Oracle® Financial Services Lending and Leasing

WebServices Installation Guide

Release 15.0.0.0.0
G42104-01
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Oracle Financial Services Lending and Leasing WebServices Installation Guide, Release 15.0.0.0.0

G42104-01

Contents

Preface

This topic contains following sub-topics:

Purpose

This document contains notes and installation steps needed to install WebServices.

Oracle Financial Services Lending and Leasing relies on several pieces of Oracle software in order to run and this document is in no way meant to replace Oracle documentation supplied with the WebServices product or available via Oracle technical support. The purpose of this document is only meant to supplement the Oracle documentation and to provide Oracle Financial Services Lending and Leasing specific installation instructions.

For recommendations on security configuration, refer Security Configuration Guide.

It is assumed that anyone installing Oracle Financial Services Lending and Leasing will have a thorough knowledge and understanding of WebServices.

Prerequisites

1. JDK Version jdk-21.0.7 https://www.oracle.com/java/technologies/javase/jdk21-archive-downloads.html

2. Download and Install the Oracle Fusion Middleware 14c Version 14.1.2.0.0 (Fusion Middleware Infrastructure installer) from https://www.oracle.com/middleware/technologies/weblogic-server-installers-downloads.html. They are also available from the following sources:

- Oracle Software Delivery Cloud (`http://edelivery.oracle.com/`)
- Oracle Technology Network (OTN)

3. It is assumed that the Oracle Financial Services Lending and Leasing DB is installed and configured, before running the Web Services installer.

Audience

This document is intended for system administrators or application developers who are installing Oracle Financial Services Lending and Leasing Application.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customer access to and use of Oracle support services will be pursuant to the terms and conditions specified in their Oracle order for the applicable services.

Critical Patches

Oracle advises customers to get all their security vulnerability information from the Oracle Critical Patch Update Advisory, which is available at Critical Patches, Security Alerts and Bulletins. All critical patches should be applied in a timely manner to make sure effective security, as strongly recommended by Oracle Software Security Assurance.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Conventions

The following text conventions are used in this document:

Table Convention

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.

1

Install WebServices Database Objects

The following section deals with installation of WebServices Database Objects.

Download and unzip the WebServices database (`ofsllxwsdb.zip`) to a staging folder.

Run $ ./installofsllxwsdb.sh

Figure 1-1 Command prompt window 1

```
-bash-4.1$ ./installofsllxwsdb.sh
```

This installer adds the required tables and packages to the apllication database.

Figure 1-2 Command prompt window 2

```
Oracle Financial Services Lending and Leasing Webservices DB Installer

   Important Note:
   ---------------------------------------------------------------------------

   It is expected to have the OFSLL Application DB been installed and configured
   before running this installer.

   This installer adds the required tables and packages to the same OFSLL DB schema.

Continue? [y/n]: y
```

Enter **y** when prompted to continue.

Figure 1-3 Command prompt window 3

```
Oracle Financial Services Lending and Leasing Webservices DB Installer

   Important Note:
   ---------------------------------------------------------------------------

   It is expected to have the OFSLL Application DB been installed and configured
   before running this installer.

   This installer adds the required tables and packages to the same OFSLL DB schema.

Continue? [y/n]: y

Enter the Oracle Financial Services Lending and Leasing
Home Path? (usually /home/ofsll): /scratch/work_area/DEV/OFSLLREL

OFSLLHOME=/scratch/work_area/DEV/OFSLLREL
Okay? [y/n]: y
```

Table 1-1 Script Prompts

Script Prompts	Description and Action Required
Oracle Financial Services Lending and Leasing Home Path	Enter the path to the home directory. This is referred to as $OFSLL_HOME. Enter **y**when prompted for.

Figure 1-4 Command prompt window 4

```
Oracle Financial Services Lending and Leasing Webservices DB Installer

   Important Note:
   ---------------------------------------------------------------------------

   It is expected to have the OFSLL Application DB been installed and configured
   before running this installer.

   This installer adds the required tables and packages to the same OFSLL DB schema.


Continue? [y/n]: y

Enter the Oracle Financial Services Lending and Leasing
Home Path? (usually /home/ofsll): /scratch/work_area/DEV/OFSLLREL

OFSLLHOME=/scratch/work_area/DEV/OFSLLREL
Okay? [y/n]: y

Enter the Oracle DB Home Path? /scratch/app/db12c/product/12.1.0/dbhome_1

ORAHOME=/scratch/app/db12c/product/12.1.0/dbhome_1
Okay? [y/n]: y

Enter the Oracle SID? ORCL
INSTANCENAME=ORCL
Okay? [y/n]: y
```

