

Web Service Generator and Deployment Tool		TEM 074
Software Design Document - Phase I		
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Revision History

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1 Introduction

The SDD focuses on the software architecture, detailed class descriptions, and all modules' functionality details of Web Service Generator and Deployment Tool.

1.1 Overview of the System

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 server. The WSGD Tool shall generate Web Service based on predefined Templates. The WSGD Tool shall be a wizard-based tool to support Web Services, Data Files and Multiple Databases. This tool shall have the following features:

- Creating a web service.
- Compiling the source code.
- Creating the war file.
- Downloading the war file.
- Deploying the war file in the configured JBoss fuse server.
- Uploading the template files.
- Adding, editing and deleting the users.
- 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.
- Generated source code shall be committed to version control SVN.
- For CI+CD, Jenkins shall be used.

1.2 Objective of the System

The main objective of this system is to generate the source code for SOAP and Restful web services based on the user inputs.

1.3 Terms and Acronyms used

Sl No	Acronyms	Definitions
1	OSGI	Open Service Gateway Initiative
2	TestNG	TEST Next Generation
3	WSDL	Web Service Definition Language
4	WADL	Web Application Definition Language
5	REST	Representational State Transfer
6	SOAP	Simple Object Access Protocol
7	SDD	Software Design Document

1.4 Users of this document

This document is used by Censof and Mindteck project team. This document will be used as a basis of implementation (including coding and testing phases)

1.5 Hardware Environment

Operating System: Windows 7 or 10/Ubuntu 16.04

RAM: Minimum 8GB

Processor: Core i5

Hard Disk: 256 GB or larger

1.6 Software Environment

Java Technologies

Core Java (Version 8)

Servlet (Version 4.0)

JSP (Version 2.3)

Spring-core (Version 4.1.6. RELEASE)

Spring-MVC (Version 4.1.6. RELEASE)

Spring-JDBC (Version 4.1.6. RELEASE)

Spring-ORM (Version 4.0.3. RELEASE)

Hibernate (Version 4.3.11. Final)

SOAP web service using Apache - CXF (Version 2.6.0)

REST web service using Apache - CXF (Version 2.6.0)

Front End/UI Technologies

HTML (Version 5)

CSS (Version 3)

Java Script Frameworks

Java Script (Version 6)

jQuery (Version 3.2)

Ajax (Version 1.1.0)

IDE

Eclipse (Version Juno 4.2)

Databases

MySQL (Version 5.7.21)

Postgres (Version PostgreSQL 10.3)

Oracle (Version Oracle 12 Release 2: 12.2.0.1)

MSSql (Version SQL Server 2017 14.0)

Code Quality Analysis

SonarCube (Version LTS 6.7)

Build Tool

Maven (Version 3.3.3)

Build and Deployment Automation Server

Jenkins (Version 2.107.1)

Servers

Tomcat (Version 8)

JBoss Sever (Red Hat Fuse and Fabric) (Version 6.3.0.redhat-187)

Tool Database

Postgres (Version PostgreSQL 10.3)

Testing Tools

Postman - for testing REST web service (Version 5.5.3)

SoapUI - for testing SOAP web service (Version 5.3)

2 Functional Modeling Detailed Level

Web Service Generator and Deployment Tool has following modules:

1. Login Module

This module is to login to application, If the user has forgot the password "Forgot Password" option is available.

2. Generate Source Code

This module is to generate source code for REST/ SOAP web service.

3. Properties Module

This module is to provide the property details like the deployment IP and port with WADL/WSDL URL, Server name and version.

4. Compile Generated Source Code

This module is to compile the generate source code for REST/ SOAP web service.

5. Code Quality Analysis

This module is to check the quality of code based upon standard defined.

6. TestNG

This module is to validate/ test the generated source code by providing the parameters.

7. Building OSGI Bundle

This module is to create OSGI bundle for generate source code for REST/ SOAP web service.

8. Deploy Bundle file

This module is to deploy generated bundle file to JBoss Fuse server.

9. User Management

This module is to add, edit and delete the user based on role.

10. Dependency Management

This module is to add, edit, validate and delete the dependency details.

11. Template Management

This module is to upload the template file (XML) and delete the template file.

12. Configuration Management

This module is to configure the paths.

13. Change password

This module is to change the password of logged in user.

14. Mail Server Setting

This module is to add, edit and delete the mail sever details.

