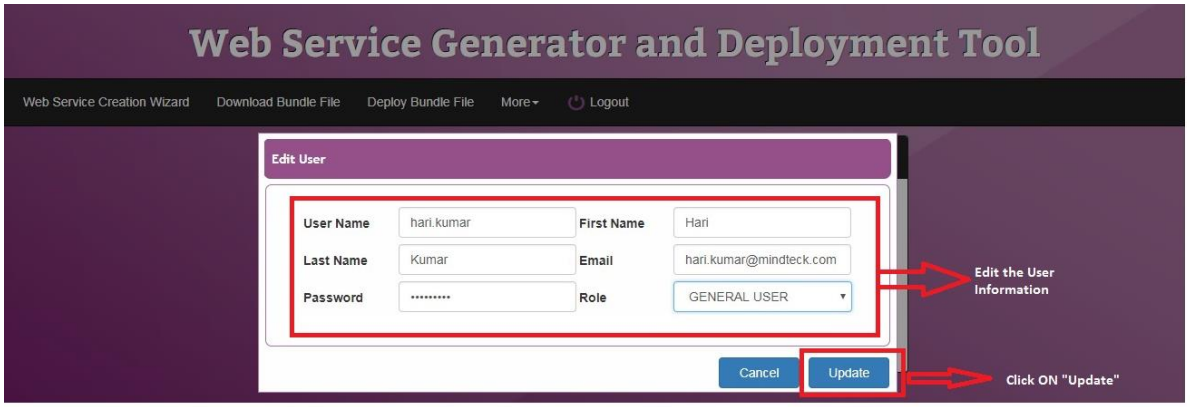
3. Email-Id – Password shall be sent to the email id of the user when the admin user creates the user. The User shall get a mail for verification and activation. The verification and activation shall not be clicking link based. The user created shall get a default password to his/her mail id. After login the user shall get a change password screen to change the password. (*To be implemented after Phase-II completion)*

3.1.1.3 Add User: User can be added from the user management add user page as shown below

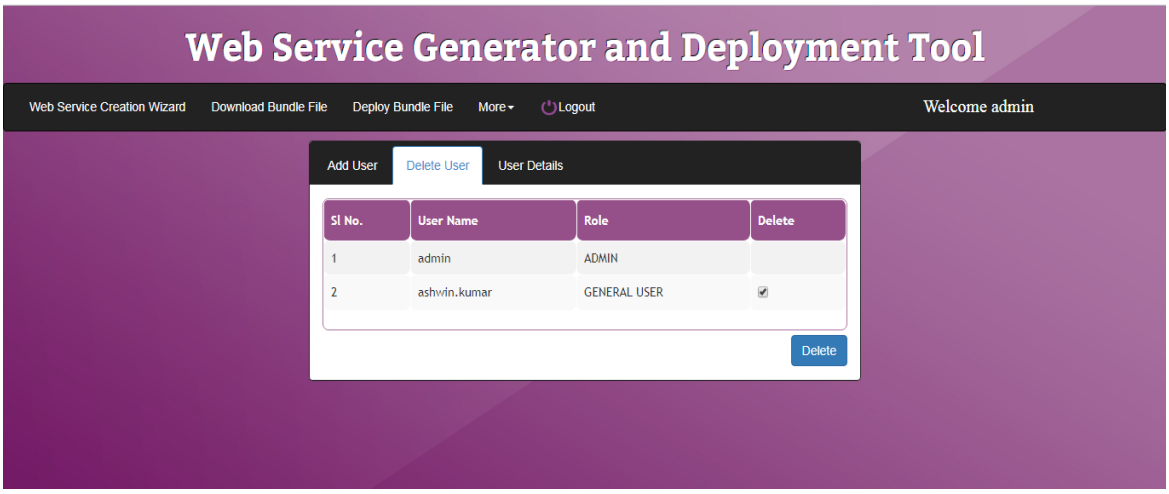


3.1.1.4 Edit User Details: Admin User can edit the User Information



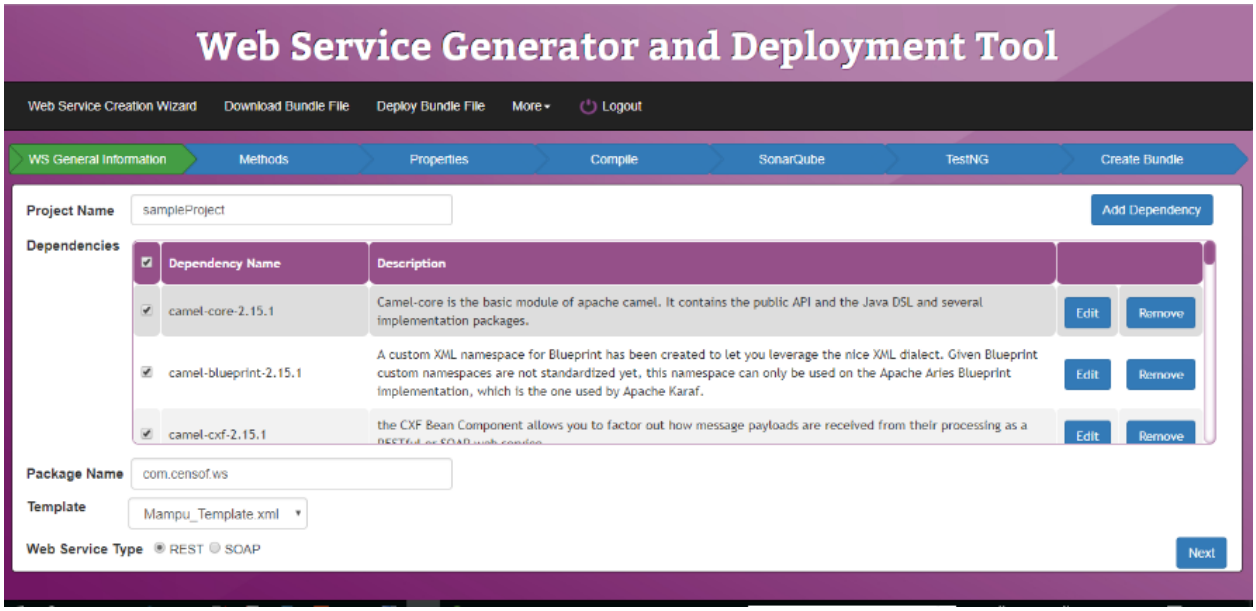


3.1.1.5 Delete User Screen



The Admin shall be able to delete user using this screen. Admin may be allowed to check multiple check boxes and shall be allowed to delete the selected users.

3.1.1.4 Web Service General Information Screen



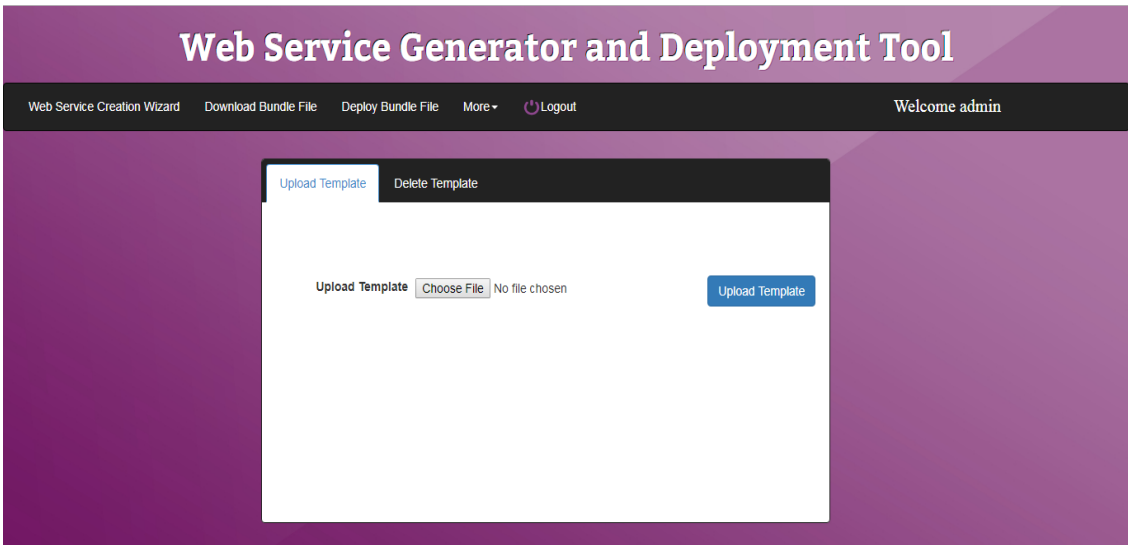
1. The Webservice General Information screen shall contain the Project Name (input box) and Dependencies.
2. The user may be able to add dependencies.
3. The user shall be able to edit particular dependencies by selecting that dependency by checking the check box one at a time.
4. The user shall be able to delete multiple dependencies by selecting multiple dependencies from the list.

3.1.1.5 Template Management

User may be able to click on Template Management under More menu to see the template management screen.
In this screen there shall be two tabs with name Upload Template and Delete Template.

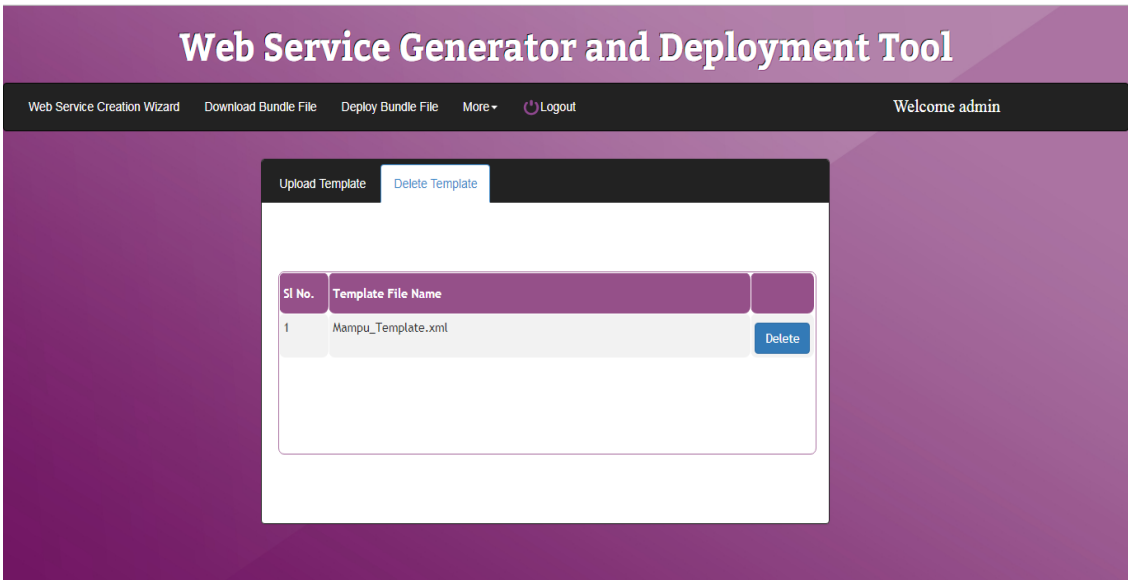
3.1.1.5.1 Upload Template:

To upload the template user shall click on Choose File to select the template to upload. After that the user shall click on Upload Template button. Uploaded template shall be saved in the configured location. If the file already exits, the incremental sequence number shall be maintained as version number and same shall be appended to the file name.



3.1.1.5.2 Delete Template:

To delete the available uploaded template user may be able to click on Delete Template Tab. User can delete any number of uploaded templates by checking the check boxes and by clicking on Delete Template button.



3.1.1.8 Data Validation:

Service name and service version shall be validated with available data in the database table with name service_details.

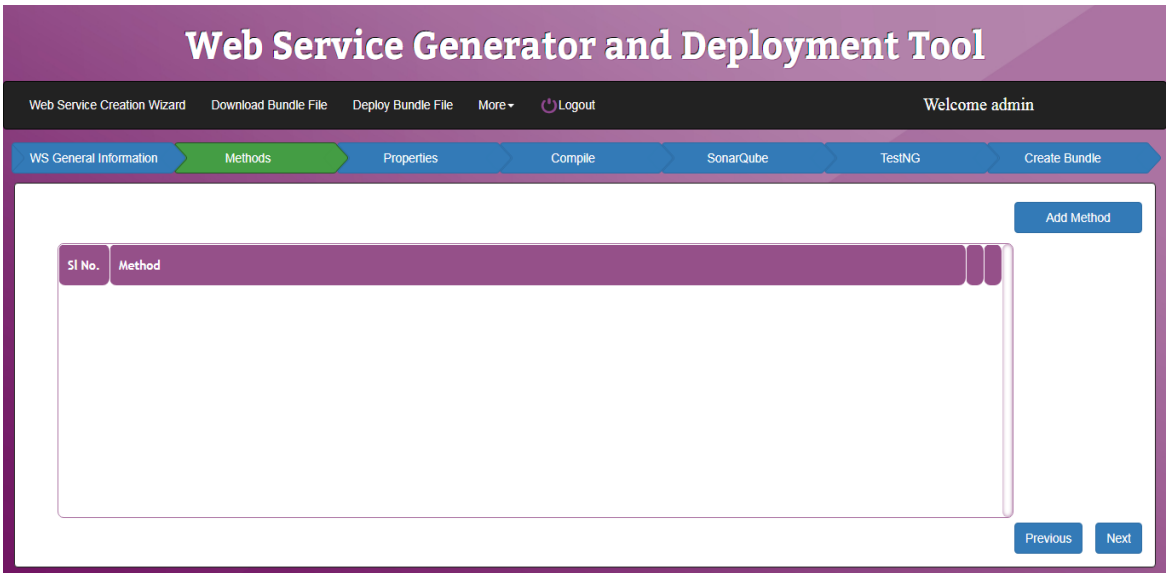
Also, the agencyCode, agencyAppAuthKey and agencyAppAuthCode shall be validated based on the data available in the data base.

3.1.1.9 Validation Error Response Messages:

The following section represents the general error codes that shall be used in the response messages.

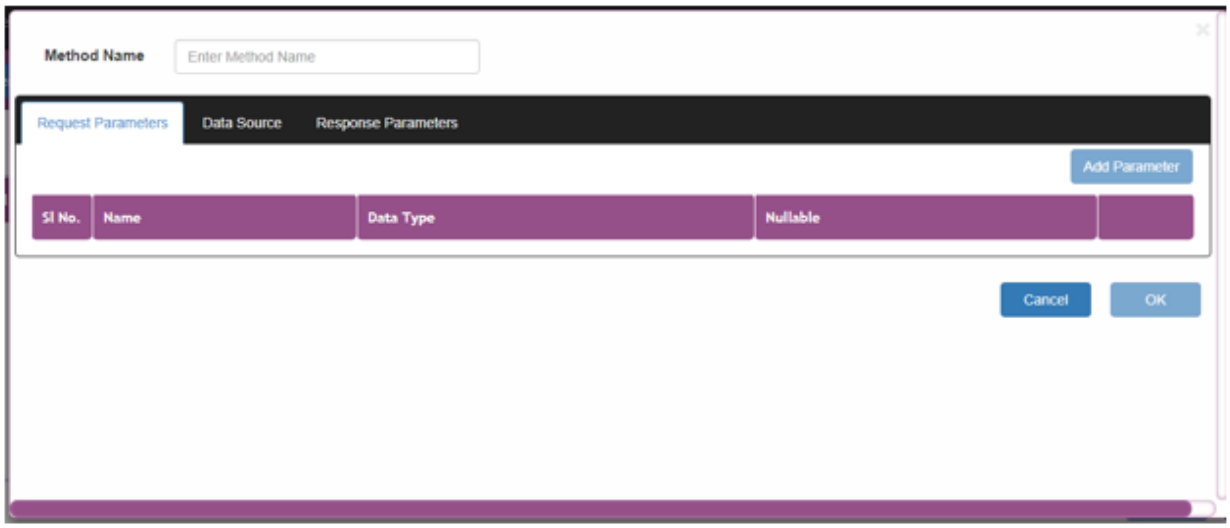
No_Error = 0;
User_Not_Found = 1;
Invalid_UserUID = 2;
Required_Parameter_Is_Missing = 3;
Required_Parameter_Contains_Data_Format_Error = 4;
Required_Parameter_Contains_No_Data = 5;
Internal_Software_Exception = 6;
Database_Exception = 7;
Invalid_Message_Format = 8;
Unsupported_Command = 9;
Optimistic_Locking_Error = 10;
Too_Many_Payloads = 11;
Timestamp_Malformed = 12;
Not_Enough_Header_Rows = 13;
WS_Timeout = 14;
WS_Cannot_Connect = 15;
All_Targets_Unavailable = 16;
WS_Route_Not_Found = 17;
WS_Exceeds_Connection_Limit = 18;
WS_Rejected_Due_To_Filter_Rules = 19;
Duplicate_Record = 20;
Field_Too_Long_To_Store_In_Database = 21;
WS_Down_For_Maintenance = 22;
Warnings_Present_Without_Error = 1000;
Multiple_Verification_Errors = 1001;
Decompression_Error = 1111;

Screen 1.



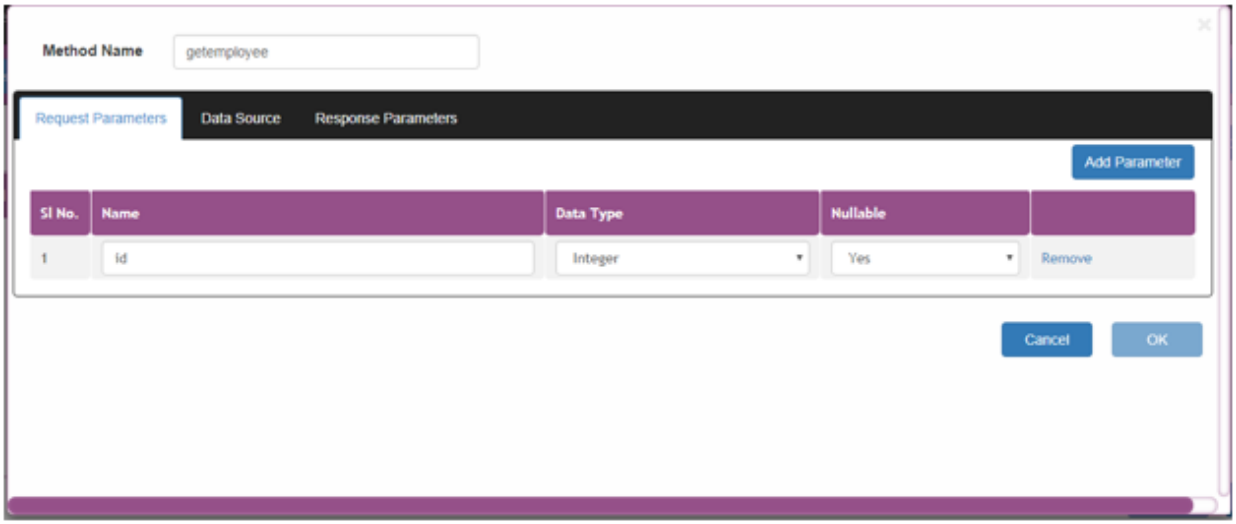
- The Above screen describes adding methods.

Screen 2.



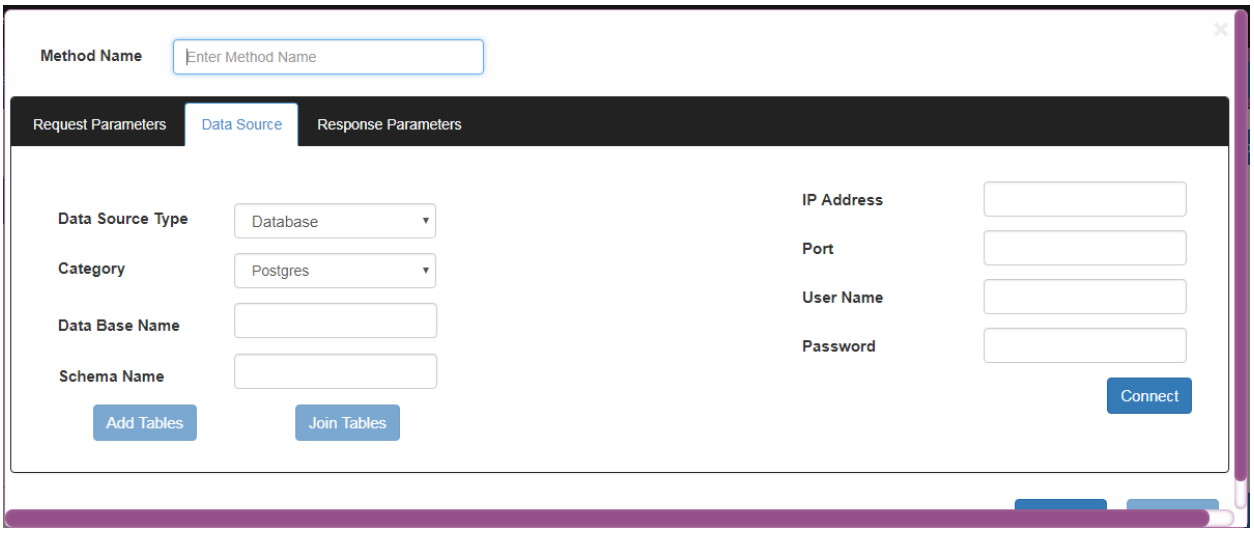
- The above screen is to provide request parameter details for methods.

Screen 3.



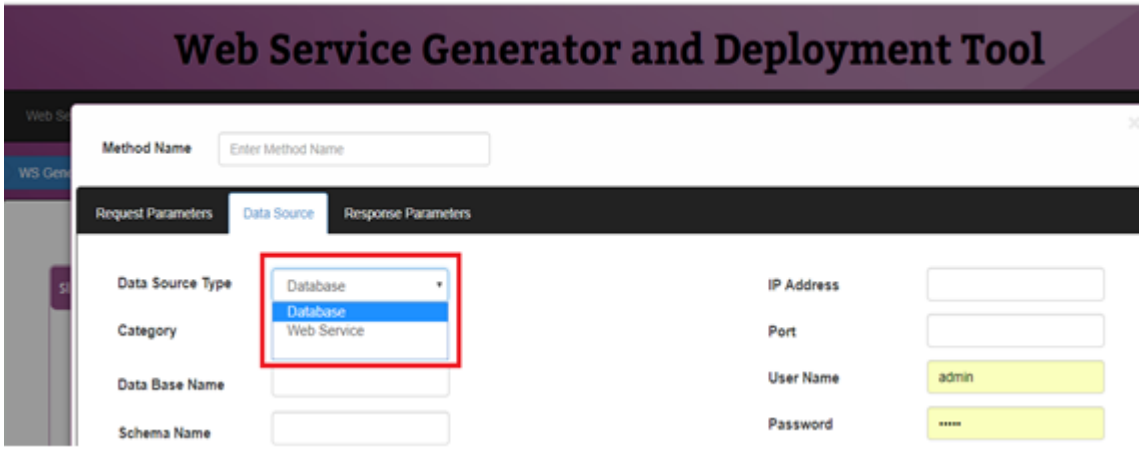
- The above screen is to provide request parameter details for methods.