Table 1-2 Script Prompts

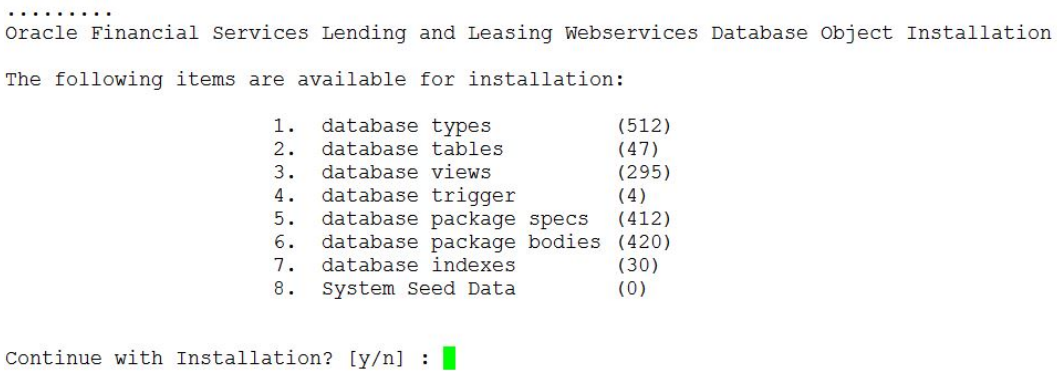
Script Prompts	Description and Action Required
Oracle DB Home Path	Enter the path to the Oracle DB home directory. This is referred to as $ORACLE_HOME. Enter **y** when prompted for.
Oracle SID	Enter the Name of Oracle Instance. Enter **y** when prompted for.

Figure 1-5 Command prompt window 5

```
   Important Note:
   ---------------------------------------------------------------------

   Here is a list of CRITICAL environment variables and their settings:

   PATH=/usr/lib64/qt-3.3/bin:/usr/kerberos/sbin:/usr/kerberos/bin:/bin:/usr/bin:/usr/dev_infra/platform/bin:/usr/dev_infra/generic/bin:
11R6/bin:/usr/local/ade/bin:/scratch/app/db12c/product/12.1.0/dbhome_1/bin
   ORACLE_HOME=/scratch/app/db12c/product/12.1.0/dbhome_1
   ORACLE_SID=ORCL
   OFSLL_HOME=/scratch/work_area/DEV/OFSLLREL

   With the above environment, you should be able start SQLPlus and connect
   to the database.  If you cannot, correct the environment and restart the
   script to continue.


Continue? [y/n]: y
```

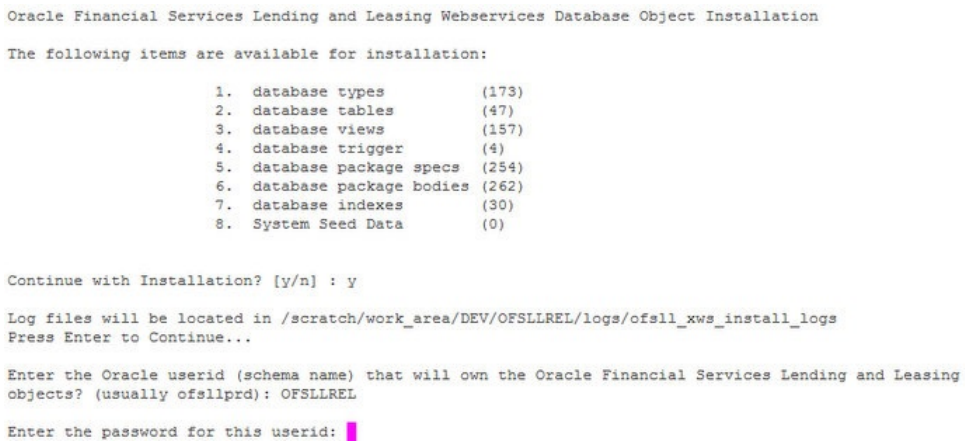
The script lists and sets the CRITICAL environment variables.

Figure 1-6 Command prompt window 6



Enter **y** when prompted to continue. A list of items available for installation are listed. Enter **y** when prompted to **Continue with Installation**.