3 Data Modeling

3.1 Entity-Relationship Diagram

3.1.1 ws_user table: This table is used to save user information

WS_USER	
* USER_ID	NUMBER (*,0)
FIRST_NAME	VARCHAR2 (255 BYTE)
LAST_NAME	VARCHAR2 (255 BYTE)
PASSWORD	VARCHAR2 (255 BYTE)
USER_NAME	VARCHAR2 (255 BYTE)

Figure 1.1

3.1.2 DEPENDENCY: This table is used to add the dependency details

DEPENDENCY	
* DEPENDENCY_ID	NUMBER (*,0)
ARTIFACT_ID	VARCHAR2 (255 BYTE)
GROUP_ID	VARCHAR2 (255 BYTE)
VERSION	VARCHAR2 (255 BYTE)
DESCRIPTION	VARCHAR2 (1000 BYTE)

Figure 1.2

3.1.3 CONFIG_PROPERTIES: This table is used to save the properties

CONFIG_PROPERTIES	
* CONFIG_PROPERTY_ID	NUMBER (*,0)
PROPERTY_NAME	VARCHAR2 (255 BYTE)
PROPERTY_VALUE	VARCHAR2 (255 BYTE)

Figure 1.3

3.1.4 METHOD_DATATYPES: This table is use to add Integer, Boolean and String etc. datatypes.

METHOD_DATATYPE	
* ID	NUMBER (*,0)
DATA_TYPE	VARCHAR2 (255 BYTE)

Figure 1.4

3.1.5 AGENCY_INFO: This table provide details of agencies for which the web service is generated.

AGENCY_INFO	
* AGENCY_ID	NUMBER (*,0)
* AGENCY_NAME	VARCHAR2 (250 BYTE)
* AGENCY_CODE	VARCHAR2 (20 BYTE)
STATUS	NUMBER (*,0)
IS_DELETED	NUMBER (*,0)

Figure 1.5

3.1.6 SERVICE_DETAILS: This table is use to store the service details of the generated web service

SERVICE_DETAILS	
* SERVICE_ID	NUMBER (*,0)
* SERVICE_NAME	VARCHAR2 (50 BYTE)
* SERVICE_VERSION	VARCHAR2 (30 BYTE)
SERVICE_DESC	VARCHAR2 (250 BYTE)
* END_POINT_URL	VARCHAR2 (250 BYTE)
* SERVICE_TYPE	VARCHAR2 (10 BYTE)
CAMEL_ROUTE_URL	VARCHAR2 (250 BYTE)
COMPRESSION_ENABLED	NUMBER (1)
COMPRESSION_METHOD	VARCHAR2 (200 BYTE)
PAGINATION_ENABLED	NUMBER (1)
ENCRYPTION_METHOD	VARCHAR2 (200 BYTE)
* STATUS	NUMBER (*,0)
IS_DELETED	NUMBER (*,0)
CREATED_DT_TM	TIMESTAMP
MODIFIED_DT_TM	TIMESTAMP
SERVICE_CATALOG_NUMBER	VARCHAR2 (20 BYTE)
EXPIRATION_DATE	TIMESTAMP
INFO_ID	NUMBER (*,0)
FK_SERVICE_ID	NUMBER (*,0)
IS_BULK	VARCHAR2 (5 BYTE)
IS_INTERNAL_SERVICE	VARCHAR2 (5 BYTE)

Figure 1.6

3.2 Data Dictionary

Table No	1	Table Name	WS_USER
-----------------	----------	-------------------	---------

Sr. No	Constraints	Attribute Name	Data Type	Size	Nullable	Description
1	Primary Key	USER_ID	INTEGER		No	User Id
2		FIRST_NAME	VARCHAR2	255	No	First Name
3		LAST_NAME	VARCHAR2	255	Yes	Last Name
4		PASSWORD	VARCHAR2	255	No	Password
5		USER_NAME	VARCHAR2	255	No	User Name
		Purpose: This table is used to save the user details.				

Table No	2	Table Name	DEPENDENCY
-----------------	----------	-------------------	------------

Sr. No	Constraints	Attribute Name	Data Type	Size	Nullable	Description
1	Primary Key	DEPENDENCY_ID	INTEGER		No	Dependency Id
2		ARTIFACT_ID	VARCHAR2	255	No	Artifact Id
3		GROUP_ID	VARCHAR2	255	No	Group Id
4		VERSION	VARCHAR2	255	No	Version number
5		DESCRIPTION	VARCHAR2	1000	Yes	Description
		Purpose: This table is used to save the maven dependencies.				

Table No	3	Table Name	METHOD_DATATYPE
-----------------	----------	-------------------	-----------------

Sr. No	Constraints	Attribute Name	Data Type	Size	Nullable	Description
1	Primary Key	METHOD_DATATYPE_ID	INTEGER		No	Method id
2		DATA_TYPE	VARCHAR2	255	No	Data_Type
		Purpose: This table is used to save request parameters data type for the methods				

Table No	4	Table Name	CONFIG_PROPERTIES
-----------------	----------	-------------------	-------------------

Sr. No	Constraints	Attribute Name	Data Type	Size	Nullable	Description
1	Primary Key	CONFIG_PROPERTY_ID	INTEGER		No	Configuration Property Id
2		PROPERTY_NAME	VARCHAR2	255	No	Property Name
3		PROPERTY_VALUE	VARCHAR2	255	No	Property Value
		Purpose: This table is used to save the property details.				