Screen 4

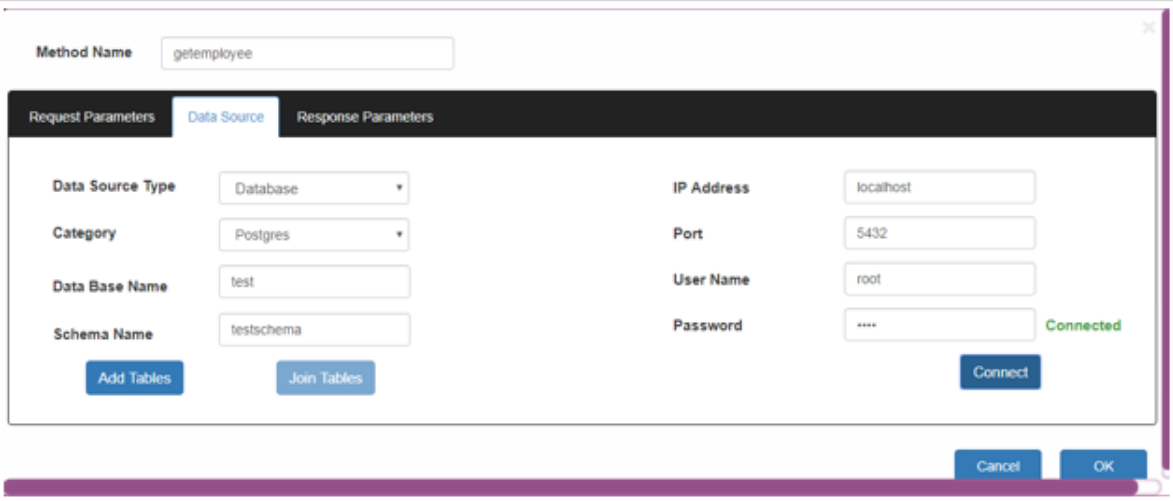


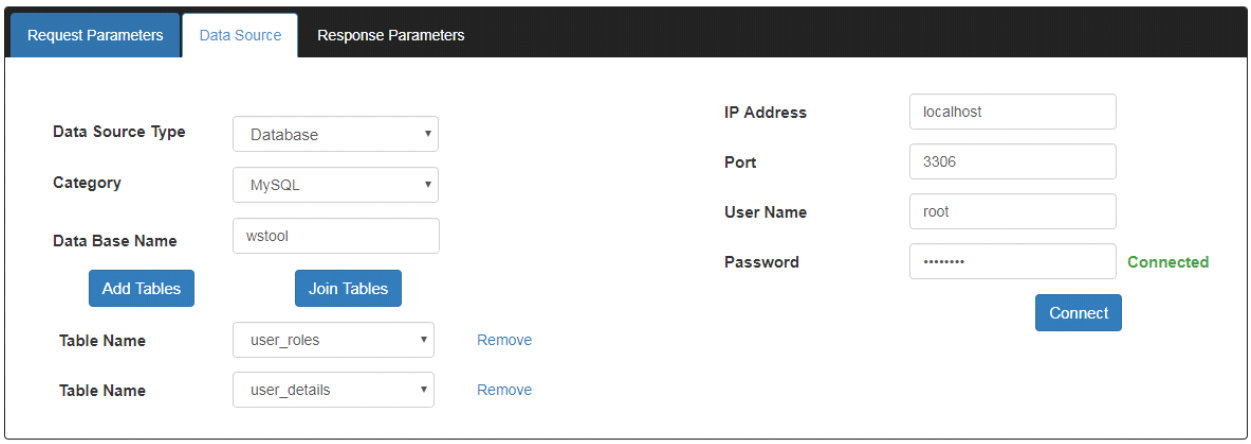
- The above screen is to provide Data source details for methods.
- Data Source type are database with connection details.

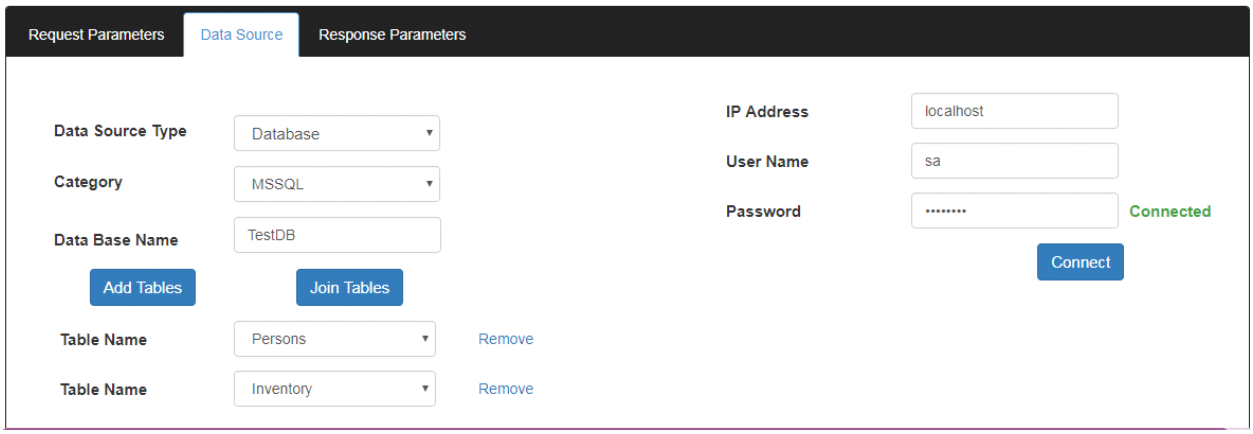
Screen 5.

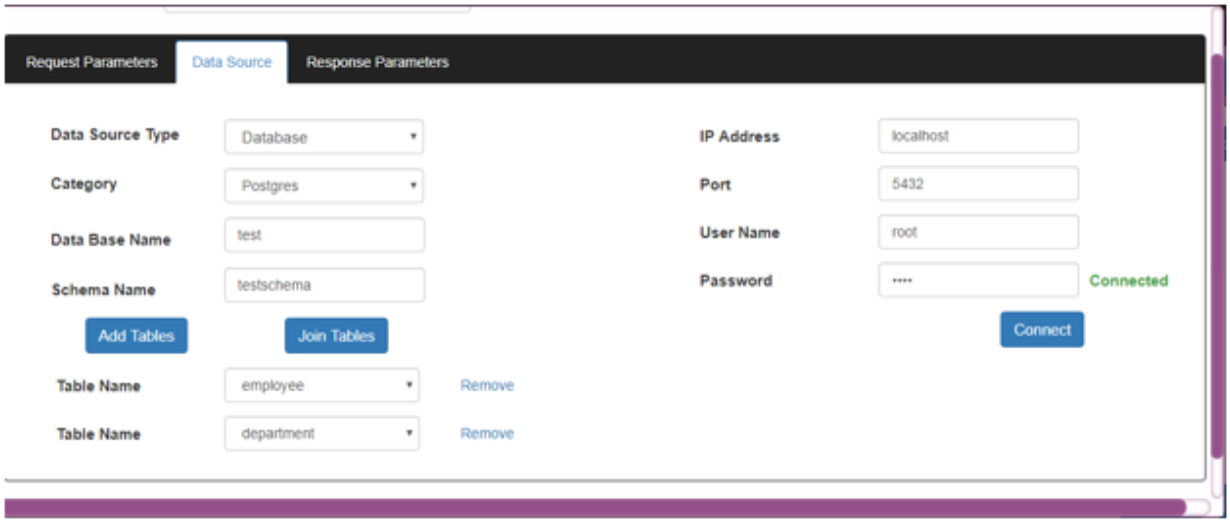


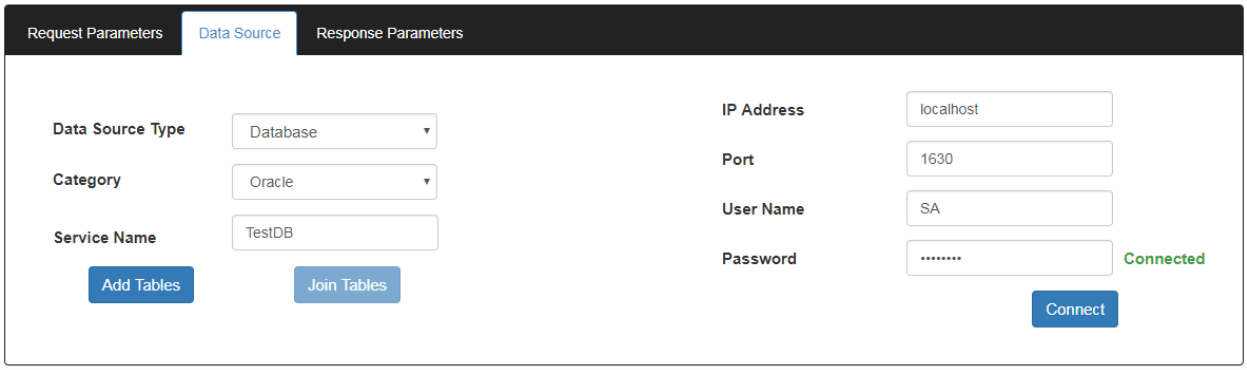
- Data Source type are database with connection details.





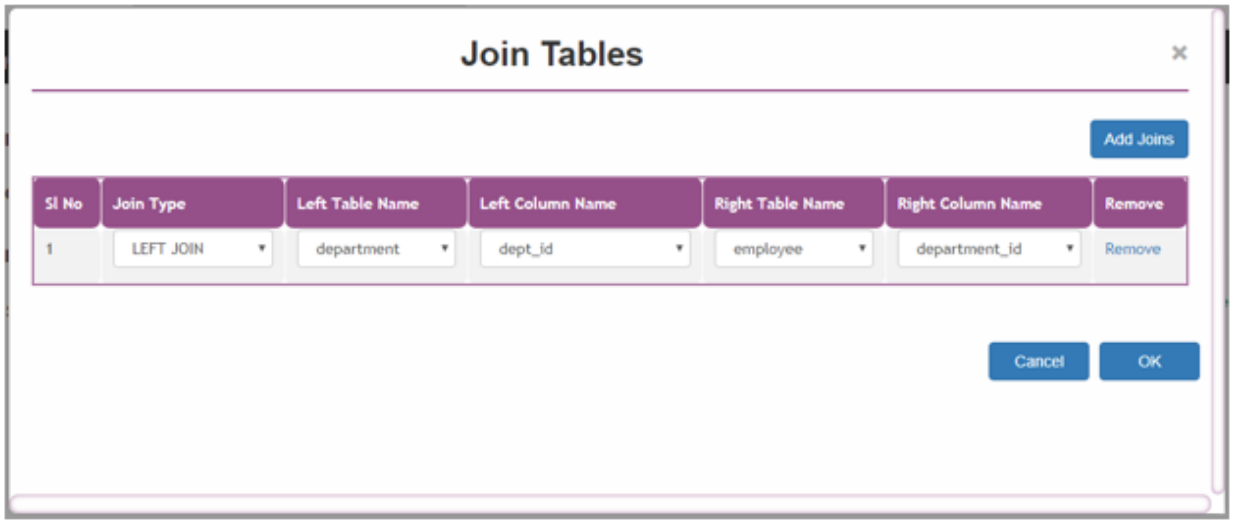






- The above screen is to provide Data source details for methods.
- Data Source type are database with connection details.

Screen 6.



- The above screen is to join two or more tables.

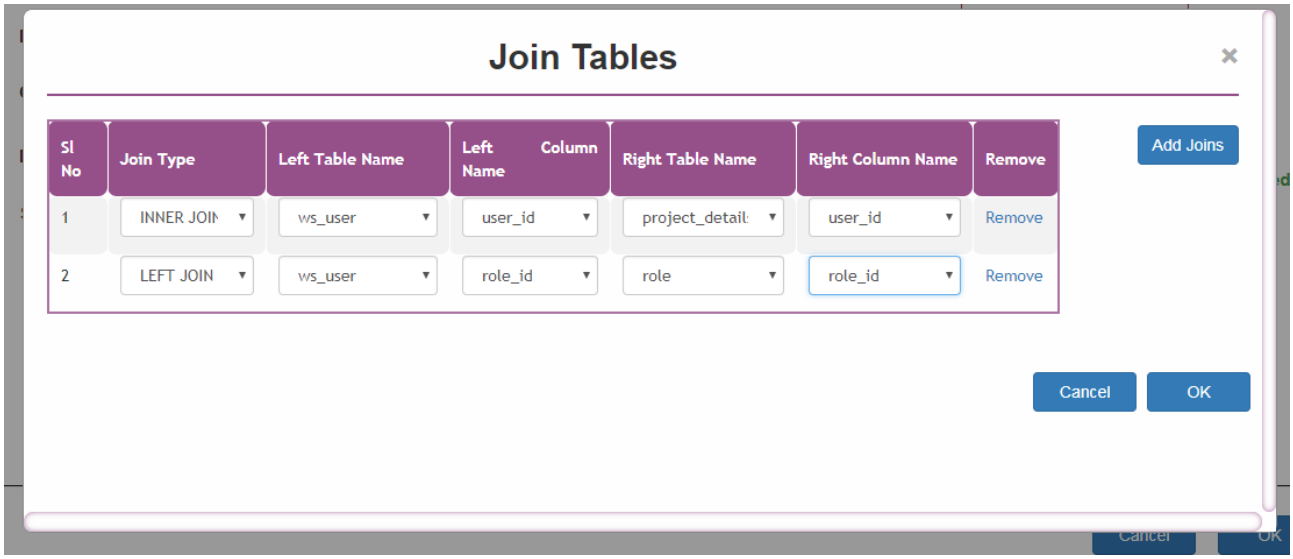
Example of Joins

Tables With Common Column :- ws_user, role, project_details

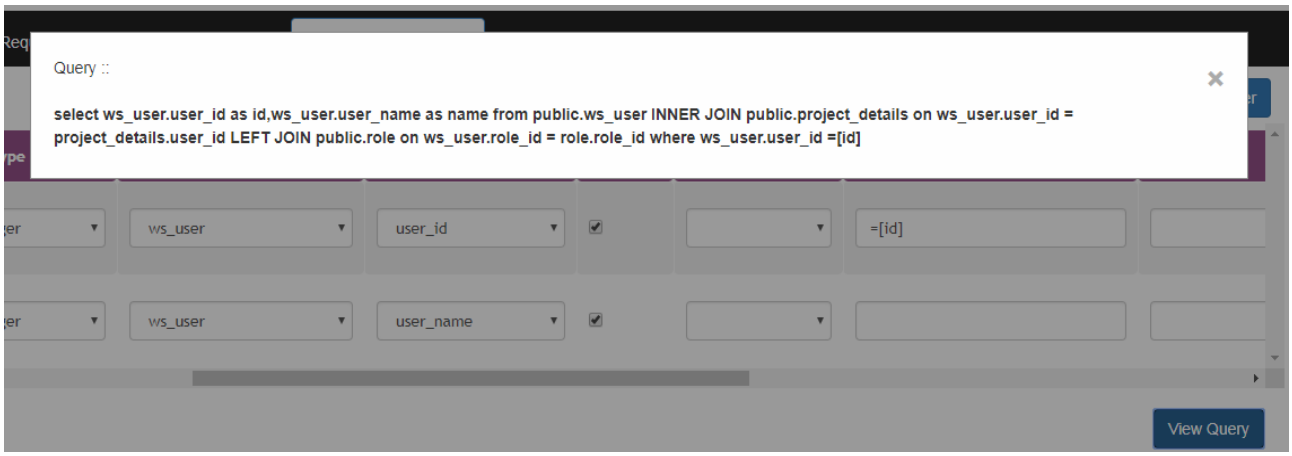
Step1 – Joining the tables using common column/field.

1st JOIN -Inner join between the tables ws_user and project_details which have the common column user_id.

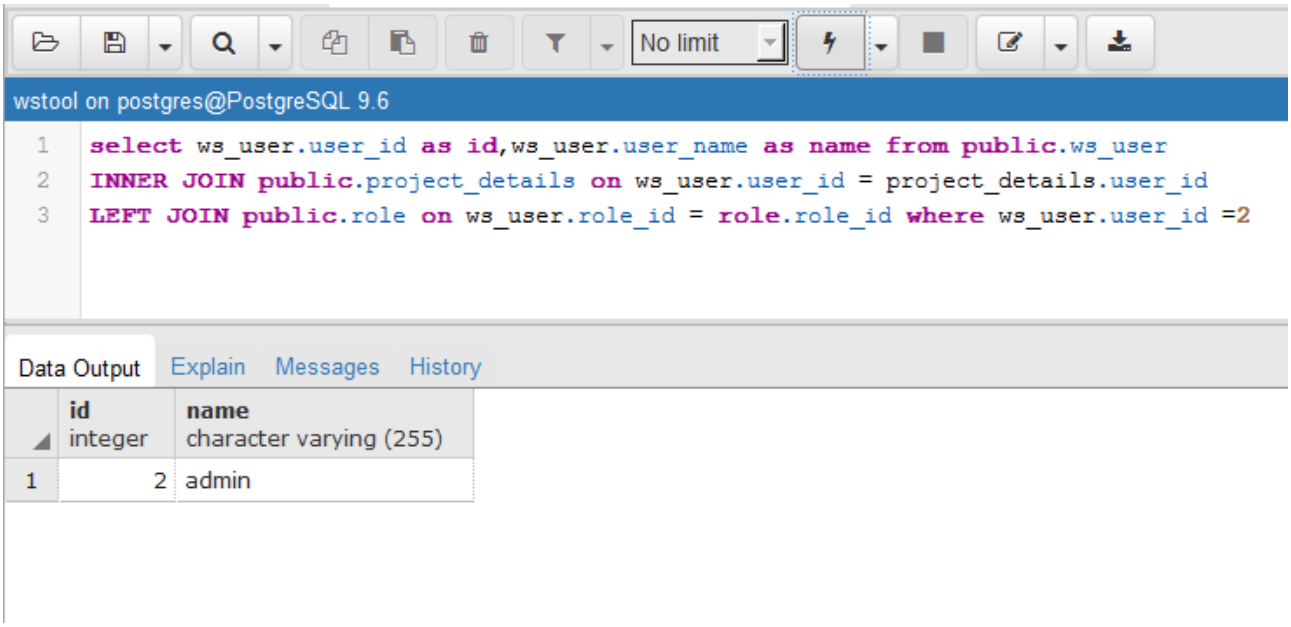
2nd JOIN – Left join between the tables ws_user and role which have the common column role_id.



Step 2- Getting the select and from clause from the response parameter table and displaying the query



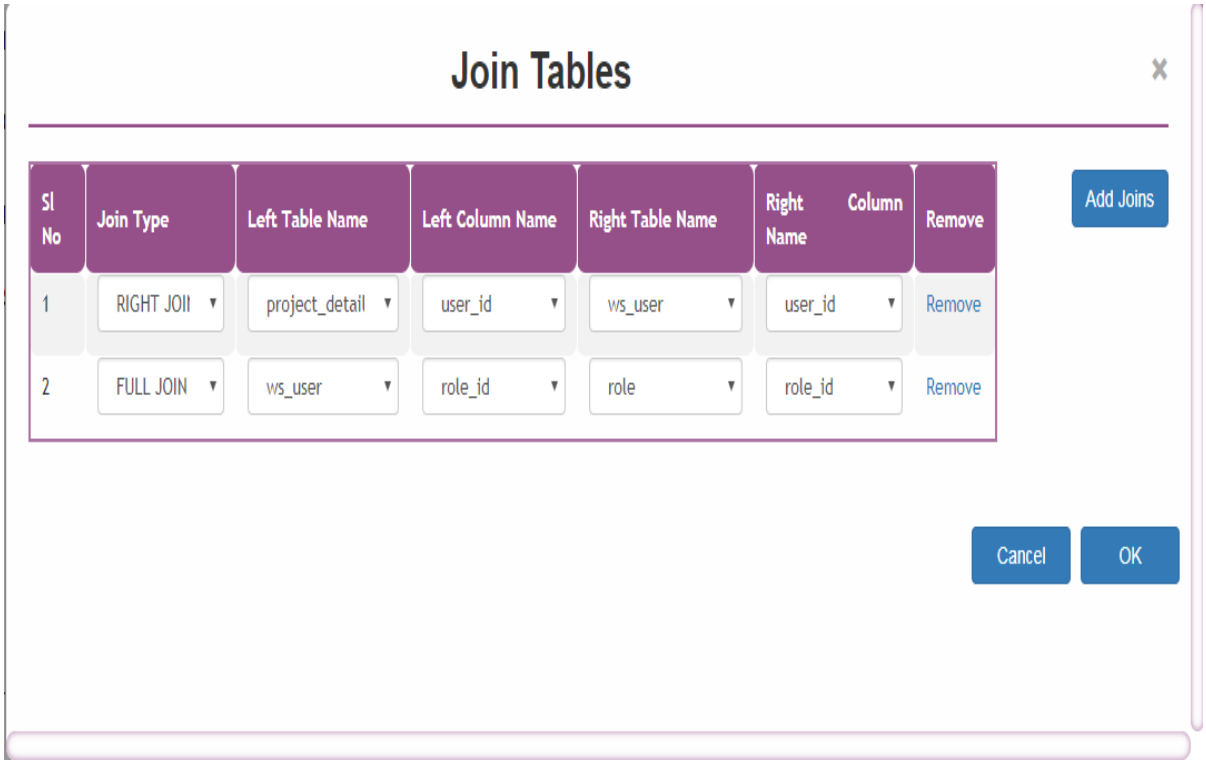
Step3 – Executing query in postgres.