Figure 1-7 Command prompt window 7



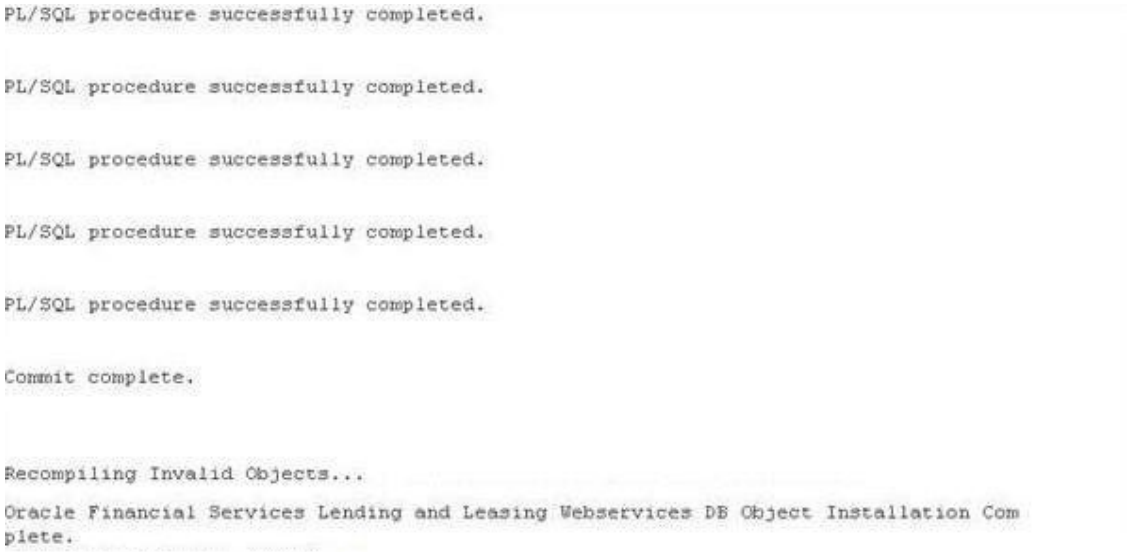
Sets the path for the location of log files. Press **Enter** to continue.

Table 1-3 Script Prompts

Script Prompts	Description and Action Required
Oracle User ID that will own the Oracle Financial Services Lending and Leasing objects	Valid User ID
Password for this User ID	Valid Password

The script installs the objects.

Figure 1-8 Command prompt window 8



While installing, the script recompiles the invalid objects and completes the installation of DB objects.

2
Configure RESTful WebService

Follow the below steps to configure RESTful WebService.

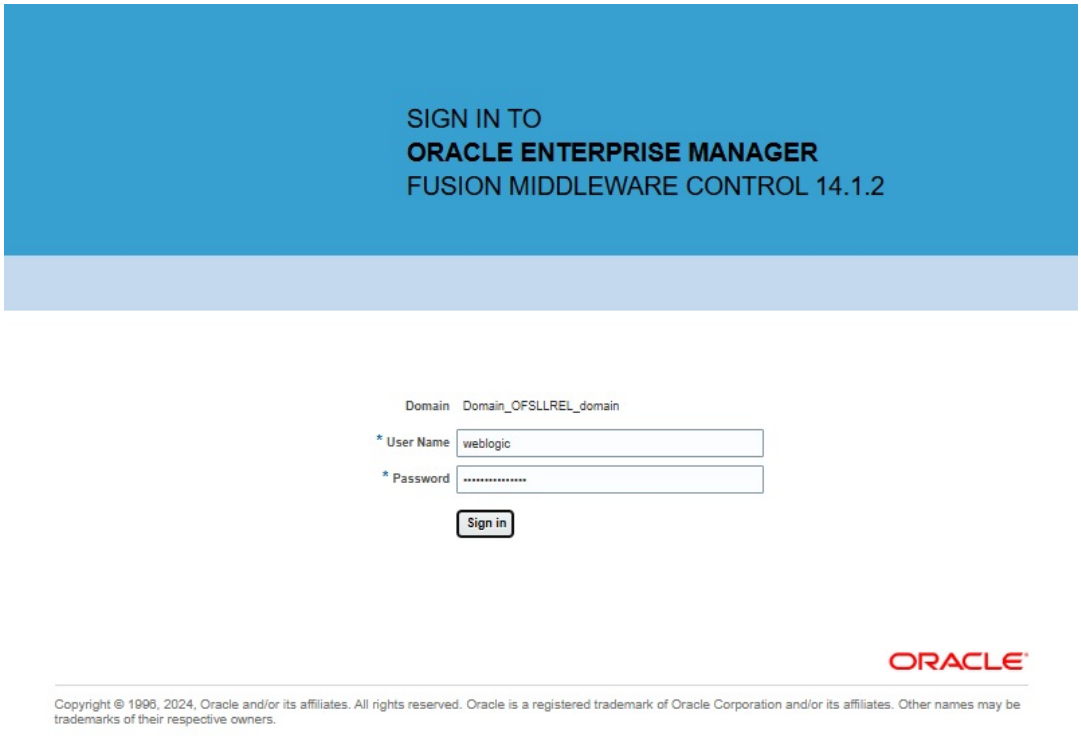
- Creating Data Sources for RESTful WebService
- Statement Timeout Configuration
- OAuth Implementation
- Deploying RESTful WebService
- Deploying RESTful Credit Bureau WebService