Table No	5	Table Name	SERVICE_DETAILS
----------	---	------------	-----------------

Sr. No	Constraints	Attribute Name	Data Type	Size	Nullable	Description
1	Primary Key	SERVICE_ID	INTEGER		No	Service id
2		SERVICE_NAME	VARCHAR2	255	No	Service name
3		SERVICE_VERSION	VARCHAR2	255	No	Service version
4		SERVICE_DESC	VARCHAR2	255	Yes	Service Description
5		END_POINT_URL	VARCHAR2	255	No	End point url
6		SERVICE_TYPE	VARCHAR2	255	No	Service Type
7		CAMEL_ROUTE_URL	VARCHAR2	255	Yes	Camel route URL
8		COMPRESSION_ENABLED	NUMBER		Yes	Compression enabled or not
9		COMPRESSION_METHOD	VARCHAR2	255	Yes	Compression Method
10		STATUS	NUMBER		No	Status
11		IS_DELETED	NUMBER		No	Is deleted or not
12		CREATED_DT_TM	TIMESTAMP		No	Created date
13		MODIFIED_DT_TM	TIMESTAMP		Yes	Modified date
14		EXPIRATION_DATE	TIMESTAMP		Yes	Expiration date
15		INFO_ID	INTEGER		Yes	Info Id
		Purpose: This table is used to save all the configuration related names and values,				

Table No	6	Table Name	AGENCY_INFO
----------	---	------------	-------------

Sr. No	Constraints	Attribute Name	Data Type	Size	Nullable	Description
1	Primary Key	AGENCY_ID	INTEGER		No	Agency id
2		AGENCY_NAME	VARCHAR2	255	No	Agency Name
3		AGENCY_CODE	VARCHAR2	255	No	Agency code
4		STATUS	NUMBER		Yes	Agency status
		IS_DELETED	NUMBER		Yes	Is agency deleted or not
		Purpose: This table is used to save request parameters data type for the methods				

3.3 Diagrams

1. WsCreate Controller Class Diagram:

The class WS create controller used to create REST and SOAP web services source code.