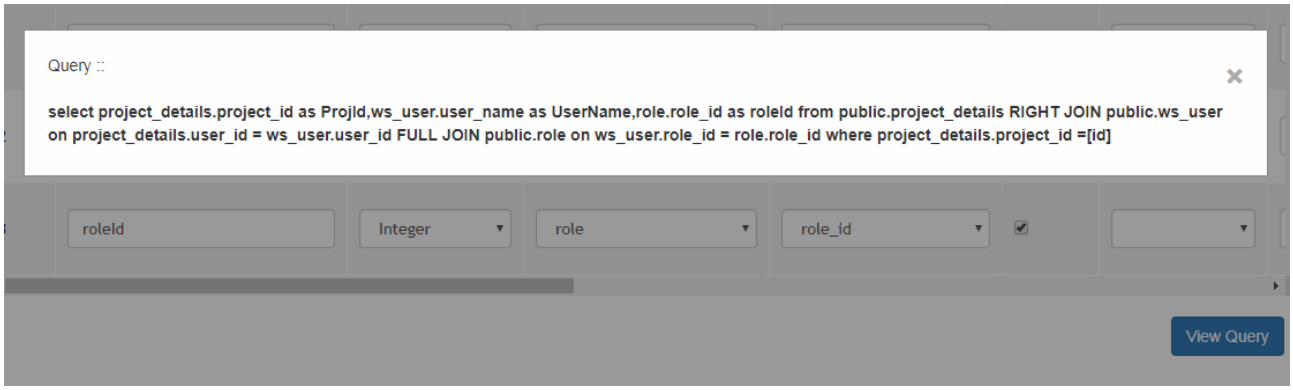
Example2 :-

1st Join – Right join between the tables project_details and ws_user

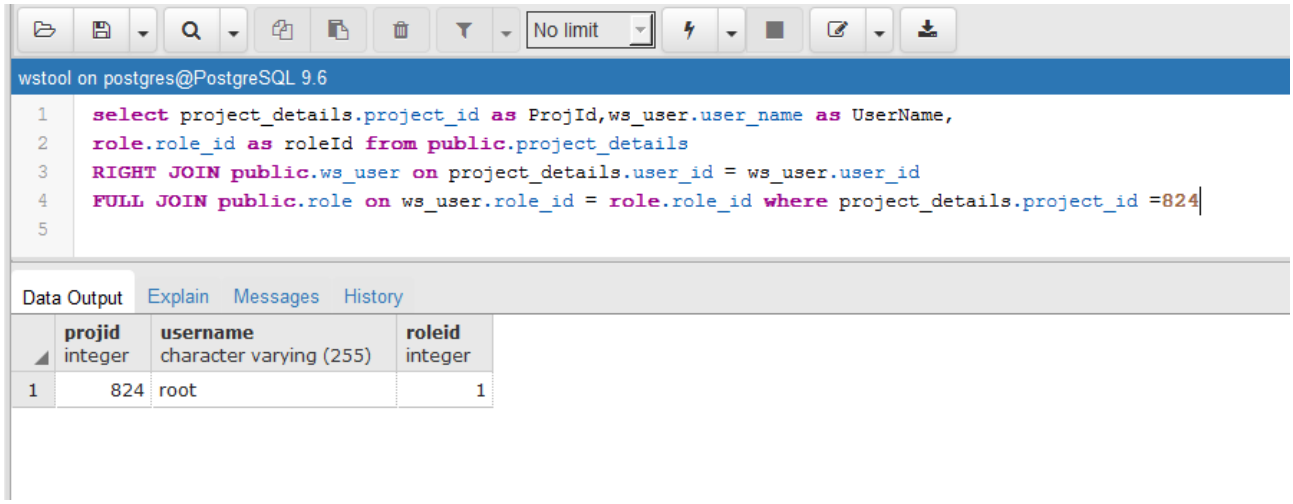
2nd Join – Full join between the tables ws_user and role.



Query for example 2.



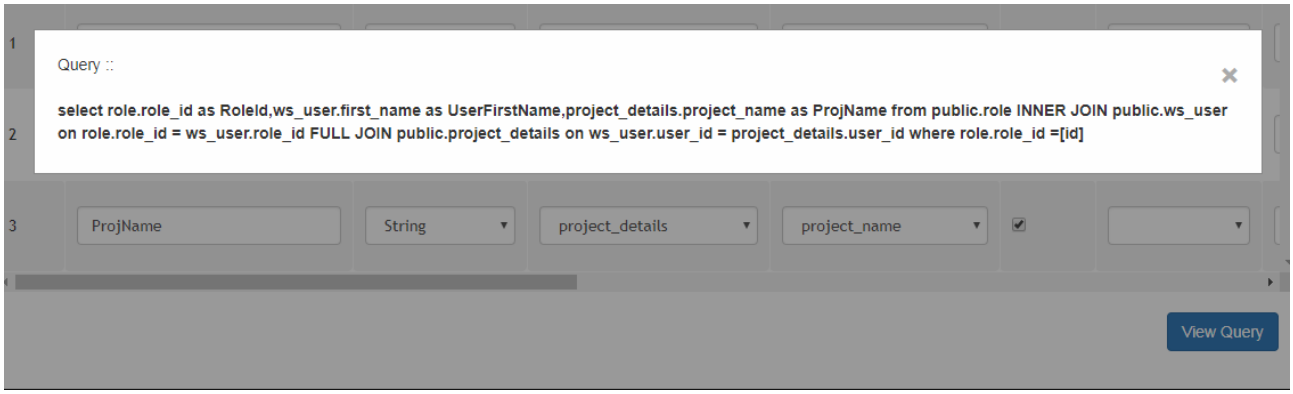
Result for the above query.



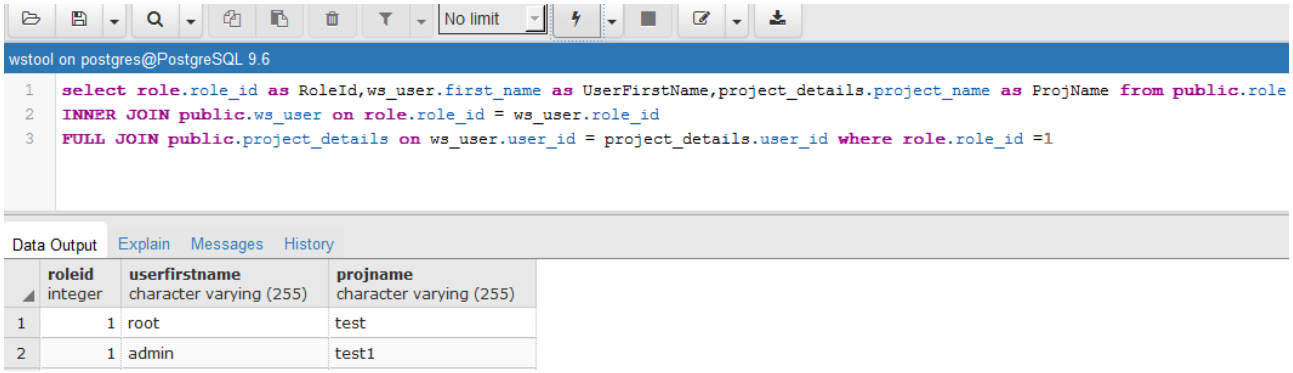
Example 3.

1st Join – Inner Join between the tables role and ws_user.
@nd Join- Full Join between the tables ws_user and project_details.

Query For Example 3.

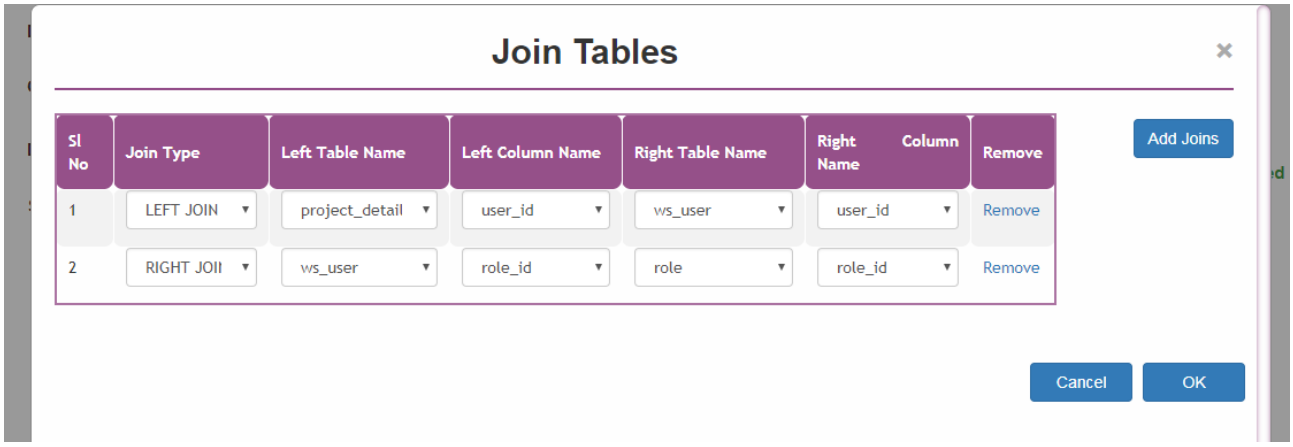


Result for the above query.



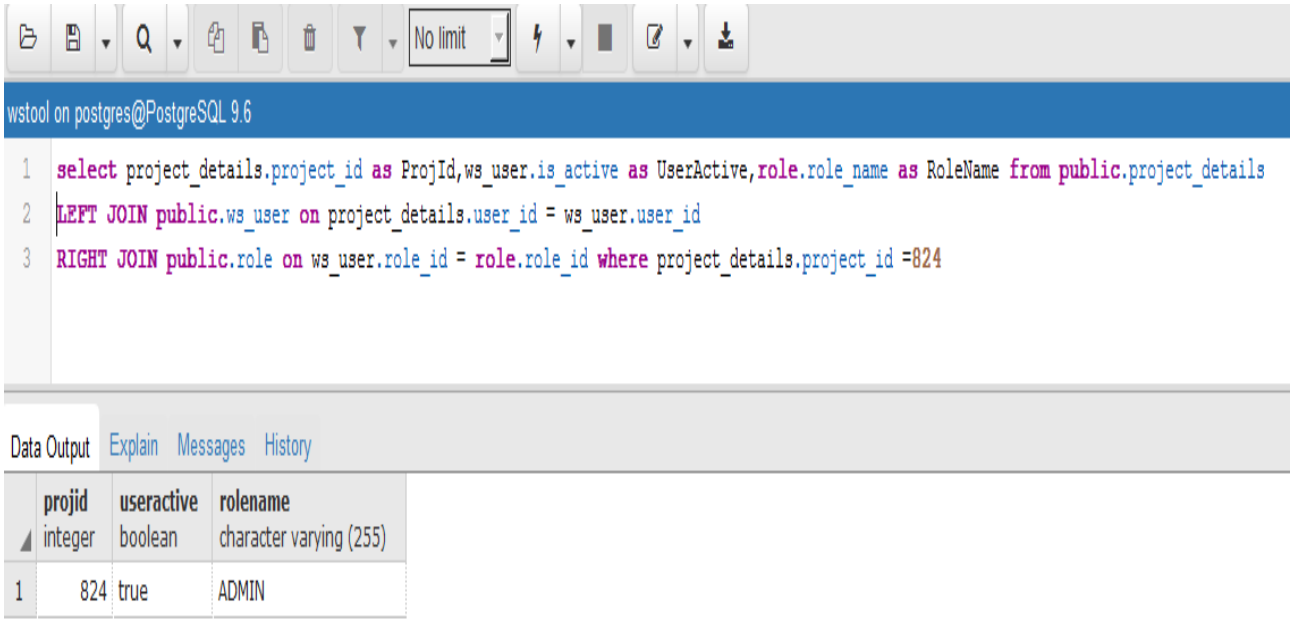
Example 4.

1st Join – Left join between the tables project_details and ws_user.
2nd Join- Right join between the tables role and ws_user.

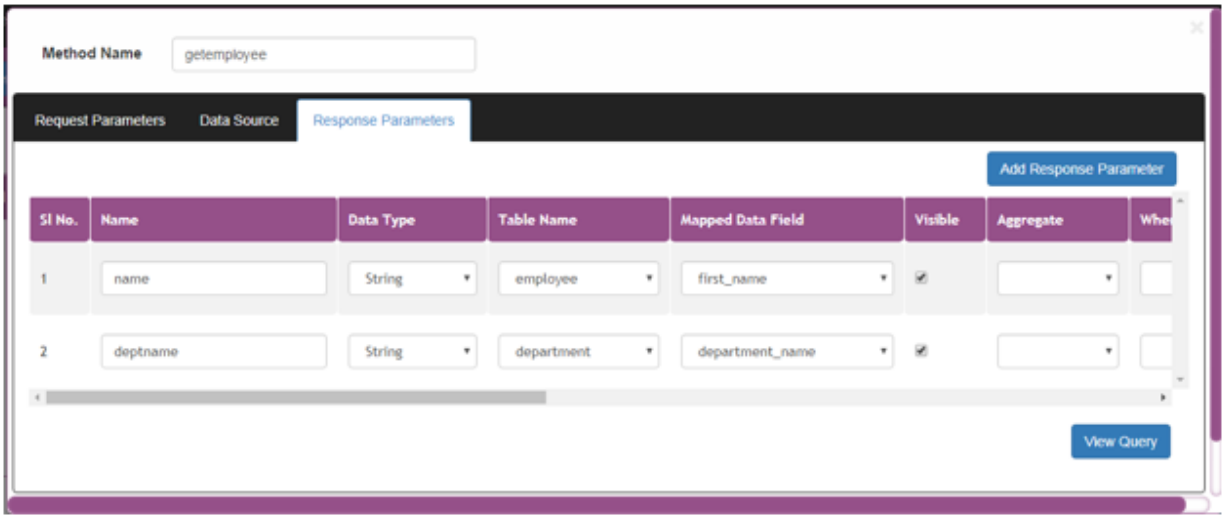


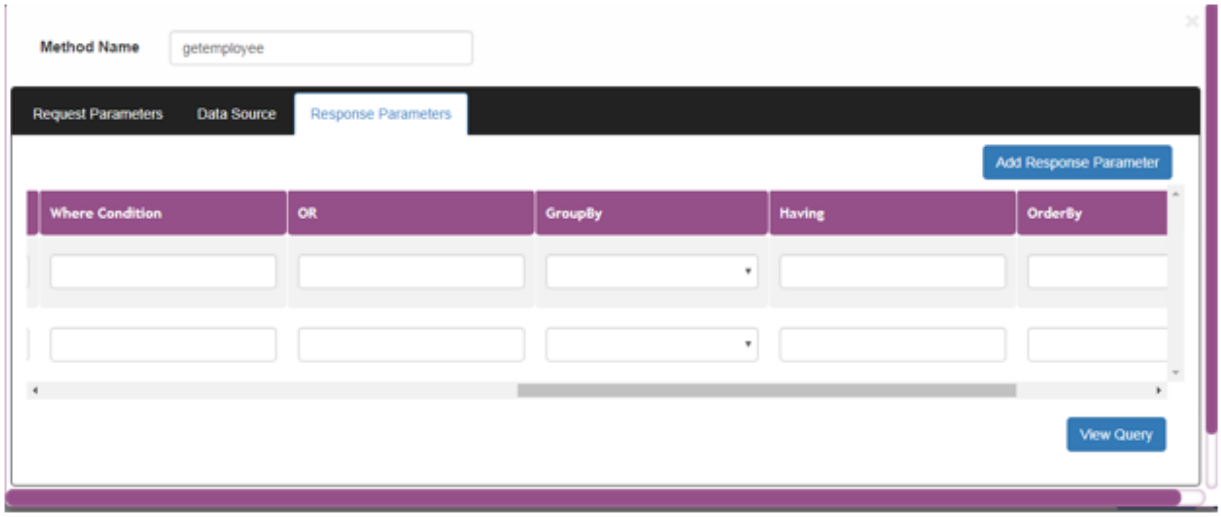
Query for Example 4.

Result for the above query.



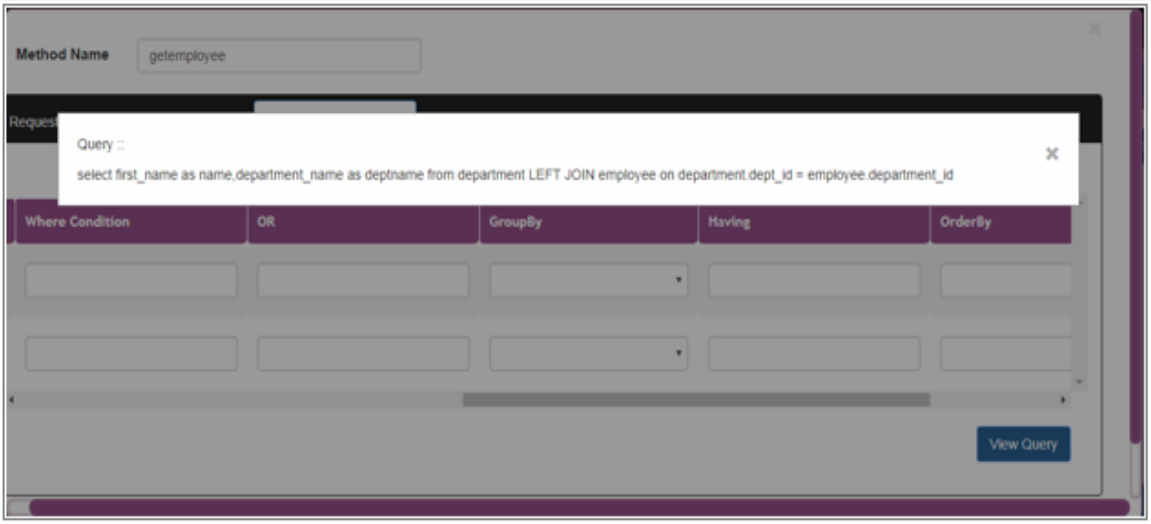
Screen 7





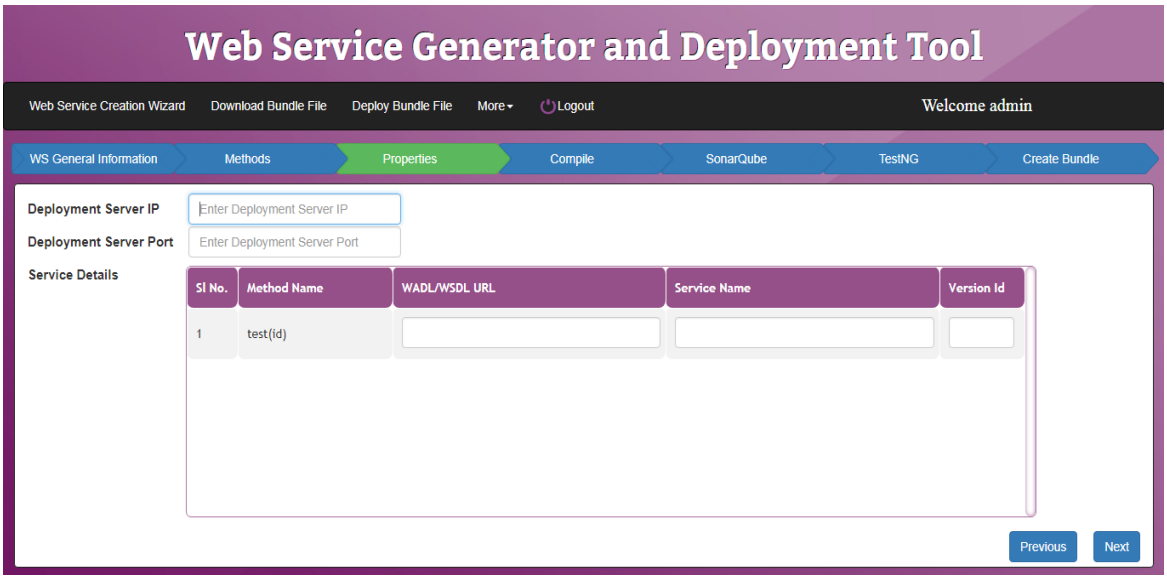
- The above screen is to provide response parameter details for methods.

Screen 8.



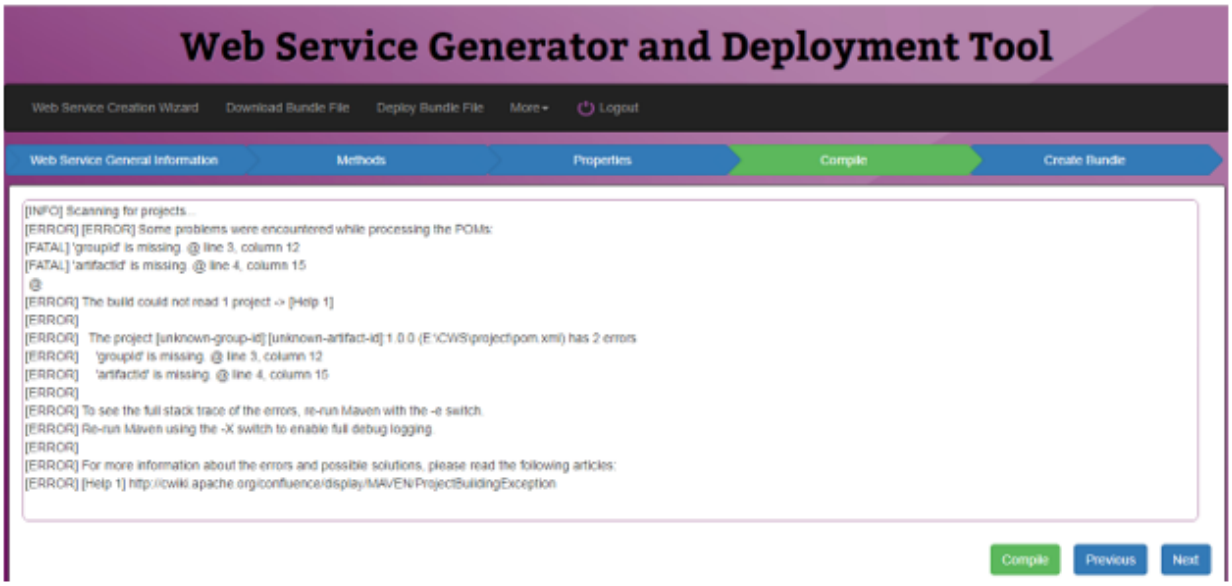
- The above screen displays the query.

Screen 9



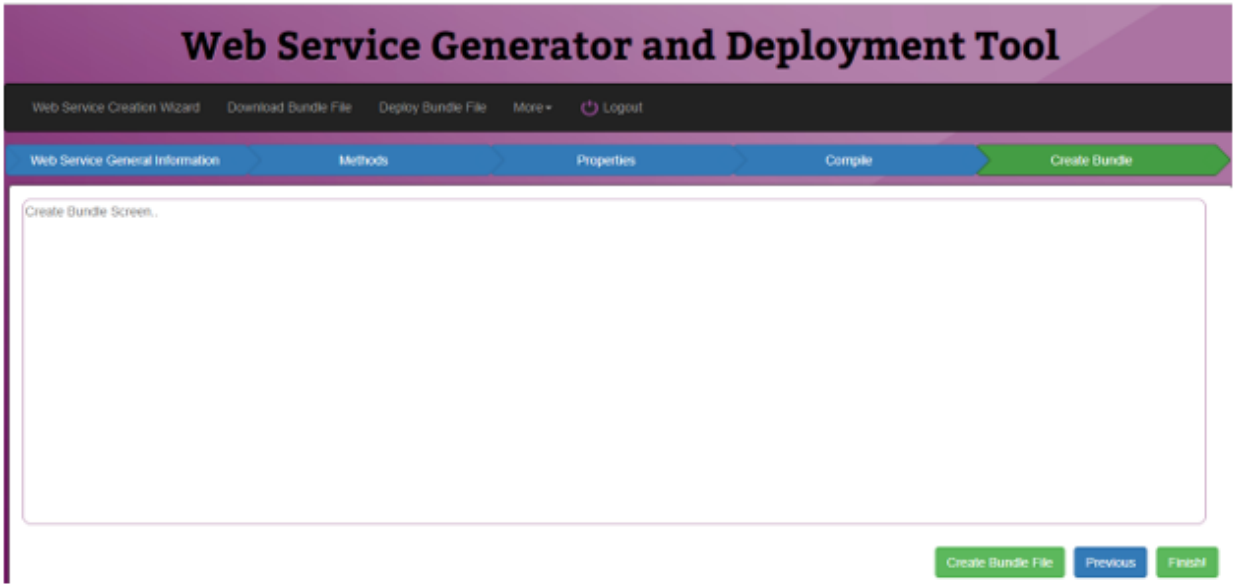
- The above Screens is to provide the property details.