2.1 Creating Data Sources for RESTful WebService

Please follow the below steps to create data Sources for RESTful WebService.

1. Login to Oracle Weblogic 14c em (`http://hostname:port/em`).

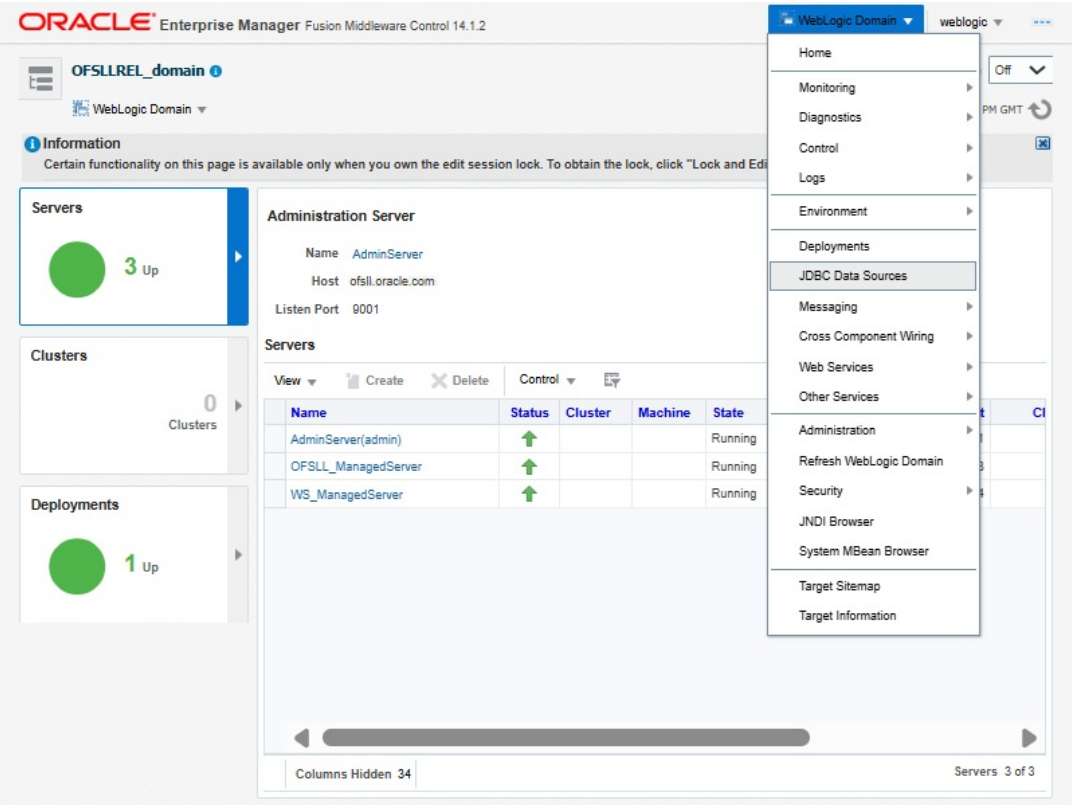
Figure 2-1 Create RESTful WebService 1



2. Click **WebLogic Domain > JDBC Data Sources**.