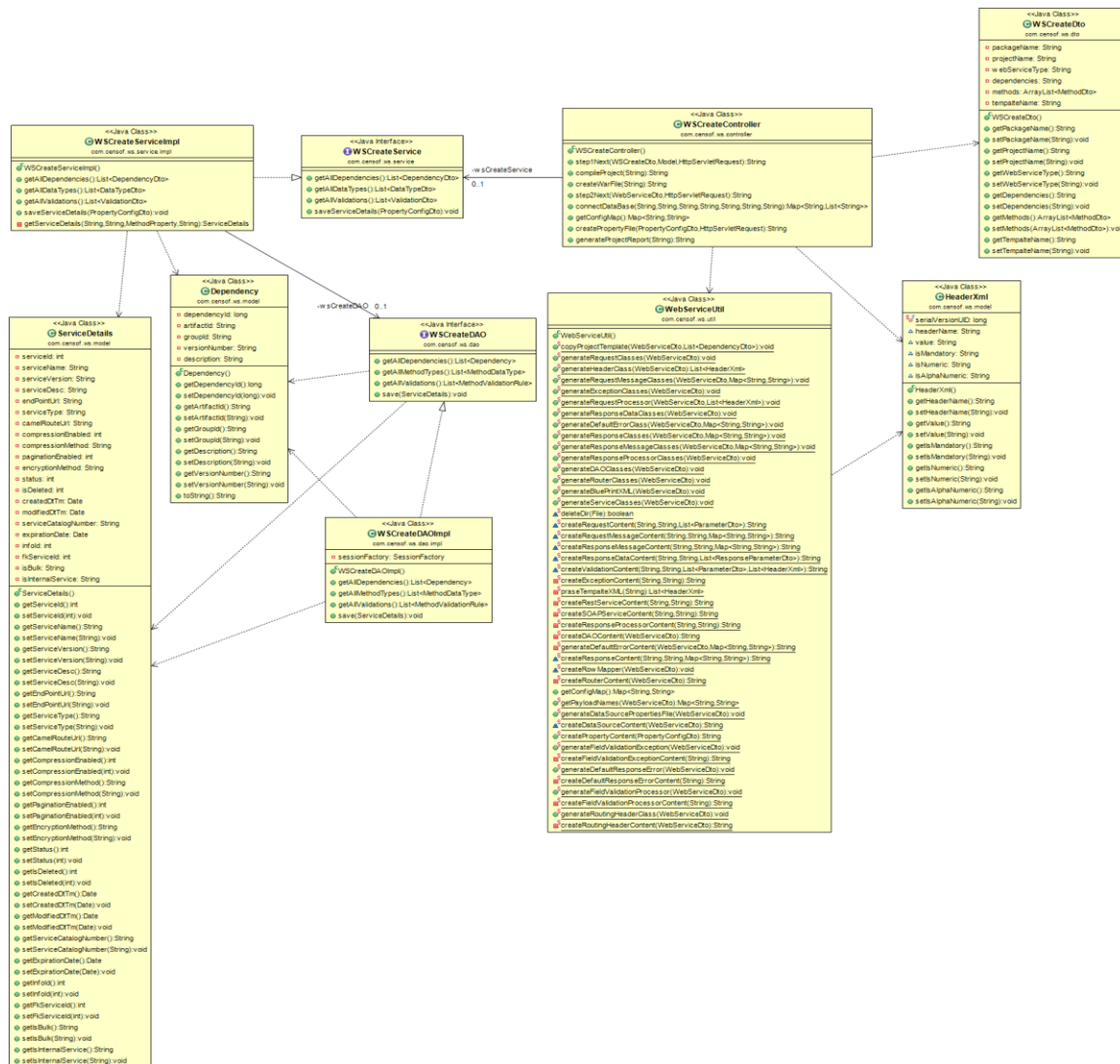


Diagram 1

2. User controller:

The user controller is used to add, Edit and Delete the users.

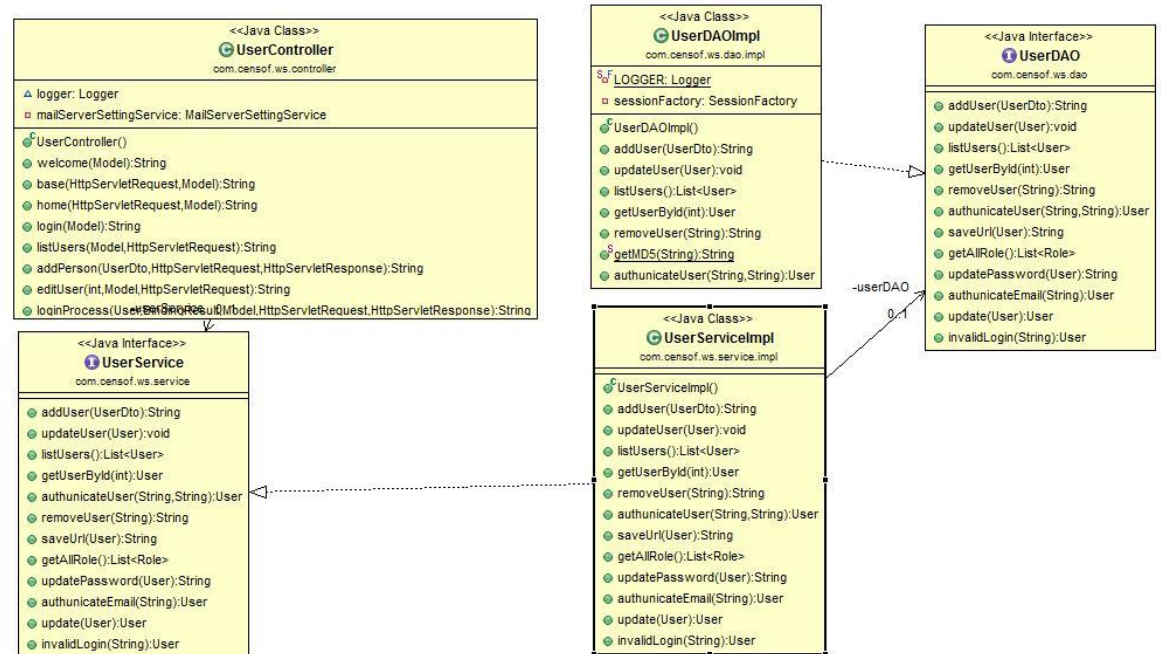


Diagram 2

3. Base Controller:

The base controller supports multiple classes for file and other operations like upload and delete template file, login operation, resume operation, Download bundle file, Dependency management etc.