Screen 10

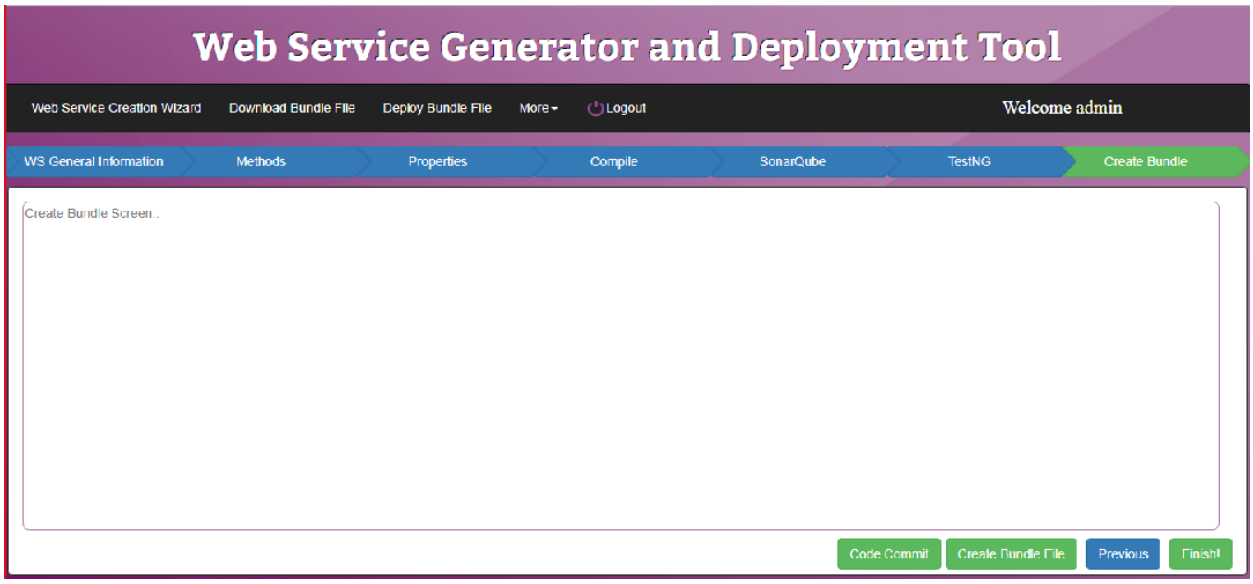


- The above screen is provided to compile the generated source code.

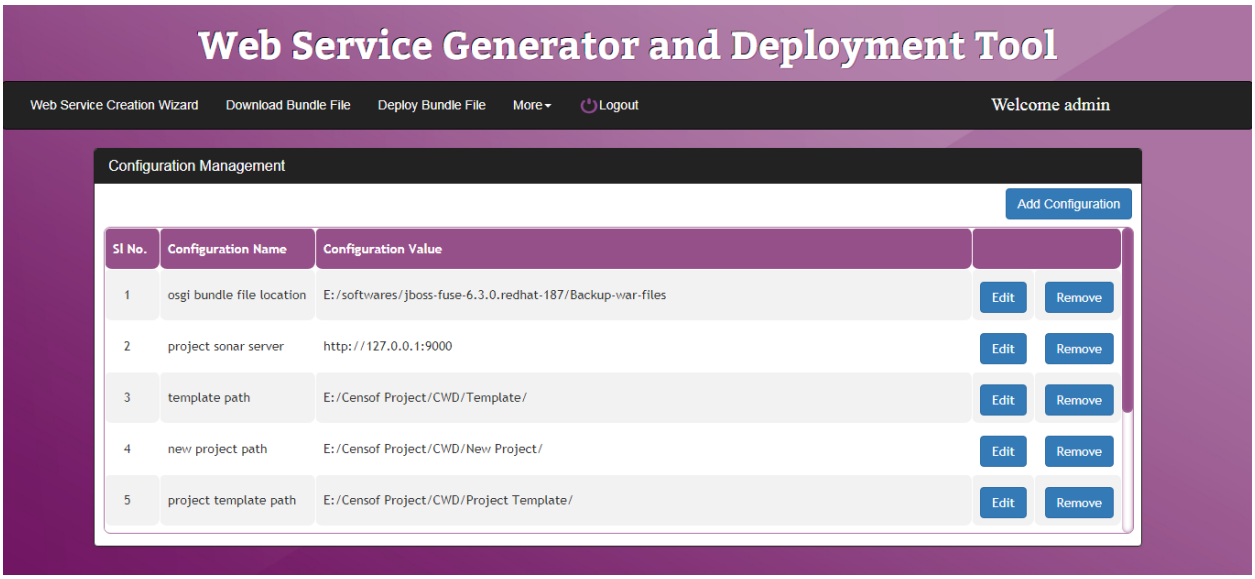
Screen 11



- The above screen is provided to create the bundle file for generated source code.

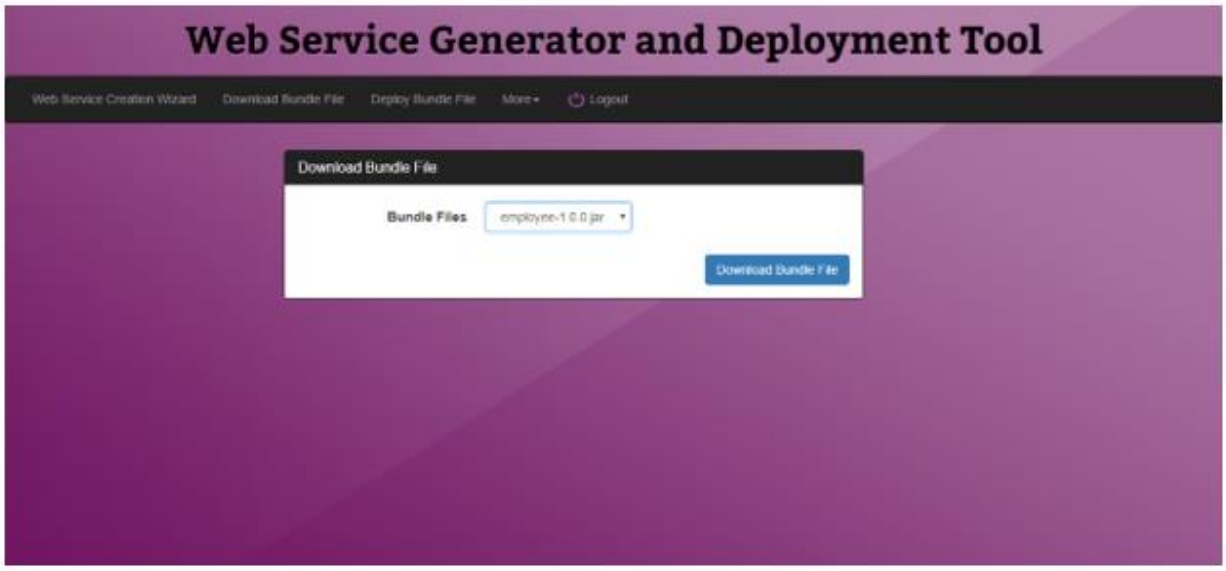


Screen 12



- The above screen is configuration management where user can add delete and edit the configuration.

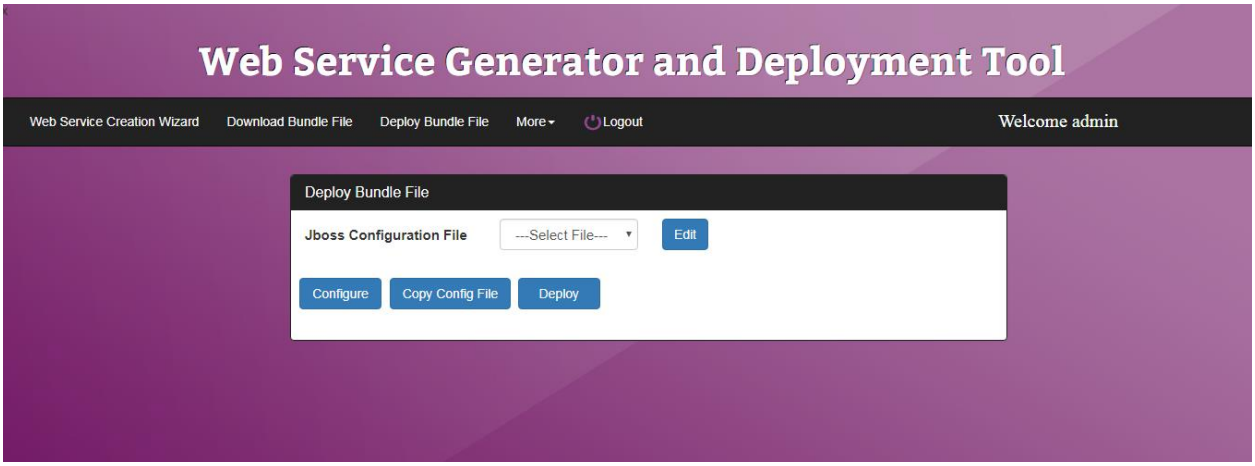
Screen 13



- The Above screen is provided to download the bundle file.

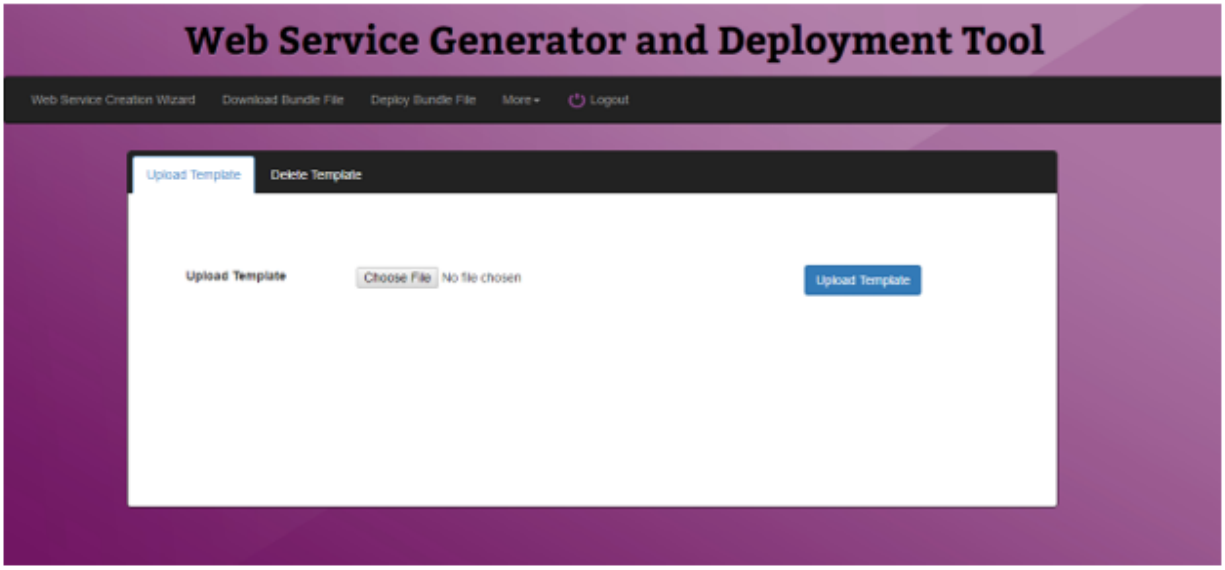
Automatic Deployment screen:

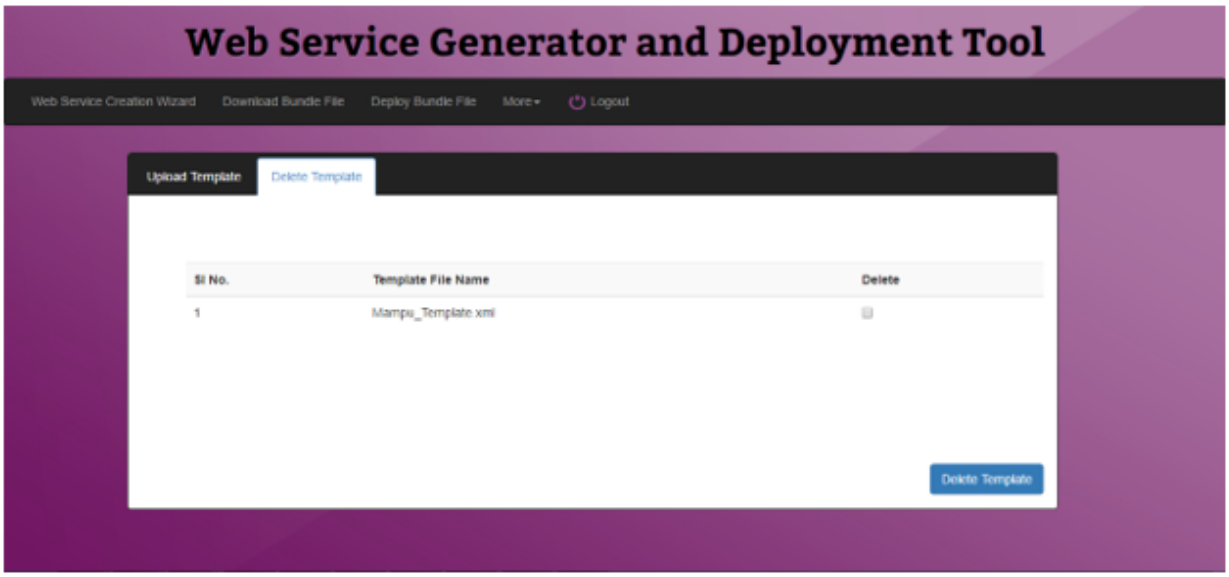
1. User shall be allowed to enter the JBoss fuse commands in configuration file by selecting JBoss configuration file from dropdown.
2. After saving the configuration the User shall click on the “Configure” button.
3. After Jboss server configuration is successful the User shall copy the configuration file generated by tool to JBoss fuse instance.
4. After Step (3) the user shall Click the “Deploy” button.
5. User shall get the URL which will be displayed on screen to access the list of services deployed in JBoss server.



Template Management Screens:

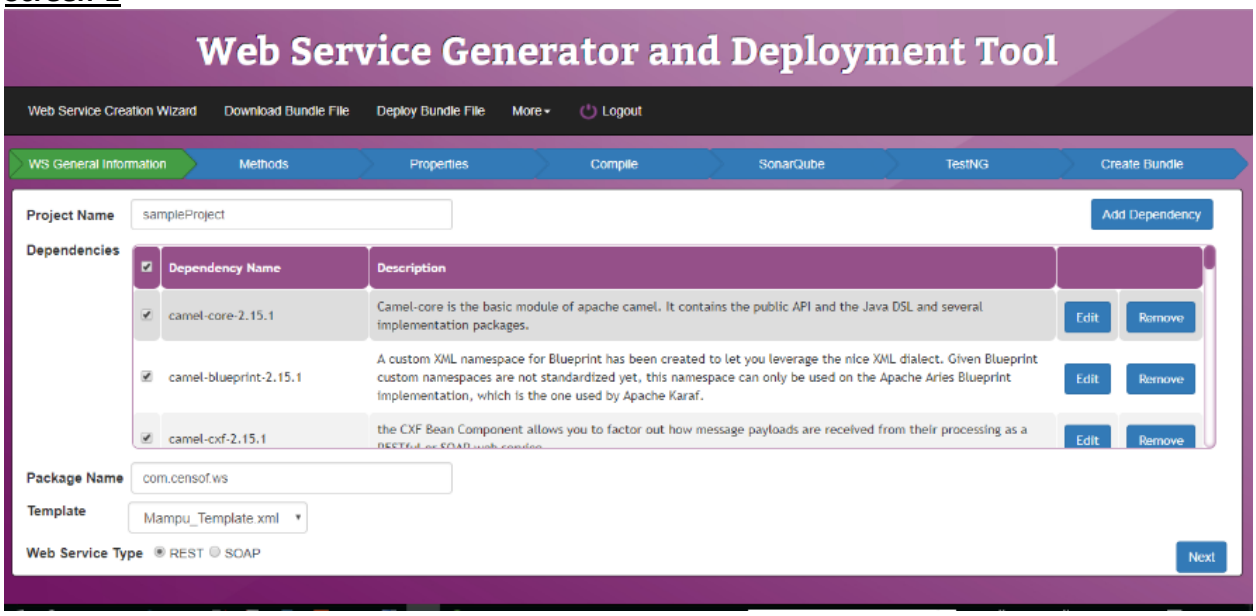
If the template file already exits, the incremental sequence number shall be maintained as version number and same may be appended to the file name





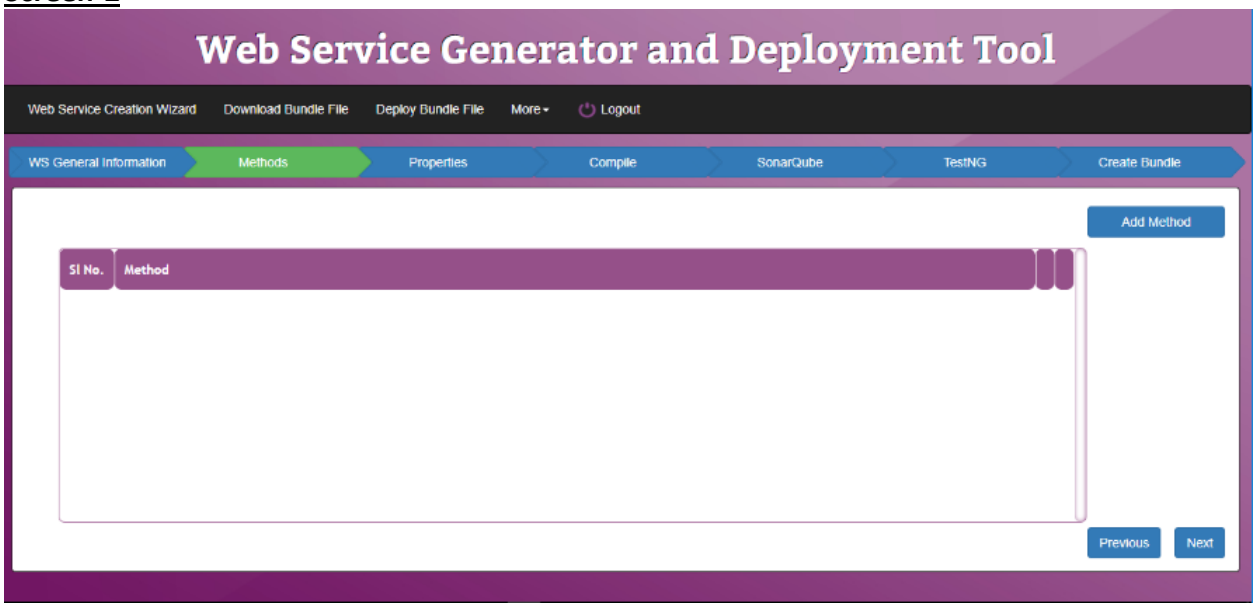
Screens for the implementation of Reading the parameters from other WSDL and WADL files to generate the SOAP and REST services: (Refer Section 3.8 for details)

Screen-1



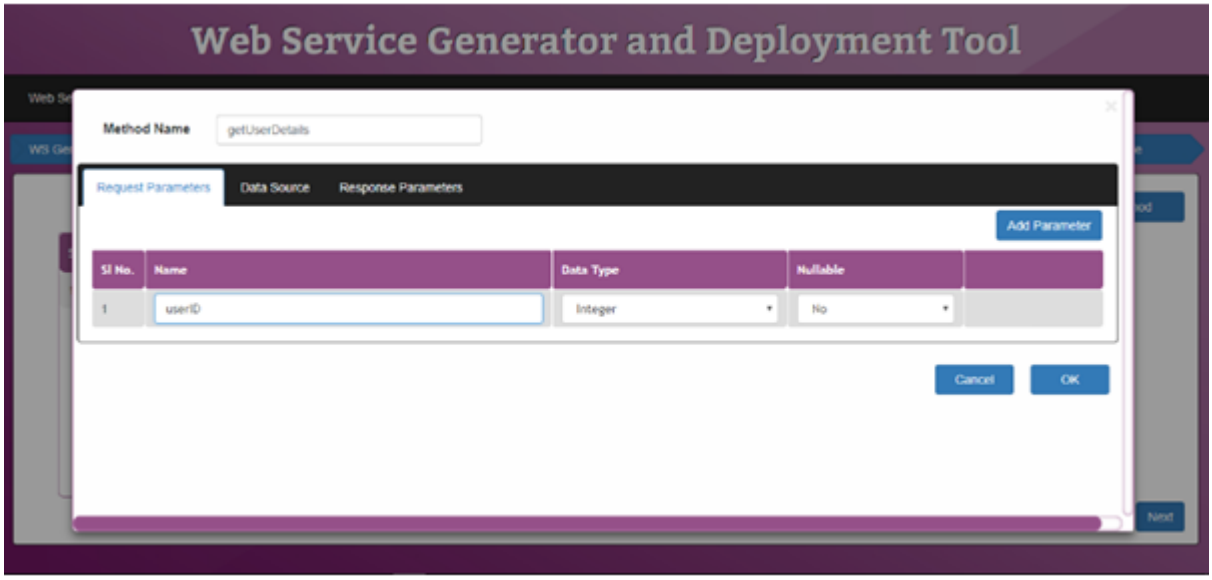
Screen 1 is the initial screen where the user shall be allowed to enter Project Name and Dependencies, Package name, Select Template and mention the Web Service Type.