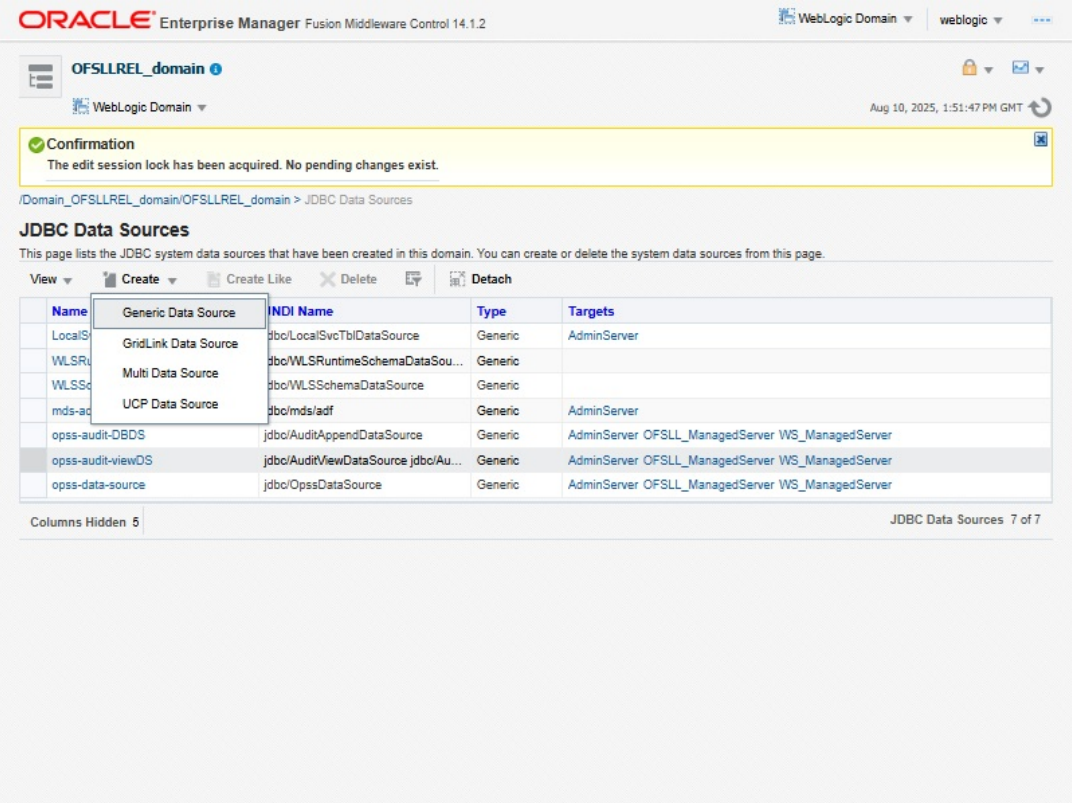
   The following window is displayed.

Figure 2-2 Create RESTful WebService 3



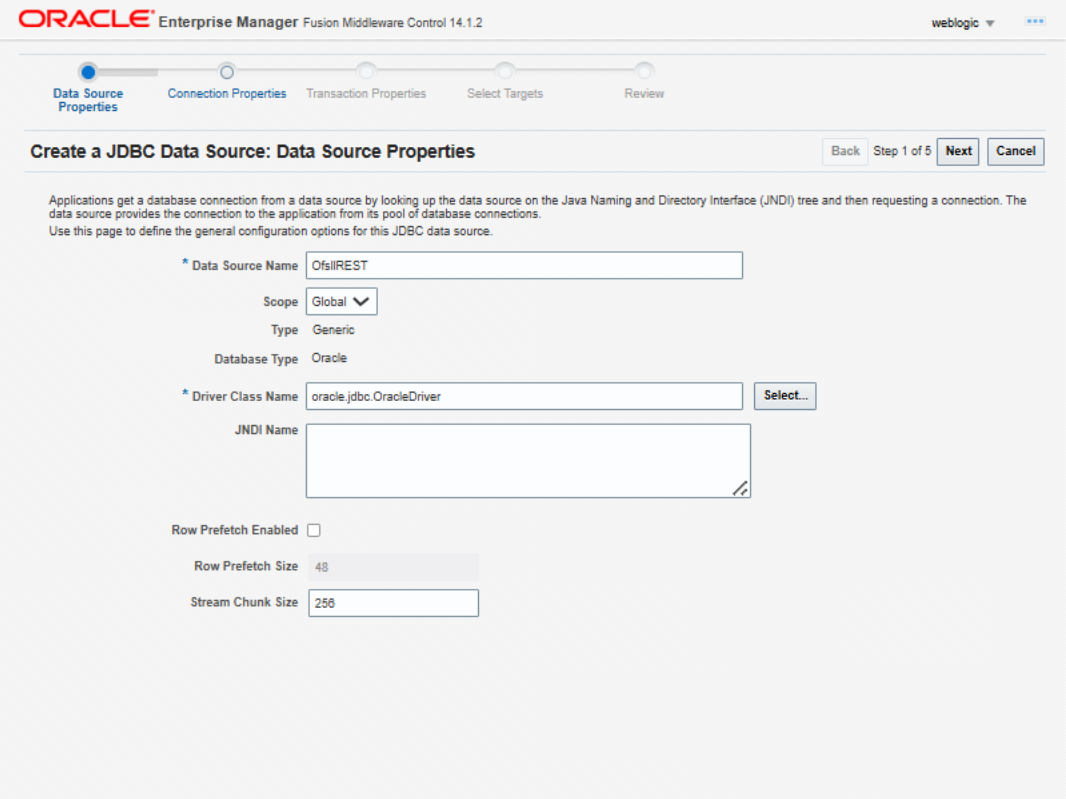
3. Click **Lock & Edit** on the Change Center. Click '**Create**' and select 'Generic Data Source'. The following window is displayed.