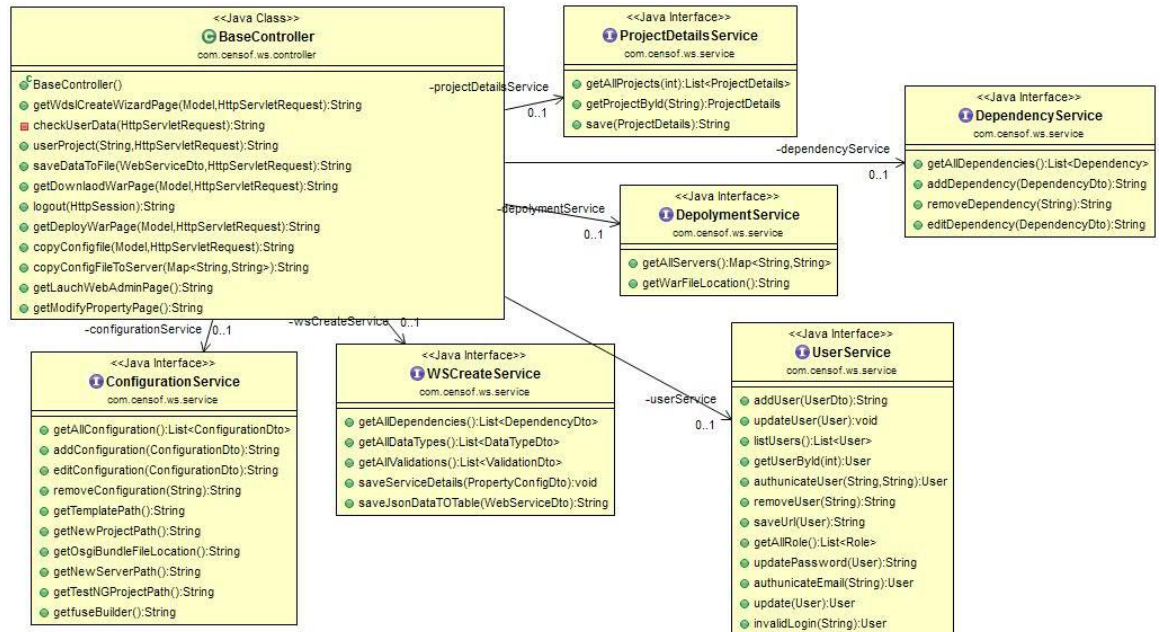


Diagram 3

4. Mail Server setting controller:

This class diagram depicts the add mail server settings

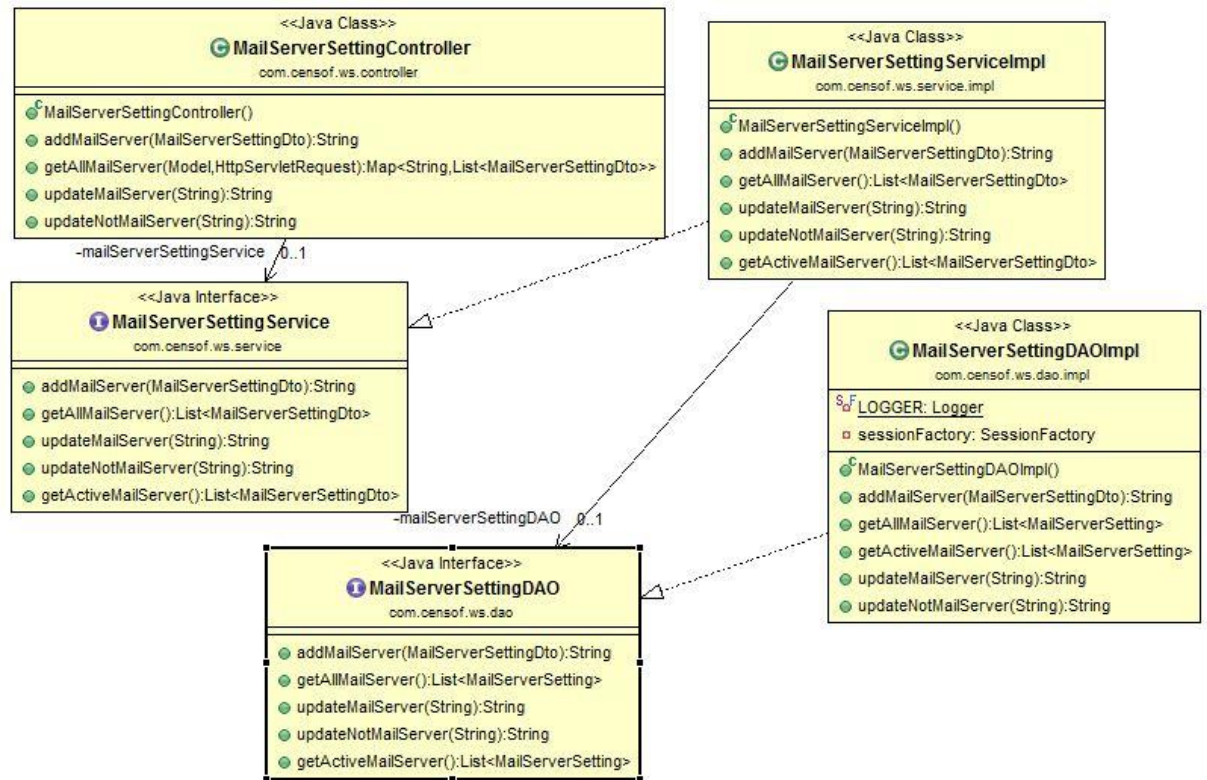


Diagram 3

5. Configuration controller class:

This class diagram depicts Add, Edit and Delete the Configuration.