Screen-2



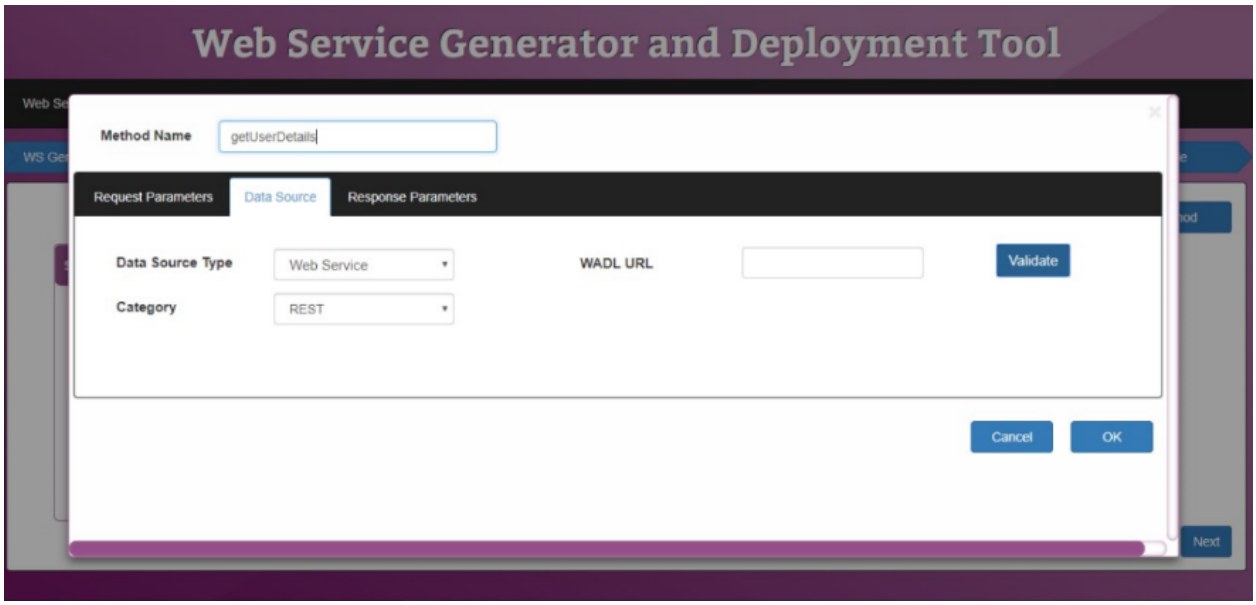
Screen-2 shall allow the user to add methods.

Screen-3



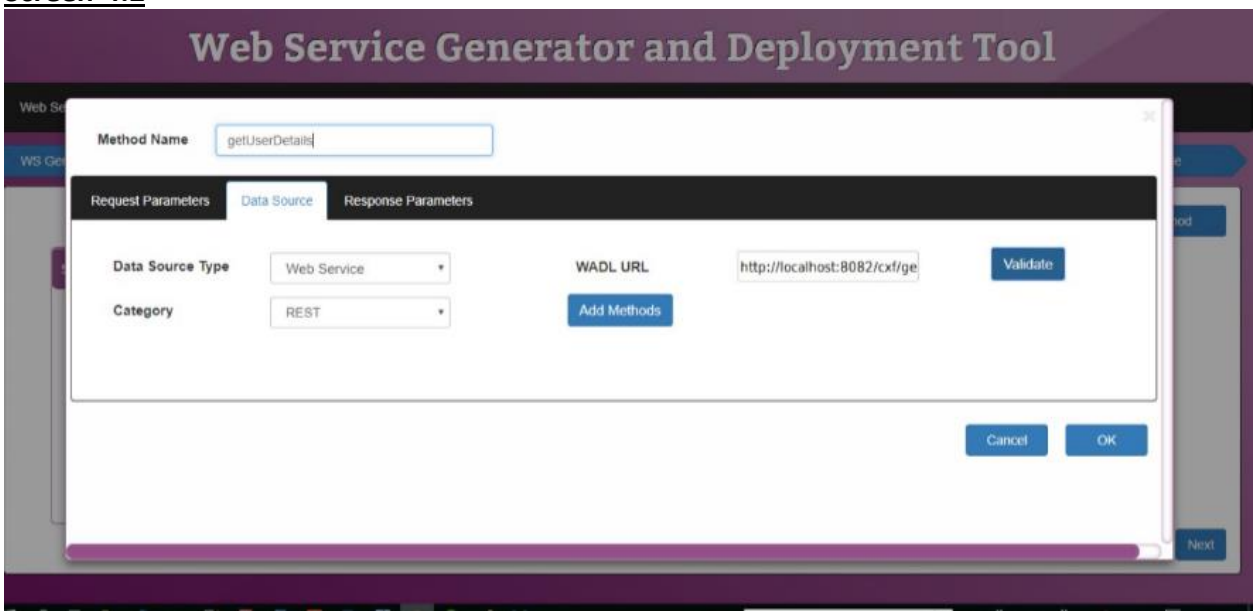
Screen-3 shall allow the user to add the request parameters. If the Data Source Type is Web Service then the Request Parameters shall be populated accordingly based on the arguments of the web method selected.

Screen-4.1 – Depicting REST



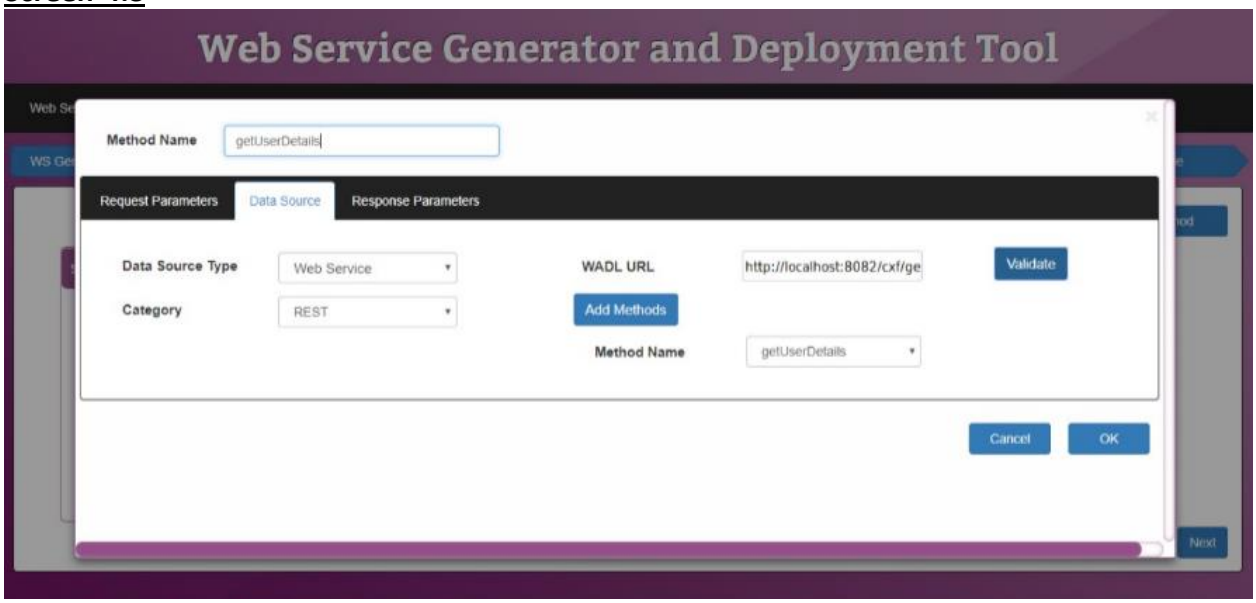
Screen-4.1 Allows the user to select the Data Source Type where the user may select the Web services as the Data Source Type. The category shall be populated with REST / SOAP. The user shall be allowed to select any one of the two.
The user shall be allowed to enter the WADL URL if the selection in the Category is REST. There shall be a Validate button to validate the WADL URL.

Screen-4.2



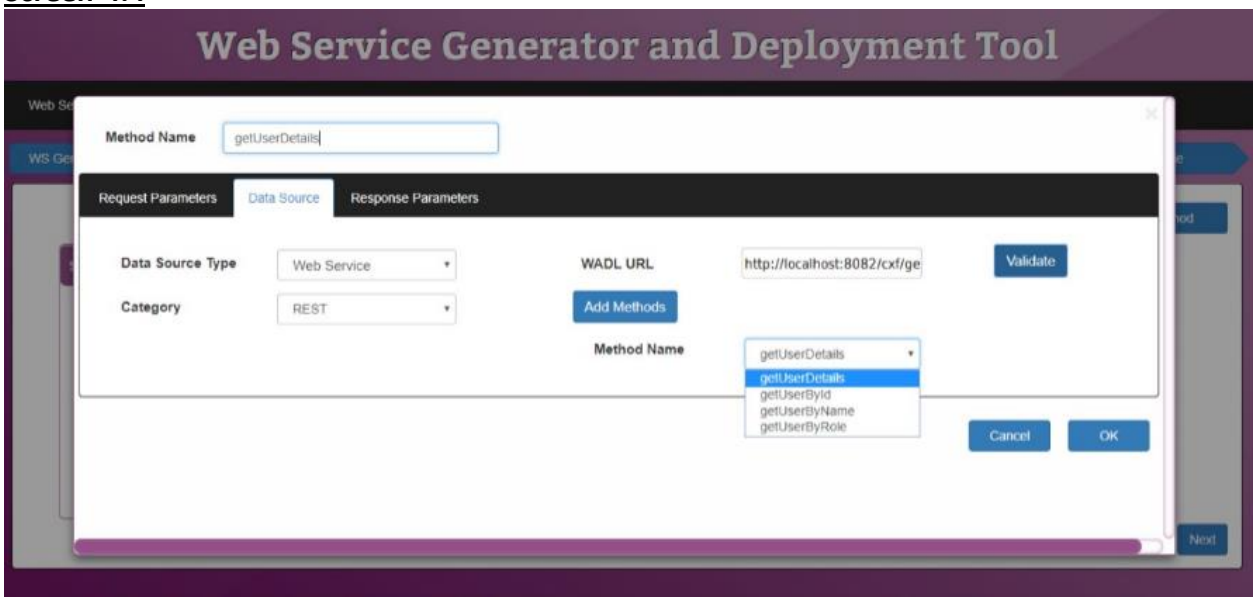
Screen-4.2 shall allow the user to add the Web Methods of the selected Web service by clicking the Add Method Button after the validation of the WADL URL comes out to be successful.

Screen-4.3



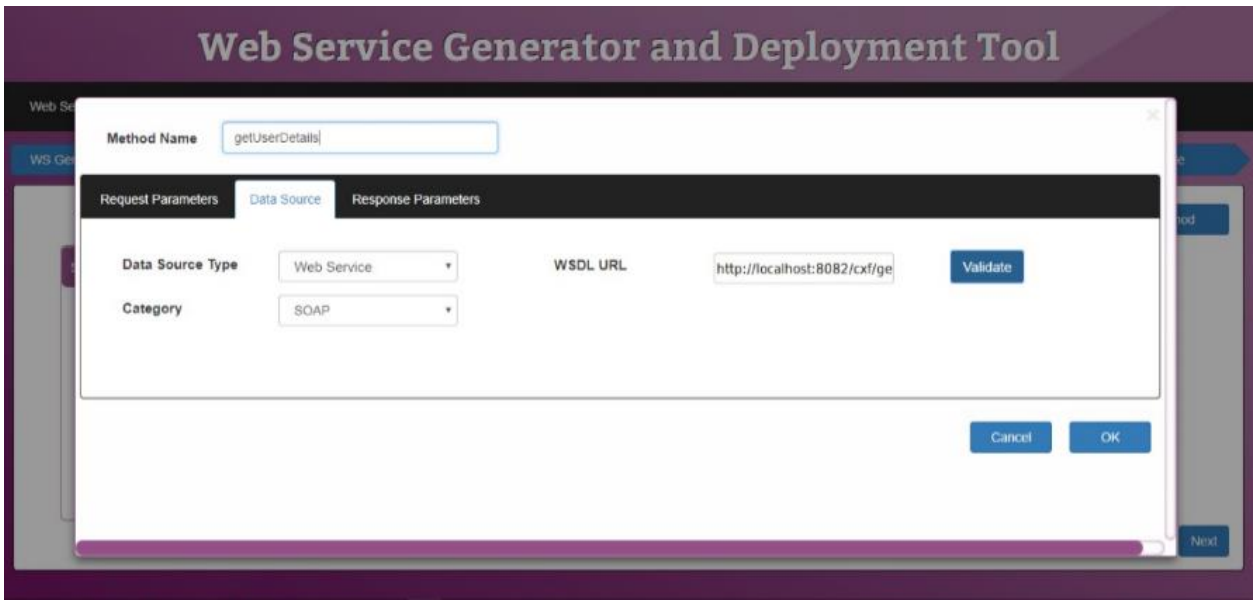
Screen-4.3 There shall be a Method Name dropdown which shall be populated with the Web methods of the selected Web Service.

Screen-4.4



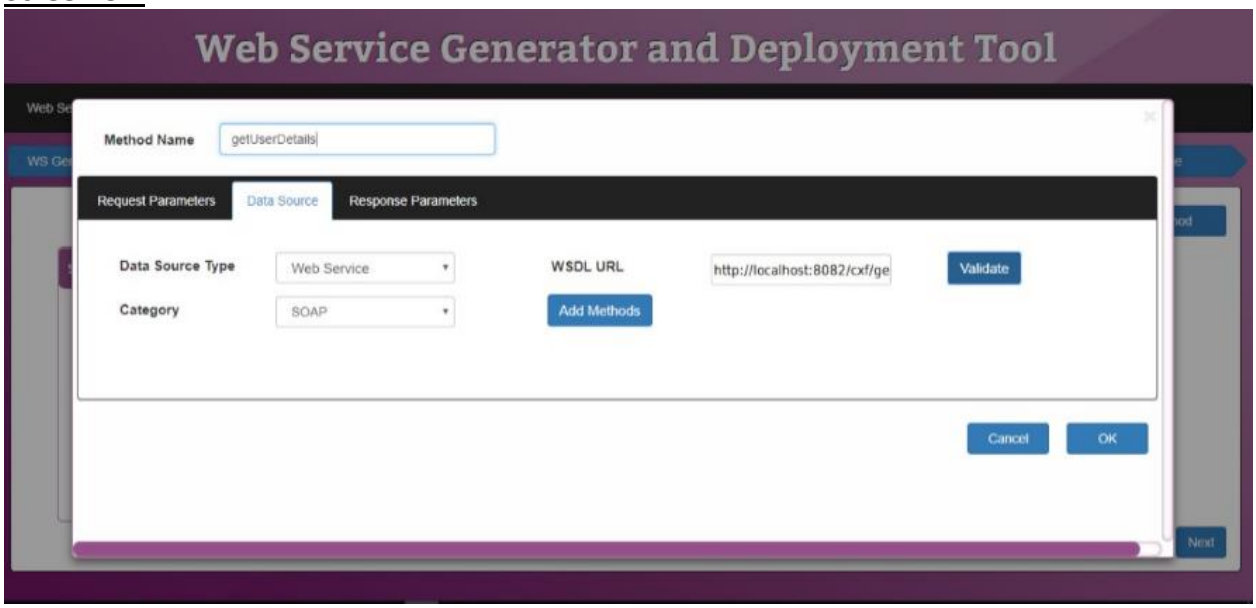
Screen-4.4-The user shall be allowed to select only one Web Method at any instant of time for the creation of the method. There shall be an optional Message Area to display all overloaded methods depending on the presence of overloaded methods.

Screen-5- Depicting the SOAP



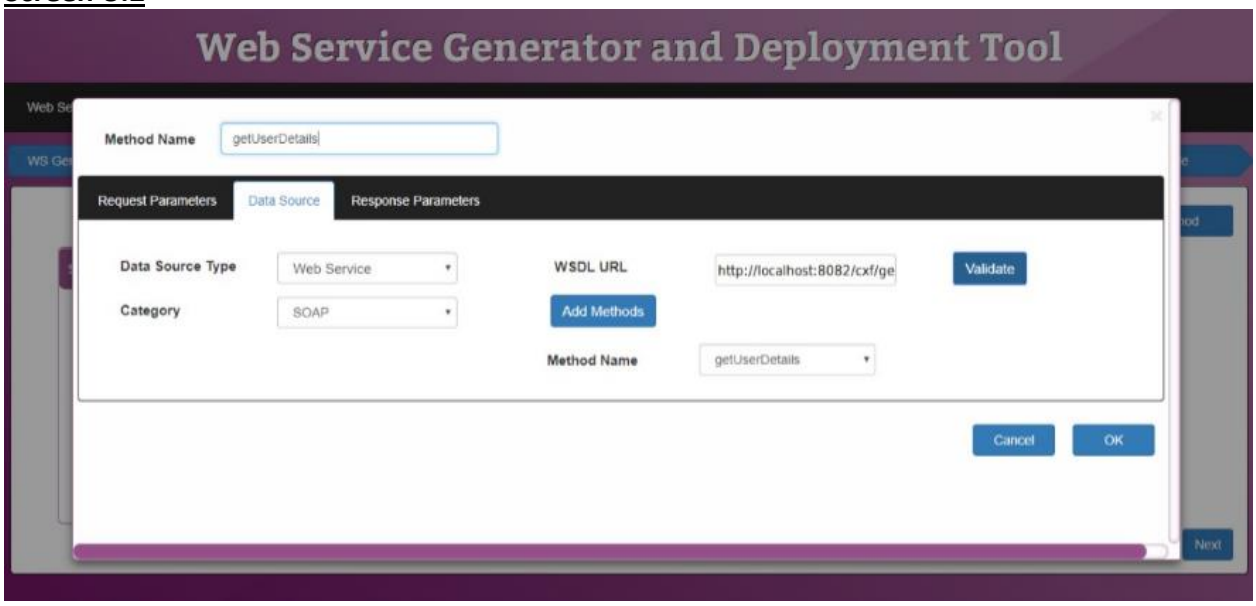
Screen-5 The user shall be allowed to enter the WSDL URL if the selection in the Category is SOAP.

Screen-5.1



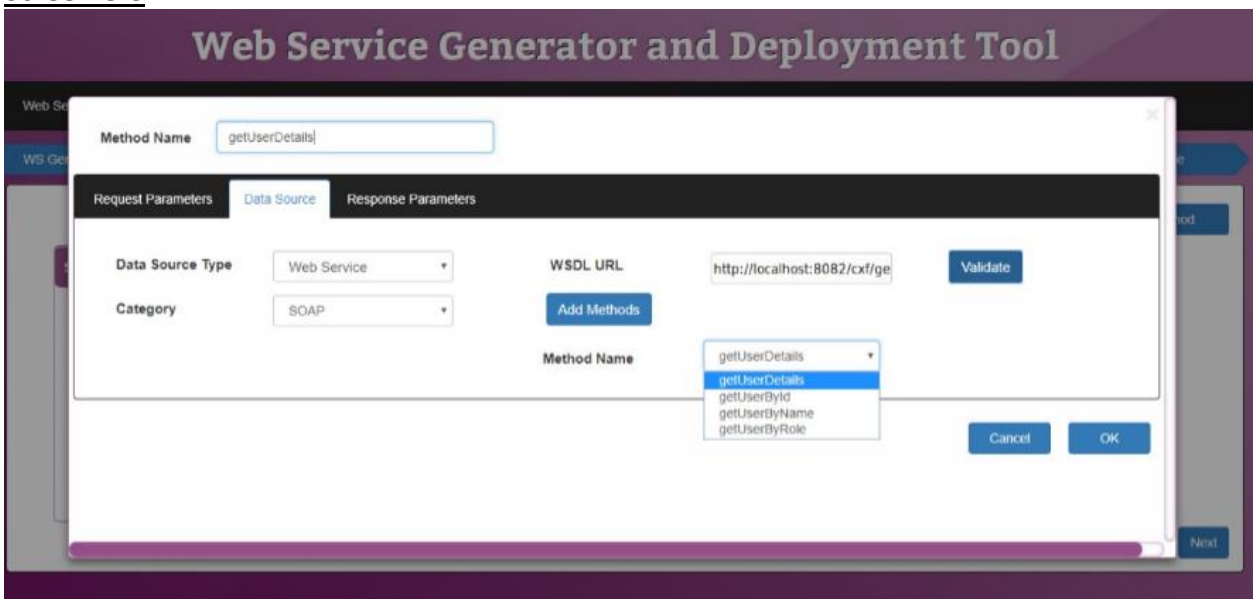
Screen-5.1 There shall be a Validate button to validate the WSDL URL.

Screen-5.2



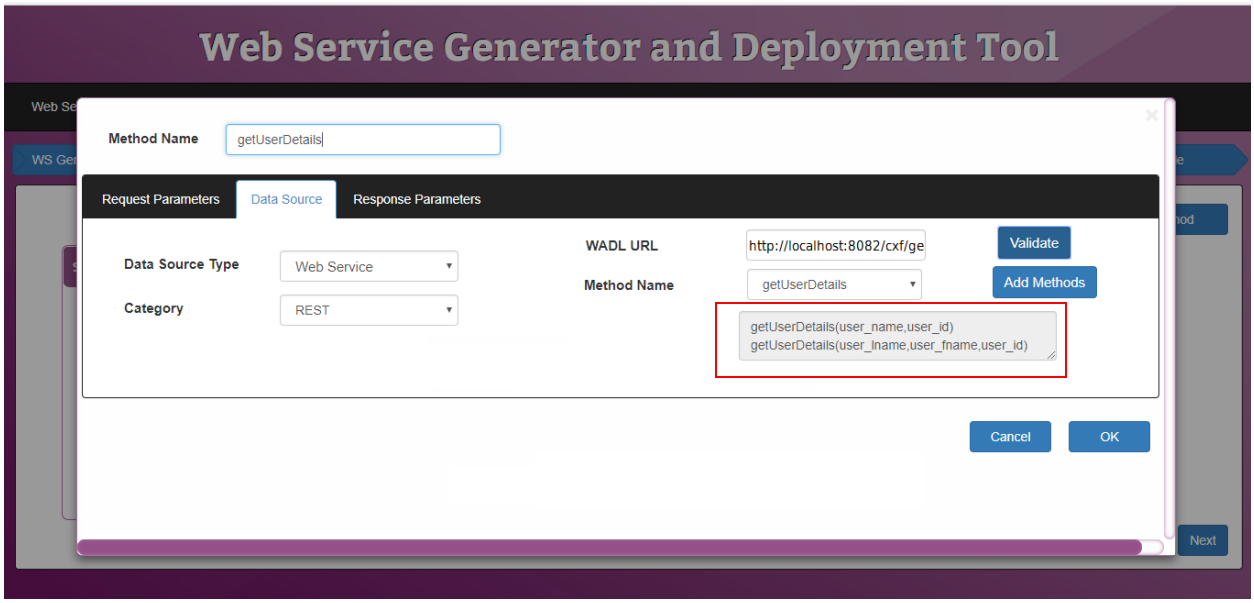
Screen-5.2 shall allow the user to add the Web Methods of the selected Web service by clicking the Add Method Button after the validation of the WSDL URL comes out to be successful.