Figure 2-3 Create RESTful WebService 4



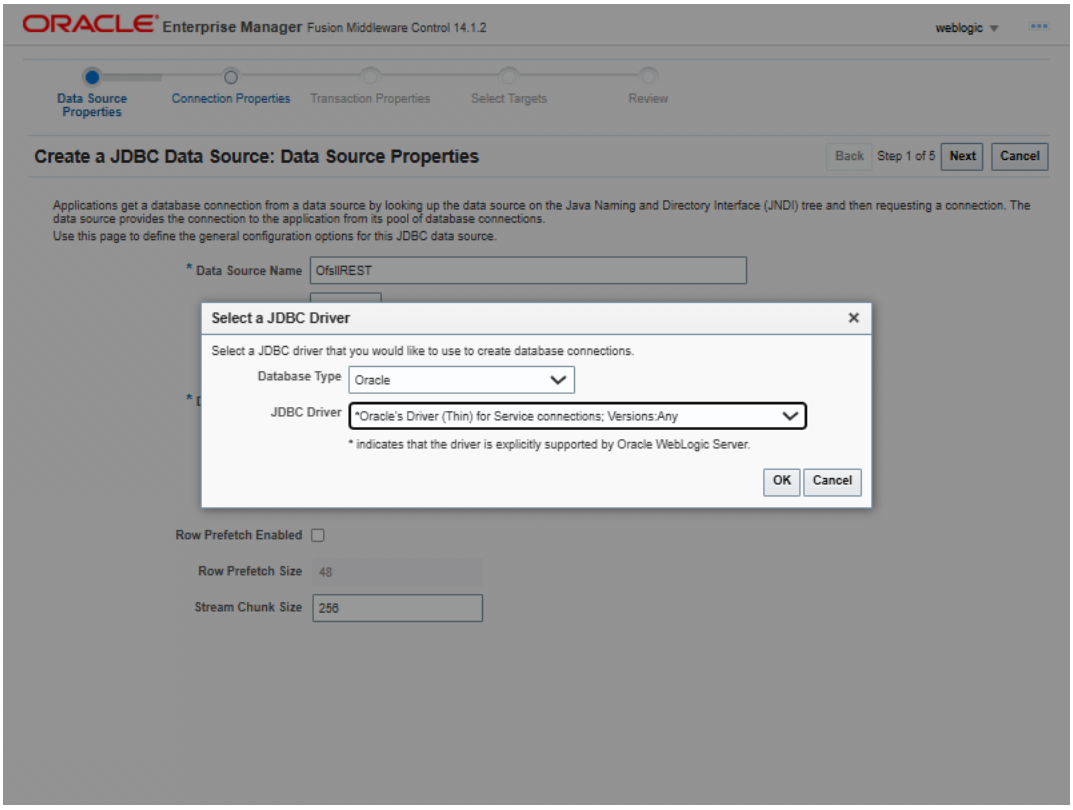
4. Specify the following details:
   a. Enter Data source Name: OfsllREST
   b. Click on **Select**

   The following window is displayed.