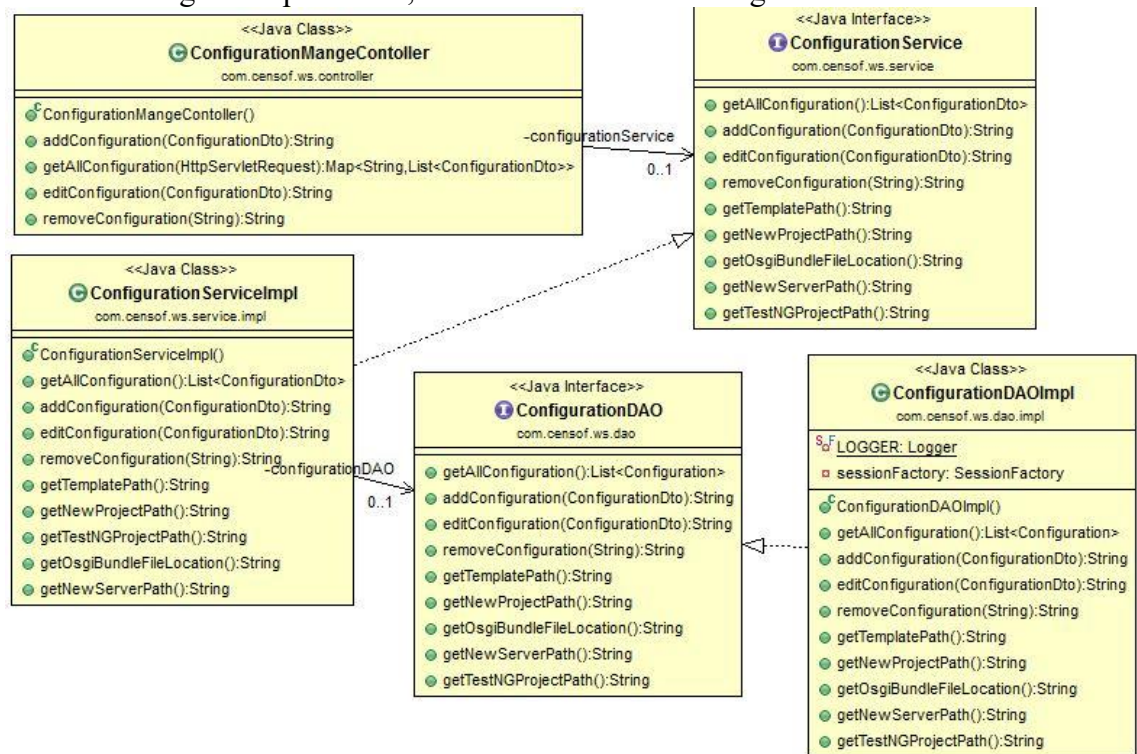


Diagram 4

3.4 Sequence Diagram

Below sequence diagram explains the flow of generating source compiling and creating bundle file