Screen-5.3



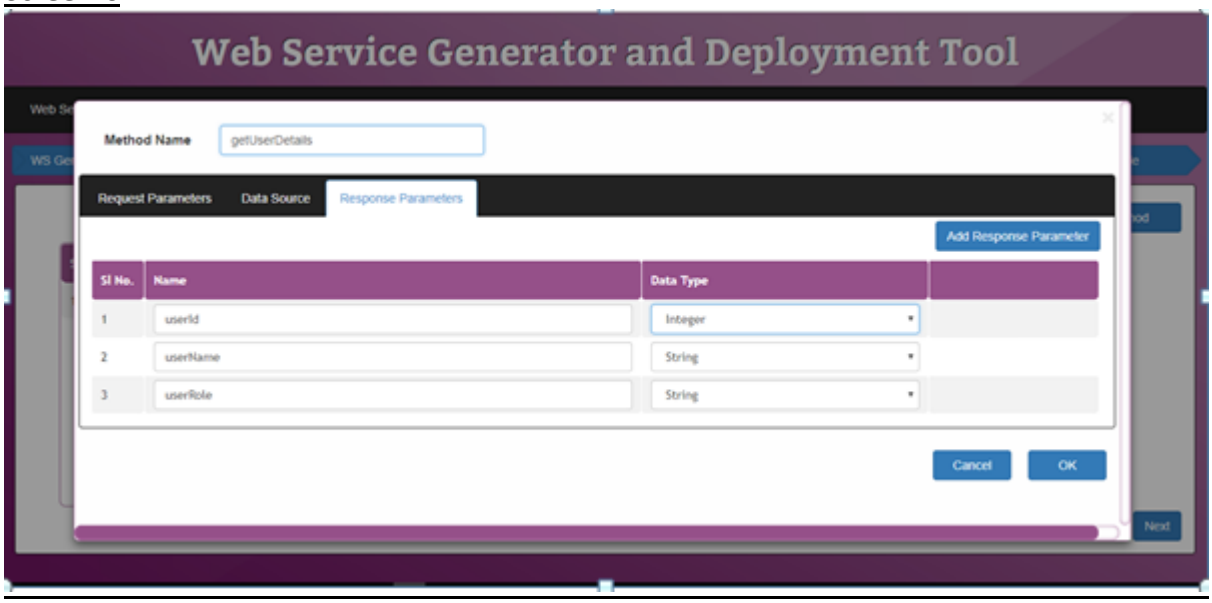
Screen-5.3 There shall be a Method Name dropdown which shall be populated with the Web methods of the selected Web Service.

Screen-5.4



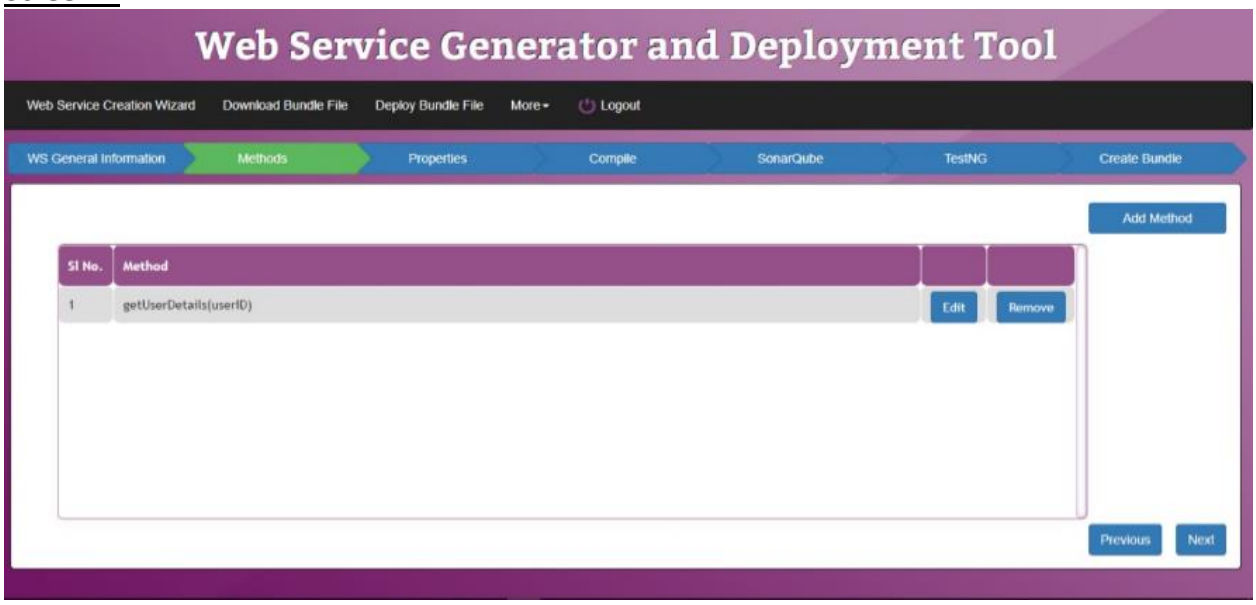
Screen-5.4 There shall be an optional Message Area to display all overloaded methods depending on the presence of overloaded methods.

Screen-6



Screen-6 The user shall be able to view the Response parameters which may be populated based on the return type of web methods.

Screen-7



Screen 7- The Method(s) created shall be displayed in the method summary.

If the Web Method takes arguments then those may be treated as the Request Parameters.

The return values of the Web Method may be treated as the Response parameters.

3.1.2 Hardware Interfaces

Operating System: Windows 7 and 10/Linux (Ubuntu 16.04 LTS
RAM: Minimum 8GB
Processor: Core i5
Hard Disk: 256 GB or larger

3.1.3 Software Interfaces

Java 8, Apache Maven 3.5.3 , Postgres SQL 10.3, MySQL 5.7.21, MSSQL 14.0, Oracle 12.2.0.1, Sonar 6.5 ,Jboss-fuse-6.3.0. redhat-187

3.2 Functional Requirements

3.2.1 Web Service Generation Tool

3.2.1.1 The system shall provide a wizard-based tool to Generate Web Services
3.2.1.2 The Wizard shall have the following main sections

a. General
b. Method General Info
c. Method Data Source
d. Method Response Parameters
e. Query Viewer (For Database Tables only)
f. Property File Generator
g. Code Compiler
h. Code Analysis (SonarQube)
i. Automation (TestNG framework)
j. Bundle Creation

3.2.2 Wizard General Page: Web Service General Information

3.2.2.1 The Wizard General Page shall allow the user to enter the top level basic details of the Web Service.
3.2.2.2 The General Page shall allow the user to enter **Project Name**.
3.2.2.2.1 There shall be an input text box with label name Project Name in the screen, where user can enter the Project Name.
3.2.2.2.2 The Project Name shall be a mandatory field. The maximum length of the field shall be 25 characters. No space shall be allowed within the Project Name.
3.2.2.2.3 Based on the entered Project Name the Project shall be created at the back end.
3.2.2.3 The General Page shall allow the user to select the **web service type**.
3.2.2.3.1 There shall be a radio button to select either Rest or SOAP as web service type.

3.2.2.4 The Wizard General Page shall allow the user to select the **Dependencies** for the Web Service. The add edit and delete dependencies shall be maintained from the dependencies Table itself in the Wizard General Page.

3.2.2.4.1 The multiple check boxes containing the Dependencies shall be populated from the database.

3.2.2.4.2 The multiple check boxes shall display the Dependency name, Dependency description and version.

3.2.2.4.3 The user shall be allowed to select multiple Dependencies.

3.2.2.4.4 For the selected dependencies a pom.xml file shall be generated at the back end.

3.2.2.5 The Wizard General Page shall allow the user to enter Package Name for the Web Service. Package name should have minimum 3 dots and it should start with domain names com, edu, gov, net and org and it should have 3 characters in between the dots.

3.2.2.5.1 There shall be an input text box with label name Package Name in the screen where user can enter the Package Name.

3.2.2.5.2 The Package Name shall be a mandatory field.

3.2.2.5.3 At the back end the package shall be created and all the generated classes/interfaces shall be in the specified package.

3.2.2.6 The Wizard General Page shall allow the user to select the **Predefined Template** for the Web Service.

3.2.2.6.1 There shall be a label named Predefined Template

3.2.2.6.2 There shall be a drop-down option to select Predefined Templates.

3.2.2.6.3 The drop down shall be populated with predefined templates from the configured location.

3.2.2.6.4 There shall be a screen to upload the template. If the template name is already available then the file name shall be suffixed with increment numbers.

3.2.2.6.5 Template shall be displayed in dropdown. User can access the old template from the dropdown.

3.2.2.6.6 The user shall be allowed to select any one Predefined Template from the drop down.

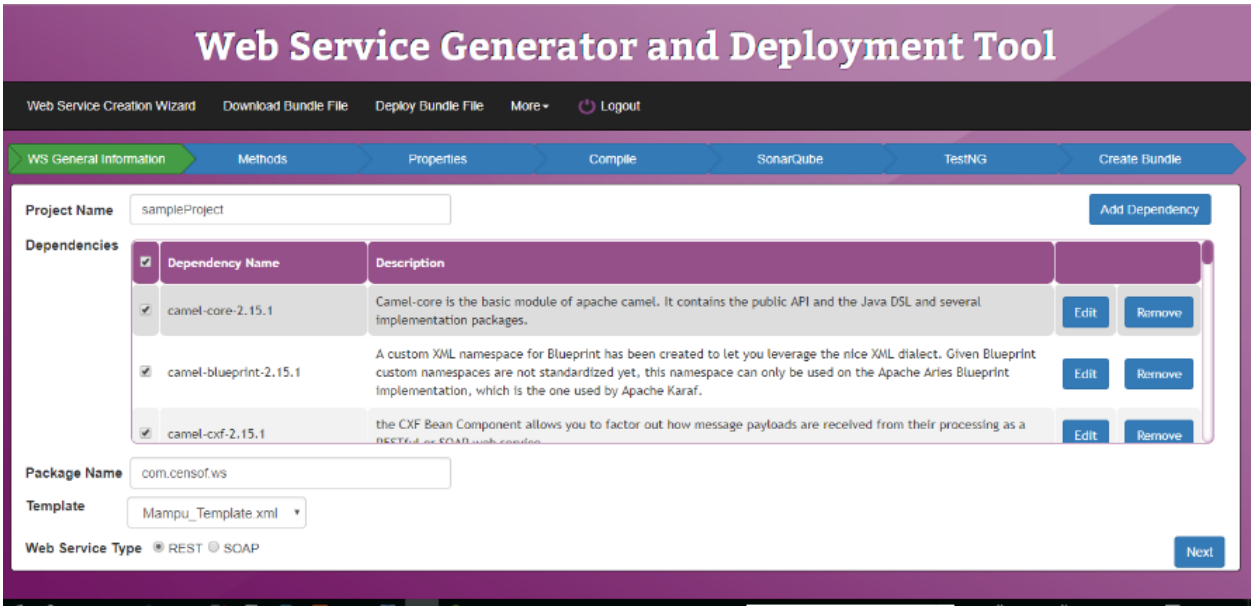
3.2.2.6.7 The selection of Predefined Template by the user shall be mandatory.

3.2.2.6.8 In the back end the source code shall be generated based on the selected predefined template. The tool shall be going to generate the header.java file and the processor java file to validate the payload structure and to validate the header parameters like mandatory fields, allowing only numbers, allowing only alphanumeric.

3.2.2.6.9 The Predefined Template shall contain the following information in xml format for each method. Template shall be used to share the common functionality for all the methods. There shall be a screen to upload the template. Once the template is uploaded, the uploaded template shall be shown in the dropdown. It is mandatory to select the template to generate the web services.

3.2.2.6.10 The format of the template is xml. – Please refer to Appendix1

3.2.2.6.11 Web Service General Information Wizard Page shall have the following layout.



3.2.3 Wizard Method General Info Page

3.2.3.1 The Wizard Method General Page shall allow the user to enter the top level basic details of **Method Name** and **Request Parameters** of the Web Service

3.2.3.1.1 Wizard Method General Page shall allow the user to enter **Method Names**

3.2.3.1.2 Wizard Method General Page shall display the Methods created in a tabular view with Method Names along with Request parameters.

3.2.3.1.3 The user shall be able to Remove or edit a Method by selecting the Method.

3.2.3.1.4 The Wizard Method General Page shall contain a Button to add Method Names.

3.2.3.1.5 The Button shall have the caption Add Method Name.

3.2.3.1.6 The user shall be allowed to add multiple Method Names.

3.2.3.1.7 The user shall be allowed to click the Add Method Name Button to add a new Method Name.

3.2.3.1.8 When the user clicks the Add Method Name Button a child screen shall open up with an input text box with label name Method Name in the screen.

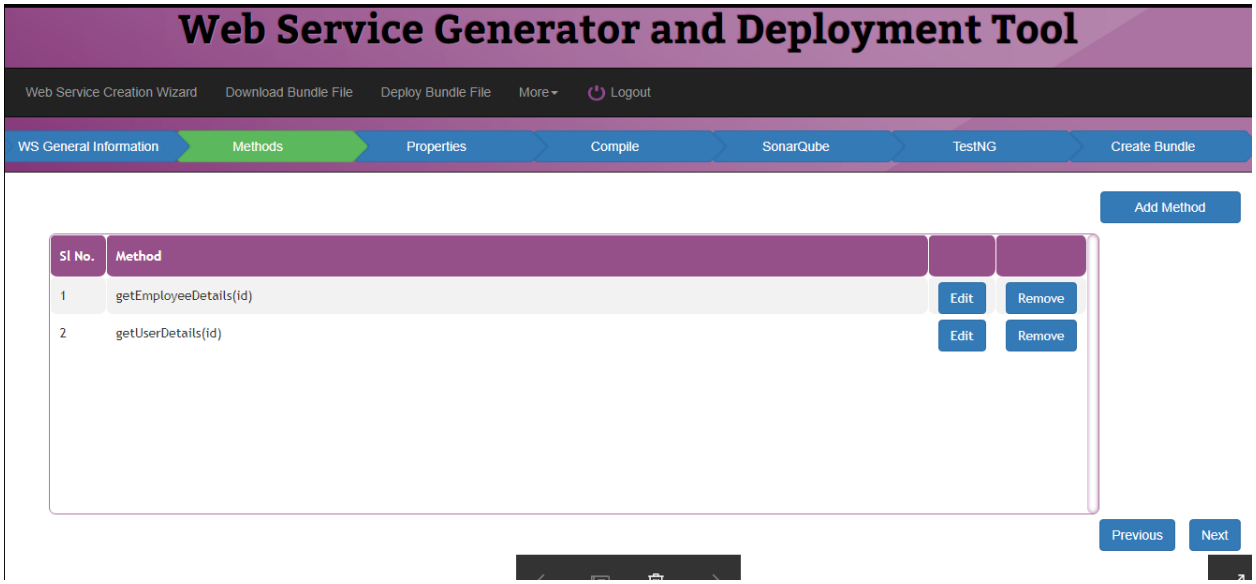
3.2.3.1.9 The Method Name shall be a mandatory field.

3.2.3.1.10 The user shall add at least one Method Name for compilation.

3.2.3.1.11 The child screen shall also contain a multi tab container each for **Request Parameters, Data Source and Response Parameters.**

3.2.3.1.12 In the back-end, methods shall be created for each method name entered by the user.

3.2.4 Screen



Once user click on Edit button, similar to add method screen will be opened with previously entered data in the screen. User can edit/modify the pre-populated data**.**

3.2.4.1 The Wizard Method General Page shall allow the user to enter **Request Parameters** for the mentioned Method**.**

3.2.4.1.1 The Wizard Method General Page shall contain a Button to add Request Parameters Names.

3.2.4.1.2 The Button shall have the caption Add Parameter.

3.2.4.1.3 The user shall be allowed to add multiple Request Parameters.

3.2.4.1.4 The user shall be allowed to click the Add Request Parameter Button to add a new Request Parameter.

3.2.4.1.5 When the user clicks the Add Parameter Button in the Request Parameter tab page a new row shall be created in the table with an input text box with column name Parameter Name in the screen dynamically created, where user can enter the Parameter Name.

3.2.4.1.6 The Parameter Name shall be a mandatory field.

3.2.4.1.7 Alongside with the Parameter Name input box there shall be one Drop Down for Data Type.

3.2.4.1.8 The user shall be allowed to select a valid Data Type from the Data Type drop down.

3.2.4.1.9 The valid Data Types shall include the following for multiple database support:

- String
- Boolean

- Integer
- Double
- Float
- Long
- Date Time
- Date
- Time

3.2.4.1.10 The selection of Data Type corresponding to Parameter Name shall be mandatory.

3.2.4.1.11 The user shall be allowed to Set Validation Rule corresponding to the Parameter name entered by the user.

3.2.4.1.12 The Setting of Validation Rule shall not be mandatory.

3.2.4.1.13 There may be multi-check box populated with Validation Rule.

3.2.4.1.14 The user may be allowed to check on the check boxes against each Validation Rule.

3.2.4.1.15 The user may also be allowed to select multiple Validation Rules.

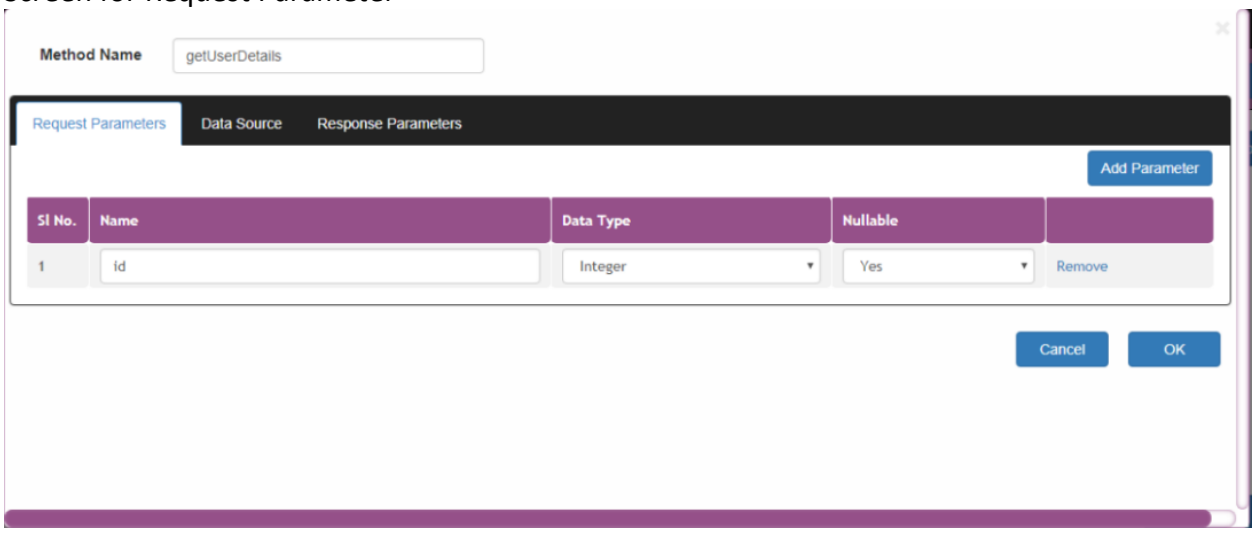
3.2.4.1.16 The validation rule for Request Parameters shall include:

- Not Null
- Minimum Length
- Maximum Length
- Only Number
- Alpha numeric

3.2.4.1.17 In the back-end request class shall be generated and this class shall have all the parameter names.

3.2.4.1.18 In the back-end source code shall be generated to validate the selected validations for the request parameters.

3.2.4.1.19 Screen for Request Parameter



3.2.5 Wizard Method Data Source Page

3.2.5.1 The Wizard Method Data Source Page shall allow the user to enter the top level basic details of **Data Sources** of the Web Service.

3.2.5.1.1 In this screen all the entered method names shall be displayed to select the data source details**.**

3.2.5.1.2 Each method shall be mapped with one data source

3.2.5.1.3 The Wizard Method Data Source Page shall allow the user to select **Data Source Type.**

3.2.5.1.3.1 There shall be a drop-down option with label name Data Source Type.

3.2.5.1.3.2 The selection of the Data Source Type by the user shall be mandatory.

3.2.5.1.3.3 The valid contents of the Data Source Type drop down are:

- Data Base Table (Postgres, MySQL, MSSQL, Oracle)
- Web Service

3.2.5.1.3.4 The Data Source Type shall be a mandatory field.

3.2.5.1.4 The Wizard Method Data Source Page shall allow the user to select **Data Source Category**

3.2.5.1.4.1 There shall be a drop-down option with label name Data Source Category.

3.2.5.1.4.2 The user shall be allowed to select the Data Source Category.

3.2.5.1.4.3 Depending on the selection of the Data Source Type the Data Source Category shall be populated with contents dynamically.

3.2.5.1.4.4 The valid contents of the Data Source Category drop down for “DB Table” are

- Postgres
- MySQL
- Oracle
- MS SQL

3.2.5.1.4.5 The valid contents of the Data Source Category drop down for “Web Service” are

- SOAP
- Rest

3.2.5.1.4.6 The Data Source Type shall be a mandatory field

3.2.5.1.5 The Wizard Method Data Source Page shall allow the user to enter **Data Source Name**

3.2.5.1.5.1 There shall be an input text box with label name Data Source Name in the screen, where user can enter the Data Source Name

3.2.5.1.5.2 The Data Source Name shall be a mandatory field

3.2.5.1.5.3 The user shall be allowed to enter the Data Source Name depending on the selection of the Data Source Type and Category.

3.2.5.1.5.3.1 If the user selects Database Table as Data Source Type and any one of Postgres, MYSQL, Oracle or MS SQL as Data Source Category then the interface shall have a button named Add Data Source.

3.2.5.1.5.3.2 The user shall be allowed to add Data Source Name by Clicking the Button.

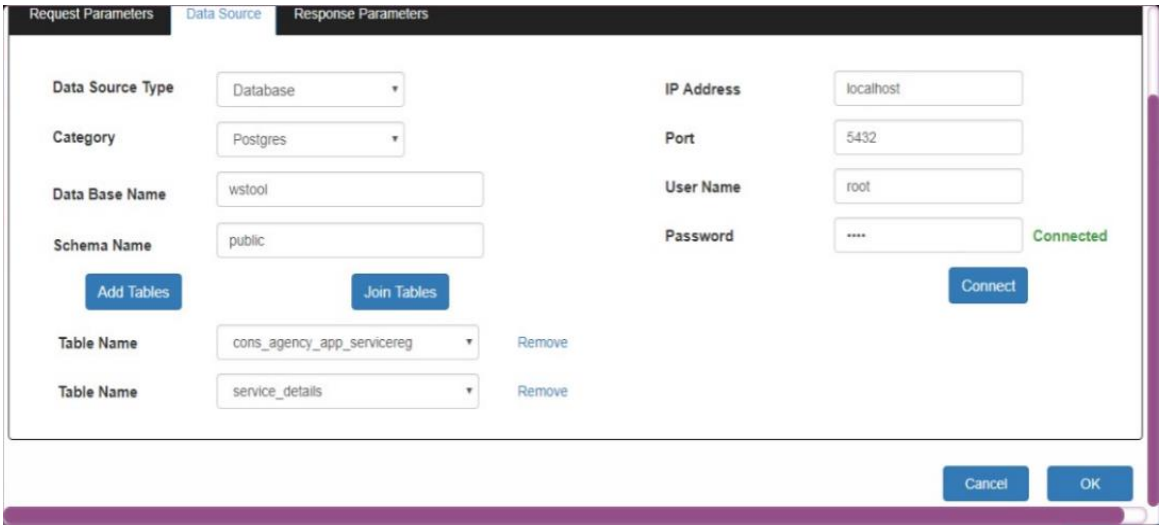
3.2.5.1.5.3.3 By clicking the Add Data Source Button the interface shall have two input boxes dynamically created one with label Database Name and the other with label Table Name.