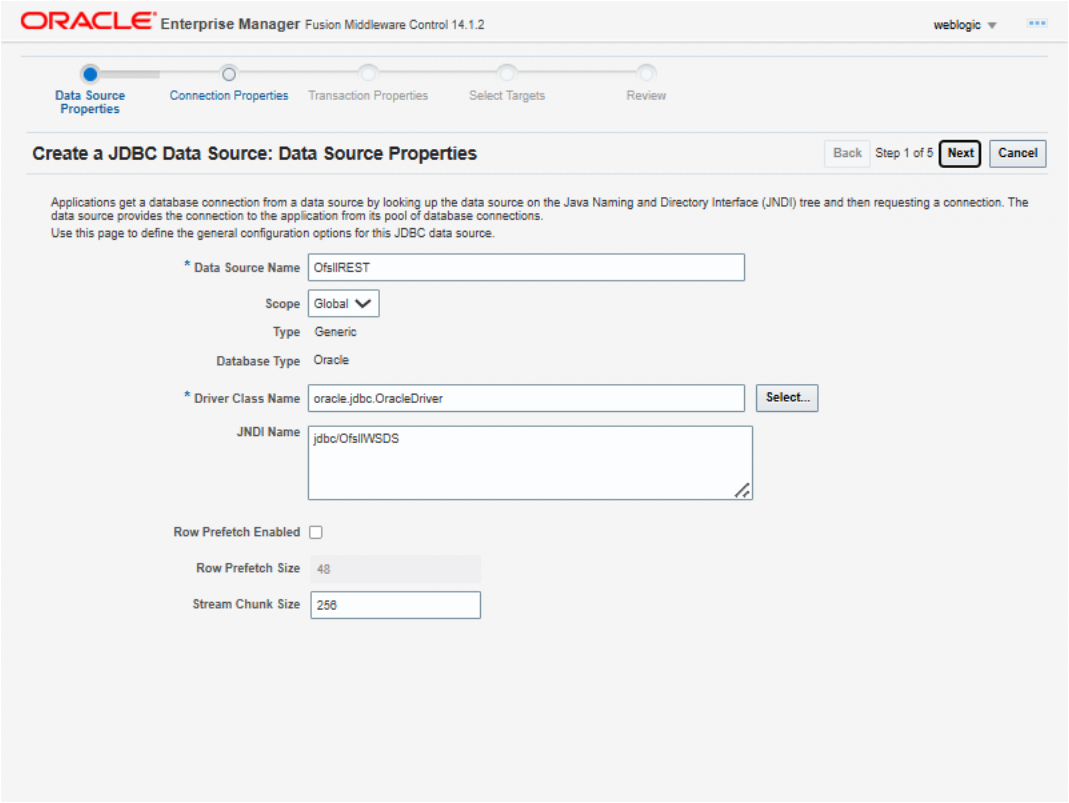


5. Select the Database Driver ‘Oracle's Driver(Thin) for Services connections;Versions:Any’
6. Click **Ok**.

   The following window is displayed.