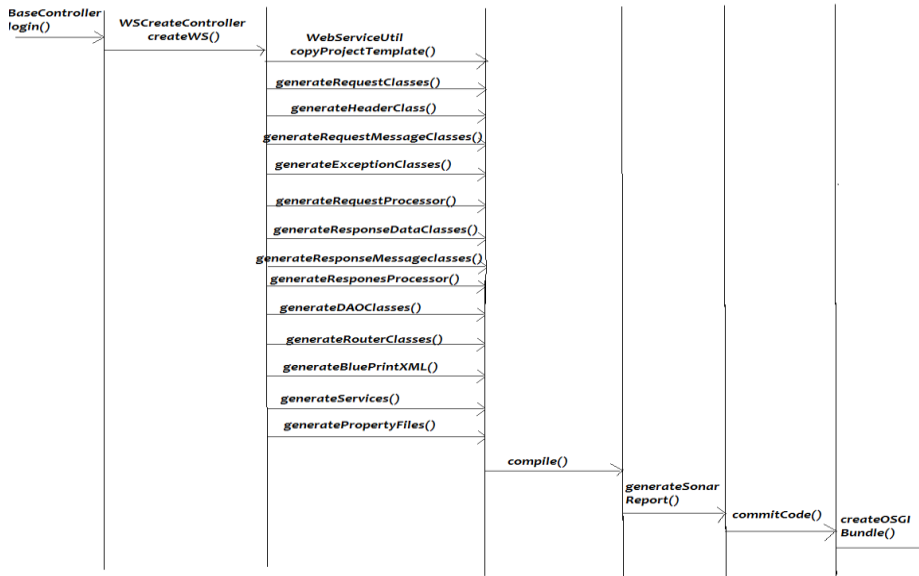
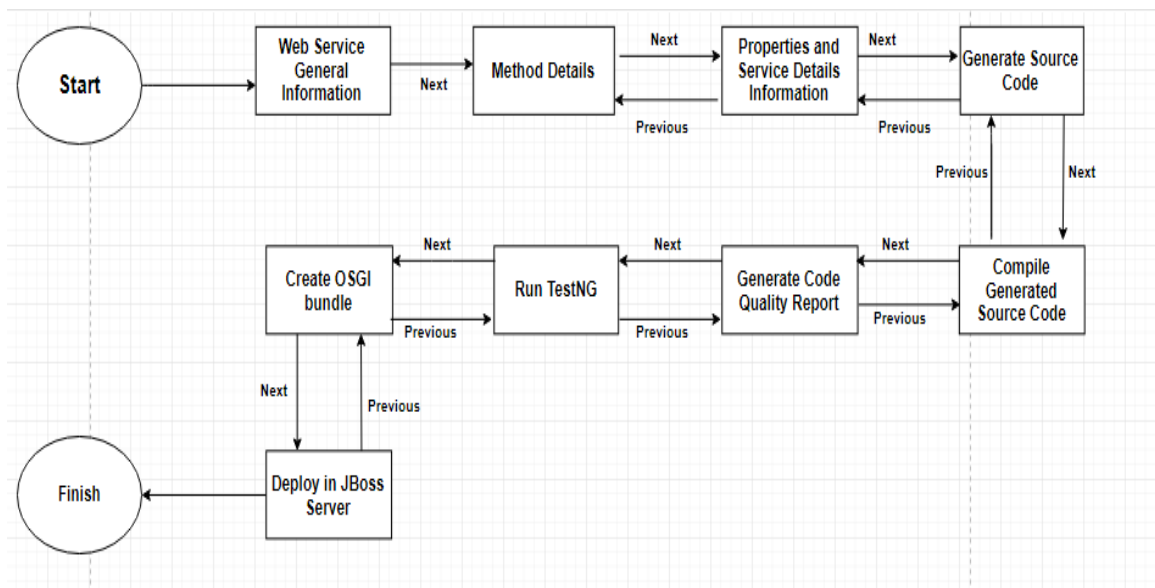


Diagram 5

3.5 Data Flow Diagrams (DFD)



4 References

Sl No	Reference Document Name	Description
1	SRS	WebService Generator and Deployment Tool_SRS_V1.0_Phase-I Mindteck-Update_01102018

5 Appendix

5.1 Template File

```
<xml>
  <message>
    <header>
      <applicationCode>
        <isMandatory>true</isMandatory>
        <isNumeric>>false</isNumeric>
        <isAlphaNumeric>true</isAlphaNumeric>
      </applicationCode>
      <currentPageNum>
        <isMandatory>true</isMandatory>
        <isNumeric>true</isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </currentPageNum>
      <agencyCode>
        <isMandatory>true</isMandatory>
        <isNumeric>>false</isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </agencyCode>
      <sessionID>
        <isMandatory>>false</isMandatory>
        <isNumeric></isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </sessionID>
      <serviceName>
        <isMandatory>true</isMandatory>
        <isNumeric>>false</isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </serviceName>
      <serviceVersion>
        <isMandatory>true</isMandatory>
        <isNumeric>>false</isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </serviceVersion>
      <resMessageID>
        <isMandatory>>false</isMandatory>
        <isNumeric>>false</isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </resMessageID>
      <agencyAppAuthCode>
        <isMandatory>>false</isMandatory>
        <isNumeric>>false</isNumeric>
        <isAlphaNumeric>>false</isAlphaNumeric>
      </agencyAppAuthCode>
    </header>
  </message>
</xml>
```

```

    <reqMessageID>
      <isMandatory>false</isMandatory>
      <isNumeric>false</isNumeric>
      <isAlphaNumeric>false</isAlphaNumeric>
    </reqMessageID>
    <agencyAppAuthKey>
      <isMandatory>false</isMandatory>
      <isNumeric>false</isNumeric>
      <isAlphaNumeric>false</isAlphaNumeric>
    </agencyAppAuthKey>
    <compressedPayload>
      <isMandatory>true</isMandatory>
      <isNumeric>false</isNumeric>
      <isAlphaNumeric>false</isAlphaNumeric>
    </compressedPayload>
    <totalPageNum>
      <isMandatory>false</isMandatory>
      <isNumeric>false</isNumeric>
      <isAlphaNumeric>false</isAlphaNumeric>
    </totalPageNum>
    <transactionChecksum>
      <isMandatory>false</isMandatory>
      <isNumeric>false</isNumeric>
      <isAlphaNumeric>false</isAlphaNumeric>
    </transactionChecksum>
  </header>
  <messagePayloadName>hpmk_message</messagePayloadName>
  <headerPayloadName>hpmk_message_header</headerPayloadName>
  <errorName>hpmk_error</errorName>

<requestDataPayloadName>hpmk_message_payload</requestDataPayloadName>
  <responsePayloadName>hpmk_data</responsePayloadName>

<responseDataPayloadName>hpmk_response_data</responseDataPayloadName>
  </message>
  <validations>
    <validation>
      <errorId>0</errorId>
      <errorCode>1111</errorCode>
      <errorDesc>Success</errorDesc>
    </validation>
    <validation>
      <errorId>1</errorId>
      <errorCode>1</errorCode>
      <errorDesc>Failure</errorDesc>
    </validation>
  </validations>