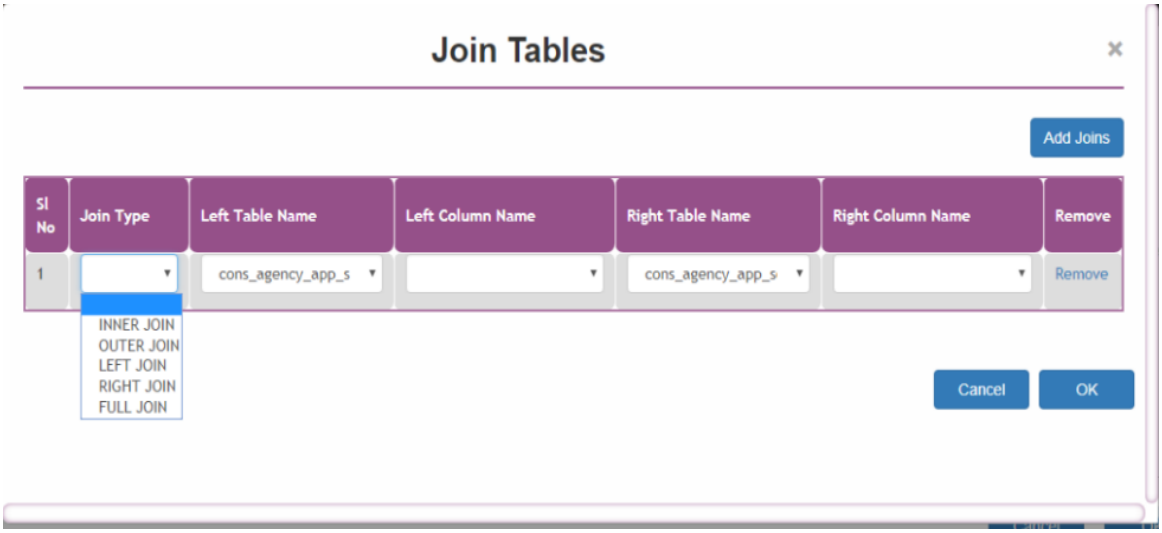
3.2.5.1.5.3.4 The user shall be allowed to enter the Database Name and the Table Name in the respective input boxes.

3.2.5.1.5.3.5 If the user selects SOAP or Rest as Data Source Category then the user shall be provided with an input text box to enter web service address.

3.2.5.1.5.3.6 If the user selects CSV, WLS and XML as Data Source Category then the user shall be provided with an input text box to enter file name.

3.2.5.1.6 The Wizard Method Data Source Page shall allow the user to **Join Data Tables.**





3.2.6 Wizard Method Response Parameters Page

3.2.6.1 The Wizard Method General Page shall allow the user to enter the top level basic details of **Response Parameters** of the Web Service.

3.2.6.1.1 The Wizard Method General Page shall contain a Table to add Response Parameters Names.

3.2.6.1.2 The user shall be allowed to add multiple Response Parameters.

3.2.6.1.3 The user shall be able to provide the **Parameter Name** in an input text box with column caption **Field Name**.

3.2.6.1.4 Alongside with the Parameter Name input column in the next column there shall be one Drop Down with column caption **Data Type**.

3.2.6.1.5 The user shall be allowed to select a valid Data Type from the Data Type drop down.

3.2.6.1.6 The valid Data Types shall include:
- String
- Boolean
- Integer
- Double
- Float
- Long
- Date Time
- Date
- Time

3.2.6.1.7 The selection of Data Type corresponding to Parameter Name shall be mandatory.

3.2.6.1.8 Next to the Data Type column the user shall be able to select Table Name from a drop down in that column with caption **Table Name**

3.2.6.1.9 The user shall be allowed to select the **Mapped Source Data Field** from the dropdown Filed names of respective selected Table of that particular row.

3.2.6.1.10 The user shall be allowed to map each response parameter with Source Data Field.

3.2.6.1.11 The Mapped Source Data Field drop down shall be populated from the fields of the Data Source Type.

3.2.6.1.12 The mapping of the Source Data Field is mandatory.

3.2.6.1.13 Adjacent to the Mapped Source Data field there shall be a **visible** column with drop-down.

3.2.6.1.14 The valid Visible values are:
True and False
Visible – **Tue** implies that the user shall be able to see the respective field in the query output.
Visible – **False** implies that the user shall not be able to see the respective field in the query output. It is only used to build the query.

3.2.6.1.15 The visible Field Names shall be treated as **Response Parameters.**

3.2.6.1.16 The Field names which are not visible shall be used internally to build up the Query.

3.2.6.1.17 The user shall be allowed to apply **Transformation.**

3.2.6.1.17.1 The valid Transformations are
- SUM
- AVERAGE

3.2.6.1.18 The user shall be allowed to apply **Fetch Condition.**

3.2.6.1.19 The Fetch Condition shall include multiple Request Parameters

3.2.6.1.20 The Fetch Condition shall be based on

3.2.6.1.20.1 Aggregate Function shall include
- <none>
- Count

- Count(Distinct)
- Max
- Min

3.2.6.1.20.2 Where Condition shall include

- =
- !=
- <
- <=
- <>
- >
- >=
- BETWEEN
- EXISTS
- IN
- IS NOT NULL
- IS NULL
- LIKE
- NOT BETWEEN
- NOT IN
- NOT LIKE

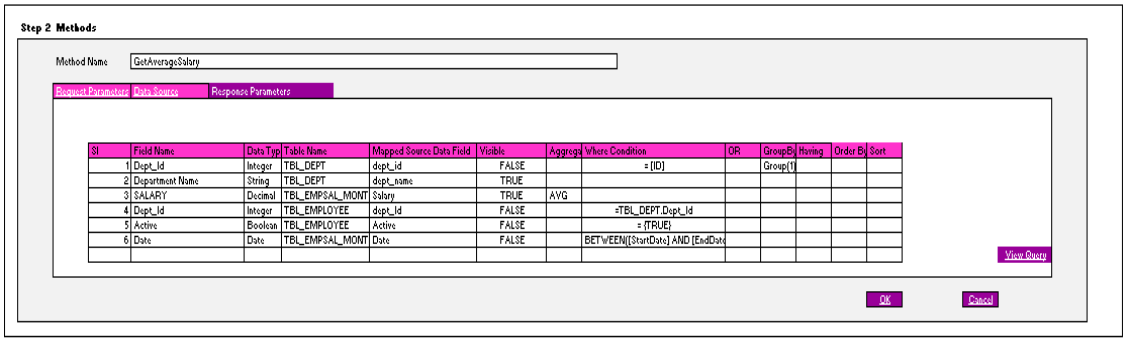
3.2.6.1.20.3 The user may also be allowed to use the Group By, Having Condition, Sort By, Order By clauses.

3.2.6.1.21 The Response Parameter tab page shall act as the Query Builder by itself.

3.2.6.1.22 The Response Parameter tab page shall contain a Button with caption **View Query**.

3.2.6.1.23 The user shall click the View Query button to view the Query formed.

3.2.6.1.24 The Response Parameter tab page shall have the following layout.



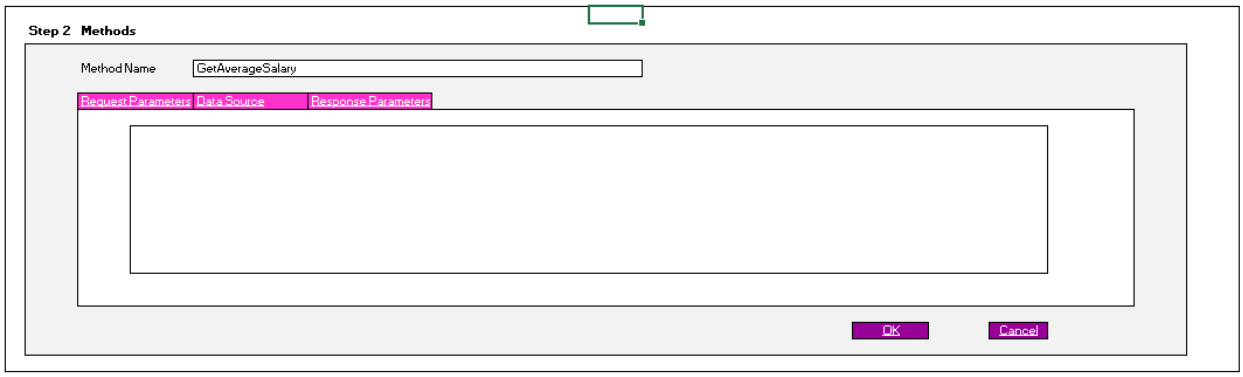
3.2.7 Wizard Query Viewer Page

3.2.7.1 The Wizard Query Viewer Page shall allow the user to see the generated **Query**.

3.2.7.2 The generated query shall be displayed in a Rich Text Box / Multiline Text Box.

3.2.7.3 The Rich Text Box / Multiline Text Box shall be read only.

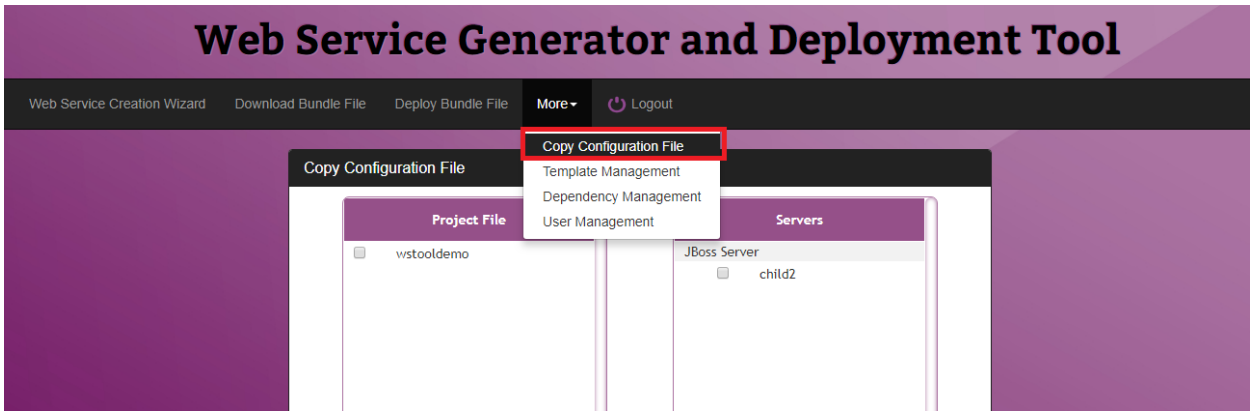
3.2.7.4 The Query Viewer Page shall have the following layout.



3.2.8 Wizard Property File Generator Page

3.2.8.1 The Wizard Property File Generator Page shall allow the user to **Specify Property Parameters**

To copy the generated configuration files in the server, user need to click on Copy Configuration File under More menu.
In this screen user need to select the list of projects and the list servers where the generated configuration files need to be copied**.**



3.2.8.2 In this screen user shall be allowed to enter all the database configuration properties like driver name, user name, password, database name, url**.** Driver name will not be changed. Latest driver will be automatically updated by updated dependency jar file version**.**

3.2.8.3 Based on the entered database configuration properties, the database config properties file shall be generated at the back end**.**

3.2.8.3.1 The user shall be allowed to View and Edit the Property Parameters from the Property File Generated by the code.

3.2.9 Wizard Code Compiler Page

3.2.9.1 The Wizard Code Complier Page shall allow the user to Compile the Result.

3.2.9.2 All the generated java files shall be compiled and the compiled console log details shall be displayed in the screen with build status.

3.2.9.3 If the compilation is successful, then at the end the user shall see Build Success.

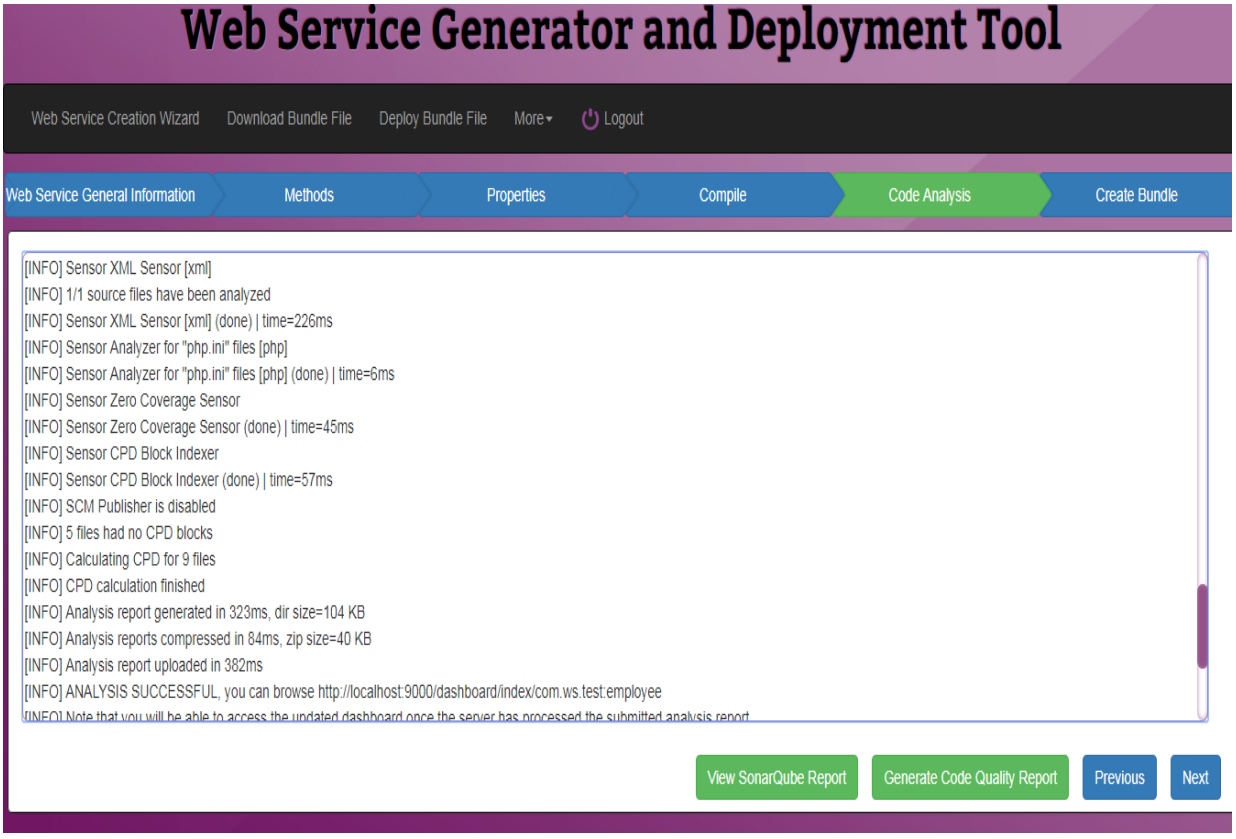
3.2.9.4 If the compilation failed, then at the end user shall see Build Failure.

3.2.10 Wizard Code Analysis Page (SonarQube)

3.2.10.1 The Wizard Code Analysis Page shall allow the user to perform the code quality analysis by using SonarQube.

3.2.10.2 SonarQube shall check code quality and analyze the generated source code.

3.2.10.3 User need to click on SonarQube Report button to see the code quality report in the SonarQube dashboard.



3.2.11 Wizard Running Automation TestNG

3.2.11.1 The Wizard Running Automation TestNG Page shall allow the user to enter the test data for all the request parameters for each method.

3.2.11.2 There shall be a button with name Generate TestNG Scripts

3.2.11.3 User shall click on Generate TestNG Scripts button to generate the TestNG automation scripts.

3.2.11.4 There shall be a button with name Run TestNG Scripts

3.2.11.5 User shall click on Run TestNG Scripts button to run the generated TestNG scripts for entered test data.

3.2.11.6 After running the TestNG script the summary result shall be displayed in the Automation TestNG Page.

3.2.12 Wizard Bundle Creation Page

3.2.12.1 The Wizard Bundle Creation Page shall allow the user to create Bundle.

3.2.12.2 The build console log details shall be displayed in the screen.

3.2.12.3 Build Success in the console log shall indicate that OSGI bundle file has been created successfully.

3.2.12.4 Build Failure in the console log shall indicate that OSGI bundle file has not been created.

3.3 Deployment

3.3.1 The user shall be allowed to share the Test Deployment Link after Deployment

3.3.2 There shall be a screen to deploy the services in the JBoss server. We will be supporting only JBoss Server.

3.3.3 In this screen all the generated bundle files and list of severs shall be shown.

3.3.4 All the server details like server name and server path shall be saved in the DB.

3.3.5 The user shall be allowed to click the Deploy Bundle File menu.

3.3.6 Once user clicked the Deploy Bundle File menu then all the server details shall be received from DB.

3.3.7 User shall be allowed to select the list of bundle files and list of servers by clicking the checkboxes.

3.3.8 After selecting all the bundle files and list of servers the user shall be allowed to click on Deploy button to deploy all the selected bundle files in the selected servers.

3.3.9 Deployment Automation:

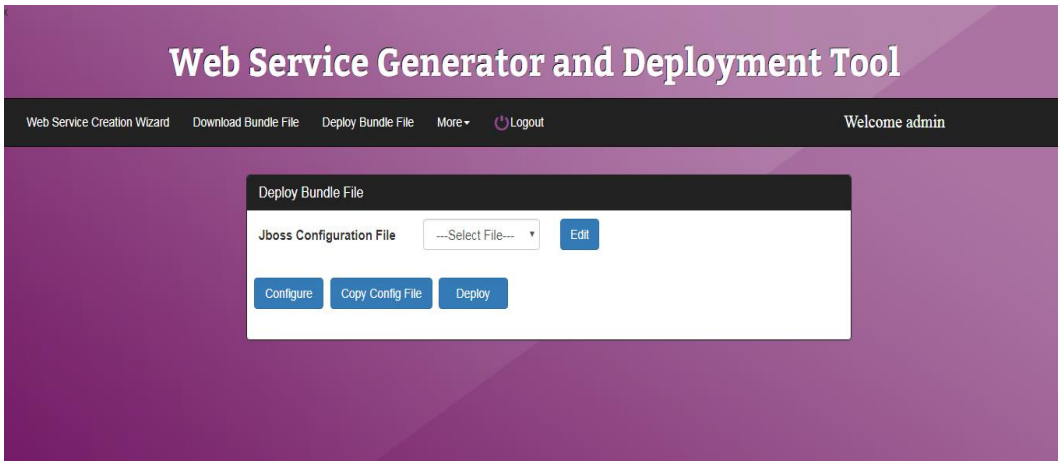
3.3.9.1 User shall be allowed to enter the JBoss fuse commands in configuration file by selecting JBoss configuration file from dropdown.

3.3.9.2 After saving the configuration the User shall click on the “Configure” button

3.3.9.3 After Jboss server configuration is successful the User shall copy the configuration file generated by tool to JBoss fuse instance

3.3.9.4 After Step (3.3.9.3) the user shall Click the “Deploy” button

3.3.9.5 User shall get the URL which will be displayed on screen to access the list of services deployed in JBoss server



3.4 Upload Template Page

3.4.1 The upload template page shall allow the user to upload the predefined templates**.** If the template file is already exits, the incremental sequence number shall be maintained as version number and same shall be appended to the file name.

3.4.2 Uploaded template shall be saved in the configured location.

3.5 Generating WADL for Restful service

3.5.1 The user shall be allowed to configure the WADL url to access the WADL for the restful service in the blueprint .xml file.

3.5.2 The user shall be allowed to use the http://<hostname>:<<portnumber>>/cxf to see the list of services deployed in the JBoss server.

3.5.3 The user shall use http://<<hostname>>:<<postnumber>>/<<servicename>>?_wadl to access the WADL.

3.5.4 WADL shall have information about web service path, method type, list of parameters and its type, response type etc.

3.6 Generating WSDL for SOAP service

3.6.1 The user shall be allowed to configure the WSDL url to access the WSDL for the restful service in the blueprint .xml file.

3.6.2 The user shall be allowed to use the http://<hostname>:<<portnumber>>/cxf to see the list of services deployed in the JBoss server.

3.6.3 The user shall use http://<<hostname>>:<<postnumber>>/<<servicename>>?_wsdl to access the WSDL.

3.6.4 WSDL shall have information about web service path, method type, list of parameters and its type, response type etc.

3.6.5 Source file will be saved in local folder. User can access Source file from local folder

3.7 UI for testing web services (Rest and SOAP)

3.7.1 There shall be a screen where user can test the Restful and SOAP web services

3.7.2 <<Censof to share the source code to develop this feature.>> Censof shared static code which is not helpful for this project as expectation of Censof is different and is a dynamic one.

3.7.3 **This specific requirement shall be taken up later after the completion of Phase II as a separate change request as shared with Censof.**

3.8 Support for reading the parameters from WSDL and WADL

3.8.1 The tool shall generate the source code dynamically for calling Restful web service based on WADL URL provided by user

3.8.2 The tool shall generate the source code dynamically for calling SOAP web service based on WSDL URL provided by user

3.8.3 The Request and Response parameters screens shall be a view only screen when the Data Source Type is selected as Web services.

3.8.4 The Request parameters screen shall display the arguments of the selected web method.

3.8.5 The Response parameters screen shall display the return parameter of the web method.

3.8.6 There shall be a drop down with value Web Service for Data Source under Data Source tab in Add Methods screen.

3.8.7 There shall be a drop with values Rest, SOAP for Category under Data Source tab in Add Methods screen.

3.8.8 User may be able to select either Rest or SOAP under Category drop down.

3.8.9 User may be able to provide the web service URL based on selected category type.

3.8.10 Creating client to call SOAP web services:

3.8.10.1 The tool shall parse the WSDL URL to get the list of methods and corresponding to it the request parameter names, data types, method type and media type.

3.8.10.2 The tool shall generate a source code to create a SOAP client dynamically based on the user provided data.

3.8.10.3 The tool shall generate the source code to call the web service using created SOAP client by providing the URL, method name, method type.

3.8.11 UI integration with back end client code for SOAP web services:

3.8.11.1 The tool may be able to modify the user interface to support the web service as data source type

3.8.11.2 There shall be a input text box to enter the WSDL url

3.8.11.3 The tool may be able to validate the entered WSDL url

3.8.11.4 There shall be a drop down in the UI to display the methods available in the WSDL.

3.8.11.5 There may be an optional message box to display all the overloaded methods.

3.8.11.6 The user shall be allowed to select one method at any instant of time.

3.8.12 Creating client to call REST web services:

3.8.12.1 The tool shall parse the WADL url to get the list of methods and corresponding to it the request parameter names, data types , method type and media type

3.8.12.2 The tool shall generate a source code to create a REST client dynamically based on the user provided data.

3.8.12.3 The tool shall generate the source code to call the web service using created REST client by providing the URL, method name, method type.

3.8.13 UI integration with back end client code for REST web services

3.8.13.1 The tool may be able to modify the user interface to support the web service as data source type

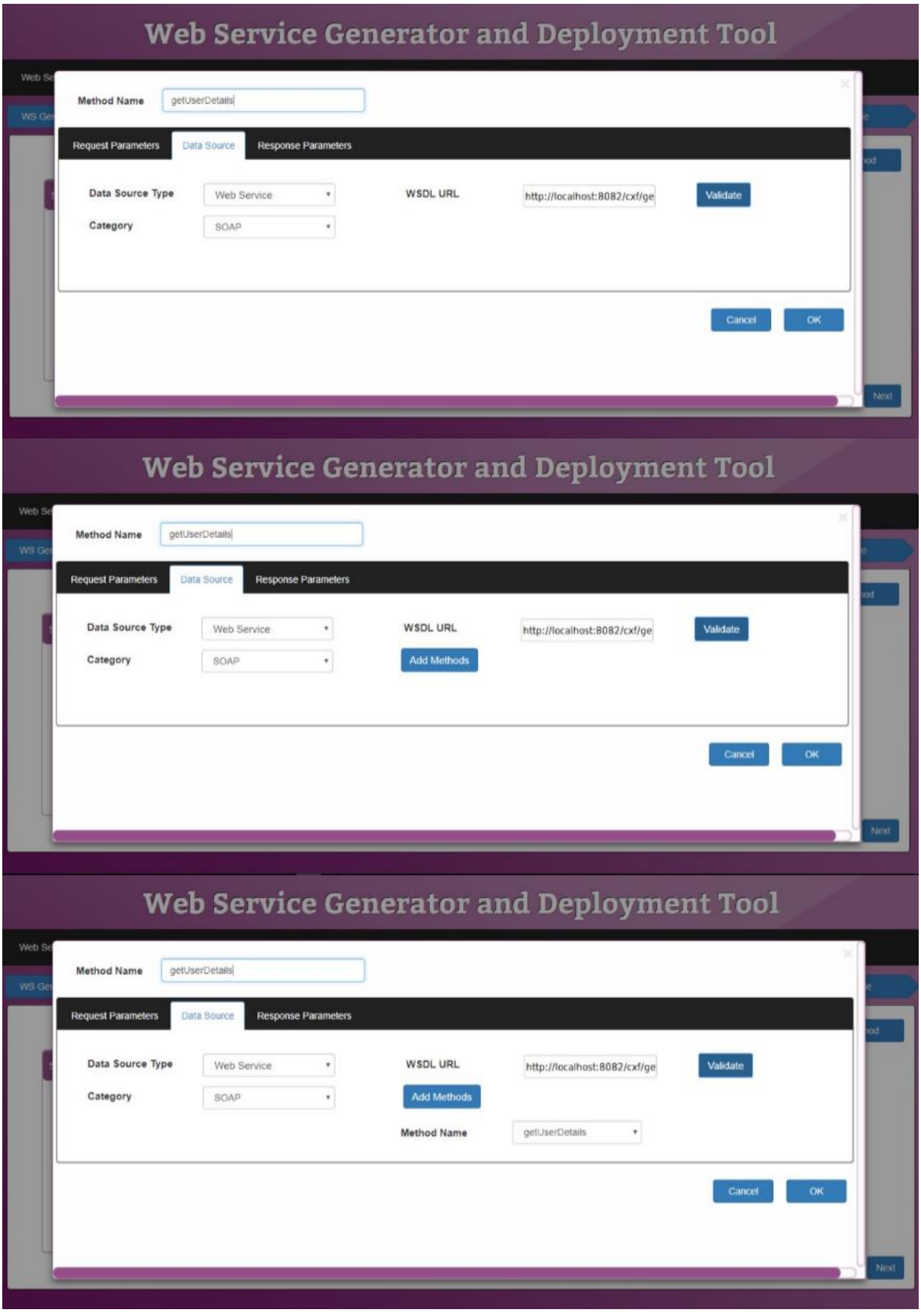
3.8.13.2 There shall be a input text box to enter the WADL url

3.8.13.3 The tool may be able to validate the entered WADL url.

3.8.13.4 There shall be a drop down in the UI to display the methods available in the WADL.

3.8.13.5 There may be an optional message box to display all the overloaded methods.

3.8.13.6 The user shall be allowed to select one method at any instant of time.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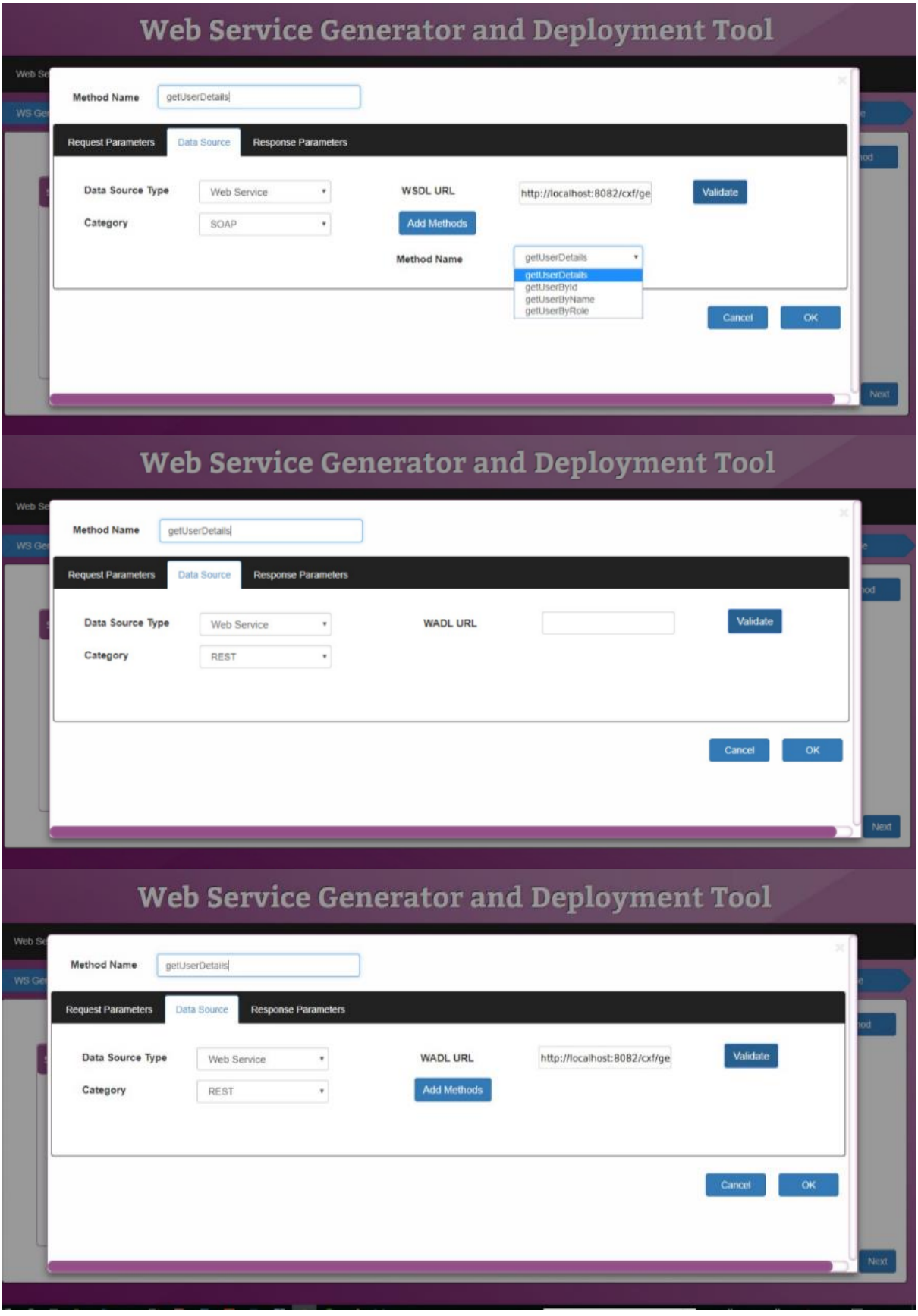
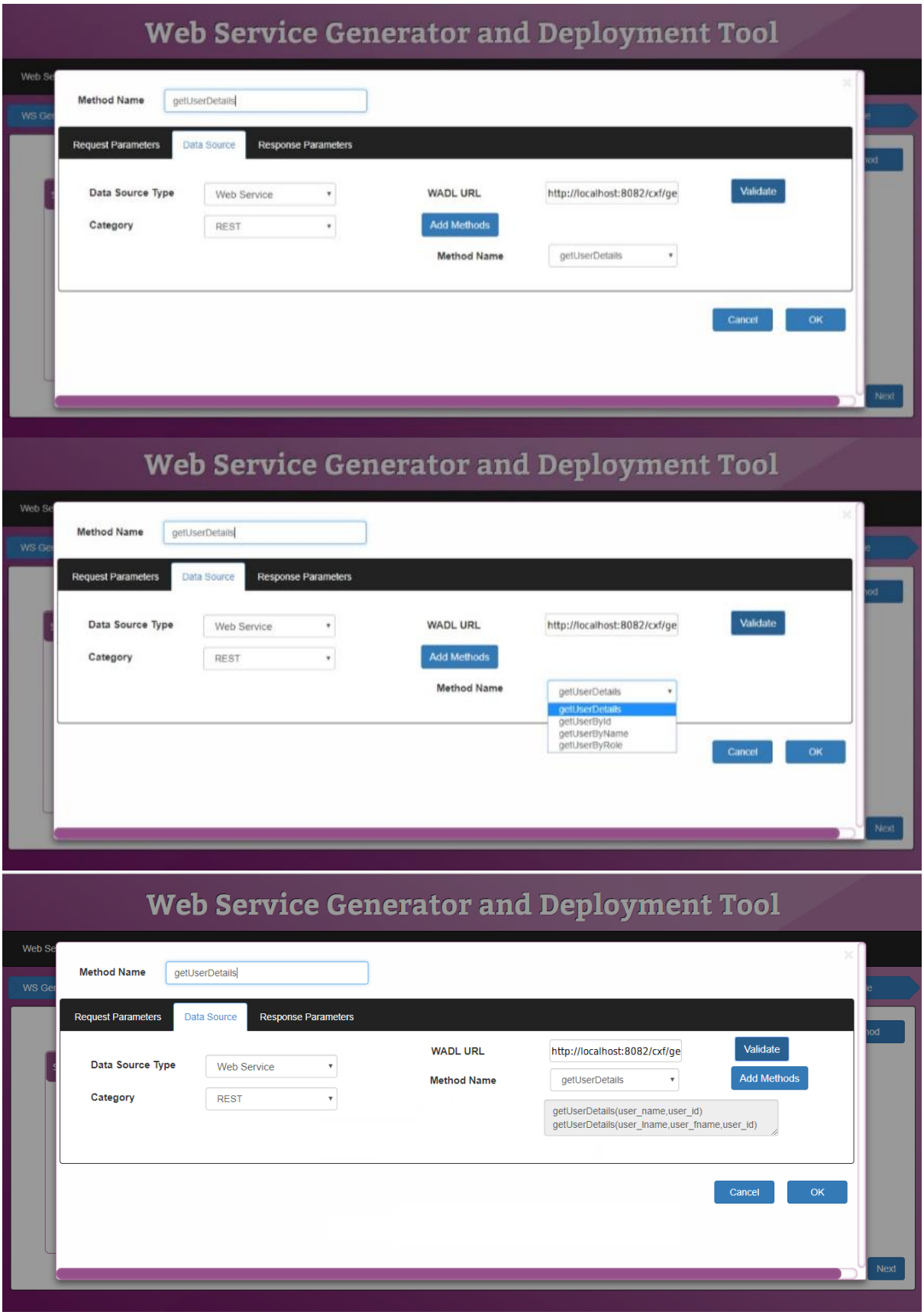
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
WSDL URL
http://localhost:8082/cxf/ge
Validate
Category
SOAP
Cancel
OK
Next
Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
WSDL URL
http://localhost:8082/cxf/ge
Validate
Category
SOAP
Add Methods
Cancel
OK
Next
Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
WSDL URL
http://localhost:8082/cxf/ge
Validate
Category
SOAP
Add Methods
Method Name
getUserDetails
Cancel
OK
Next


Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
Category
SOAP
WSDL URL
http://localhost:8082/cxf/ge
Validate
Add Methods
Method Name
getUserDetails
getUserDetails
getUserById
getUserByName
getUserByRole
Cancel
OK
Next
Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
Category
REST
WADL URL
Validate
Cancel
OK
Next
Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
Category
REST
WADL URL
http://localhost:8082/cxf/ge
Validate
Add Methods
Cancel
OK
Next


Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
Category
REST
WADL URL
http://localhost:8082/cxf/ge
Validate
Add Methods
Method Name
getUserDetails
Cancel
OK
Next
Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
Category
REST
WADL URL
http://localhost:8082/cxf/ge
Validate
Add Methods
Method Name
getUserDetails
getUserDetails
getUserById
getUserByName
getUserByRole
Cancel
OK
Next
Web Service Generator and Deployment Tool
Method Name
getUserDetails
Request Parameters
Data Source
Response Parameters
Data Source Type
Web Service
Category
REST
WADL URL
http://localhost:8082/cxf/ge
Validate
Method Name
getUserDetails
Add Methods
getUserDetails(user_name,user_id)
getUserDetails(user_lname,user_fname,user_id)
Cancel
OK
Next

3.9 Automated version control and backup

3.9.1 There shall be a button with name Code Backup in Create Bundle Wizard screen.

3.9.2 User shall click on Code Backup button to commit the generated source code to version control.

3.9.3 User shall provide Version Control URL, user name and password to commit the code.

3.10 Dependency Management

3.10.1 There shall be a screen with name Dependency Management.

3.10.2 Dependency Management screen shall have the option to add, edit, delete dependencies.

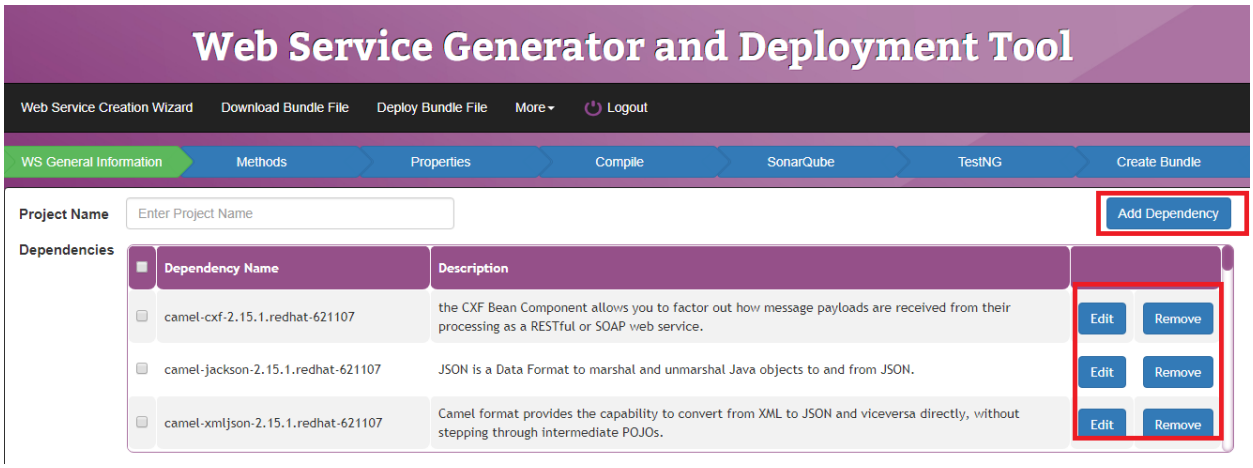
3.10.3 Add button shall allow the user to add new row where a new dependency along with the details like name, description and version number may be entered.

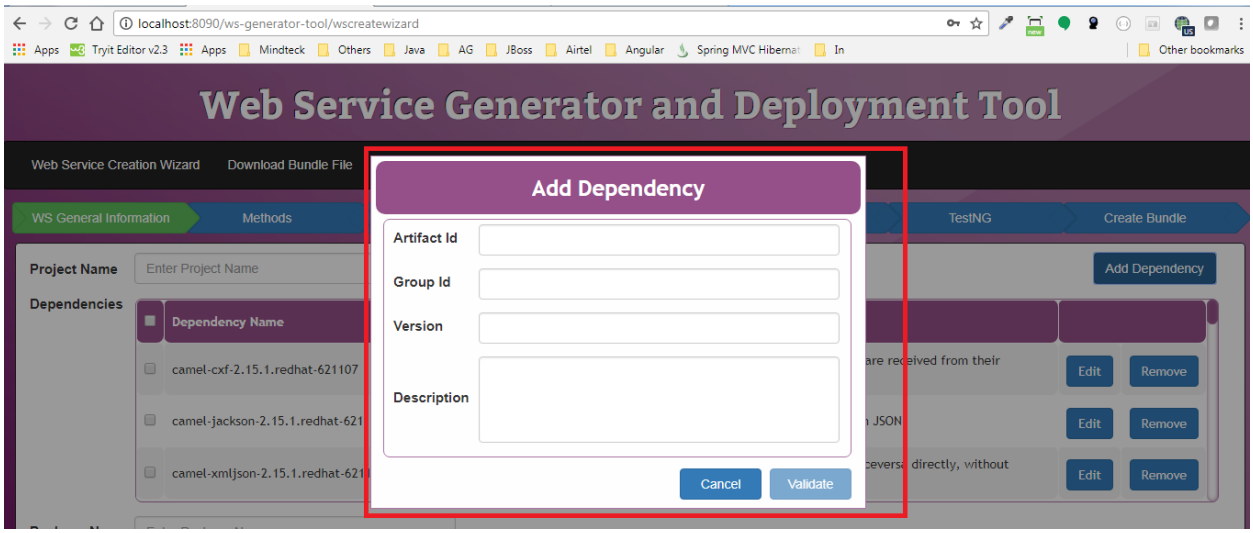
3.10.4 The other details like group id, artifact id shall be internally tackled.

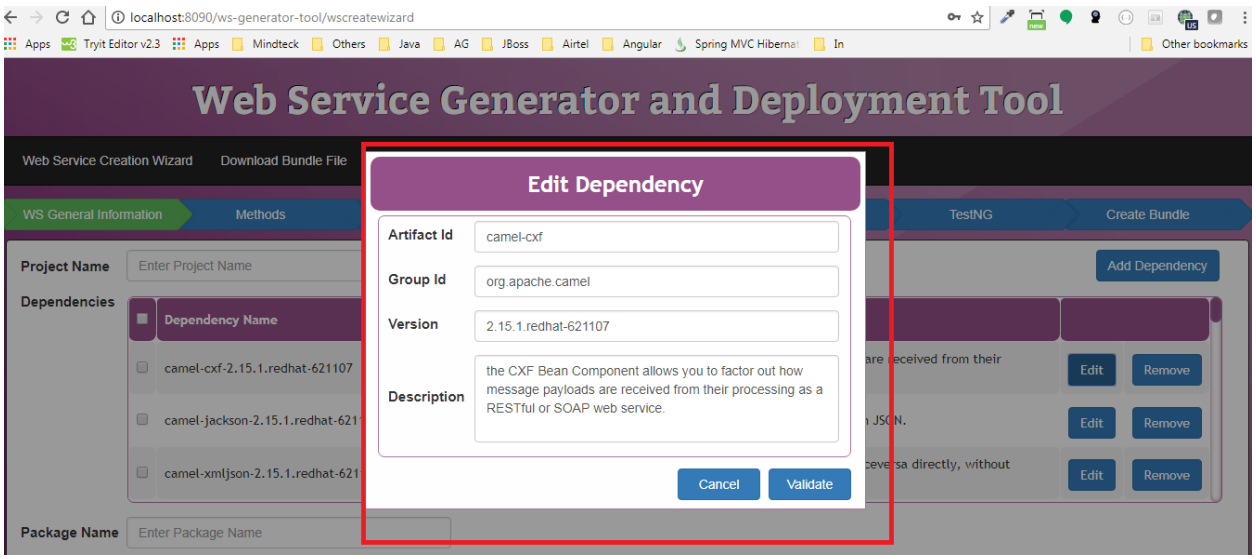
3.10.5 User shall need to enter all the values for input fields in the new row to Add a dependency.

3.10.6 For updating the exiting dependency user shall need to select it and modify and shall click on Update button to update the dependency.

3.10.7 User may be allowed to delete one or more dependencies by selecting multiple check boxes in the Delete tab.







3.4 Basic User Guide

3.4.1 There shall be a separate document containing screen shots with description describing how the user shall use the Tool.

3.5 Design Constraints

3.5.1 Testing will be done with only test/local database

3.5.2 Software will not be provided by Mindteck

3.6 Logical Database Requirements

3.6.1 This application will support below databases

3.6.1.1 Postgres

3.6.1.2 MySQL

3.6.1.3 Oracle
3.6.1.4 MSSQL

4 Change Management Process

The changes formally requested in this project would go through Mindteck's standard change management process which would examine and prioritize each change request and estimate the effort and schedule impact for each change. Minor changes may be absorbed within the project schedule without any additional cost implications. For major change requests, the cost / schedule impact must be mutually discussed and agreed upon before taking up the implementation for the change request. The difference between minor and major changes will be based on the work effort required to complete the change and evaluated on a case by case basis. This change request process can be initiated by Censof at any time during the project. Change requests received early would usually have lesser impact on project cost/schedule than the same change request received in the later part of the project execution.

A. Appendices

A.1 Appendix 1

The format of the Predefined Template may be as follows:

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</xml>
```

A.2 Appendix 2

Traceability Metrics –

Requirement Traceability Matrix						
SRS/FRS/HRS	Dependent Req	HLD/HDD Ref	LLD Ref	Code / Class / Module / Use case name	Int Testing Ref	System Testing Ref

Test Case -

Application Functional Testing						
Test Case No.	Req ID.	Test Case Name	Pre-Condition	Status	Steps	Expected output