```

```

    <validation>
      <errorId>2</errorId>
      <errorCode>2</errorCode>
      <errorDesc>Invalid_UserUID</errorDesc>
    </validation>
    <validation>
      <errorId>3</errorId>
      <errorCode>3</errorCode>
      <errorDesc>Required_Parameter_Is_Missing</errorDesc>
    </validation>
    <validation>
      <errorId>4</errorId>
      <errorCode>4</errorCode>
      <errorDesc>Required_Parameter_Contains_Data_Format_Error</errorDesc>
    </validation>
    <validation>
      <errorId>5</errorId>
      <errorCode>5</errorCode>
      <errorDesc>Required_Parameter_Contains_No_Data</errorDesc>
    </validation>
    <validation>
      <errorId>6</errorId>
      <errorCode>6</errorCode>
      <errorDesc>Internal_Software_Exception</errorDesc>
    </validation>
    <validation>
      <errorId>7</errorId>
      <errorCode>7</errorCode>
      <errorDesc>Database_Exception</errorDesc>
    </validation>
    <validation>
      <errorId>8</errorId>
      <errorCode>8</errorCode>
      <errorDesc>Invalid_Message_Format</errorDesc>
    </validation>
    <validation>
      <errorId>9</errorId>
      <errorCode>9</errorCode>
      <errorDesc>Unsupported_Command</errorDesc>
    </validation>
    <validation>
      <errorId>10</errorId>
      <errorCode>10</errorCode>
      <errorDesc>Optimistic_Locking_Error</errorDesc>
    </validation>

```

```

<validation>
  <errorId>11</errorId>
  <errorCode>11</errorCode>
  <errorDesc>Too_Many_Payloads</errorDesc>
</validation>
<validation>
  <errorId>12</errorId>
  <errorCode>12</errorCode>
  <errorDesc>Timestamp_Malformed</errorDesc>
</validation>
<validation>
  <errorId>13</errorId>
  <errorCode>13</errorCode>
  <errorDesc>Not_Enough_Header_Rows</errorDesc>
</validation>
<validation>
  <errorId>14</errorId>
  <errorCode>14</errorCode>
  <errorDesc>WS_Timeout</errorDesc>
</validation>
<validation>
  <errorId>15</errorId>
  <errorCode>15</errorCode>
  <errorDesc>WS_Cannot_Connect</errorDesc>
</validation>
<validation>
  <errorId>16</errorId>
  <errorCode>16</errorCode>
  <errorDesc>All_Targets_Unavailable</errorDesc>
</validation>
<validation>
  <errorId>17</errorId>
  <errorCode>17</errorCode>
  <errorDesc>WS_Route_Not_Found</errorDesc>
</validation>
<validation>
  <errorId>18</errorId>
  <errorCode>18</errorCode>
  <errorDesc>WS_Exceeds_Connection_Limit</errorDesc>
</validation>
<validation>
  <errorId>19</errorId>
  <errorCode>19</errorCode>
  <errorDesc>WS_Rejected_Due_To_Filter_Rules</errorDesc>
</validation>
<validation>

```

```
        <errorId>26</errorId>
        <errorCode>26</errorCode>
        <errorDesc>Authentication Fail</errorDesc>
    </validation>
    <validation>
        <errorId>27</errorId>
        <errorCode>27</errorCode>
        <errorDesc>Version or Service is not available</errorDesc>
    </validation>
</validations>
</xml>
```