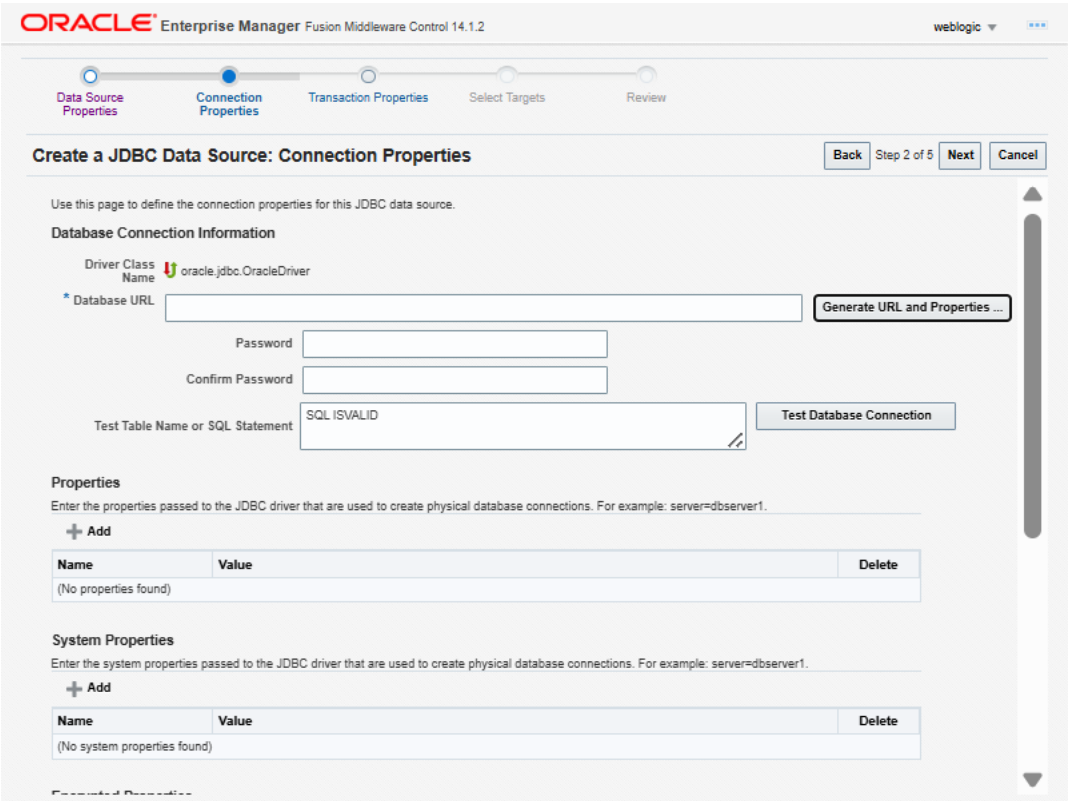


7. Specify the following details:
   - Enter the JNDI Name as ‘jdbc/OfsllWSDS’.
   - Click **Next**.



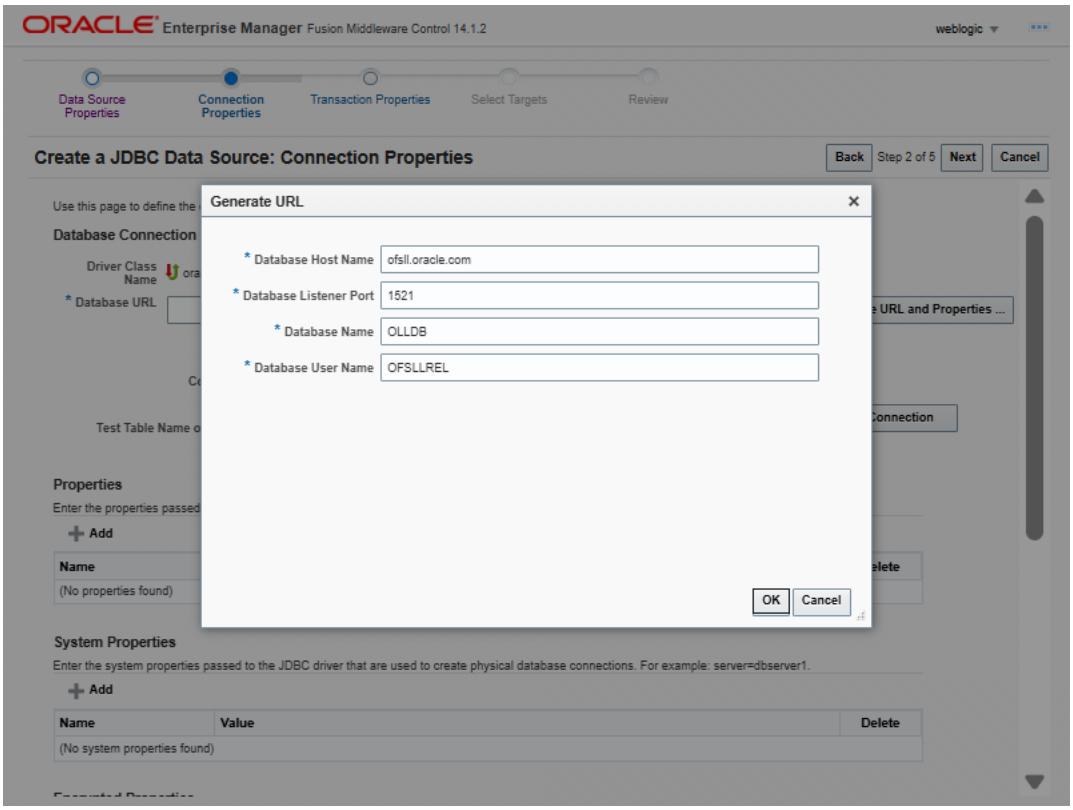
8. Click **Next**.

   The following window is displayed.

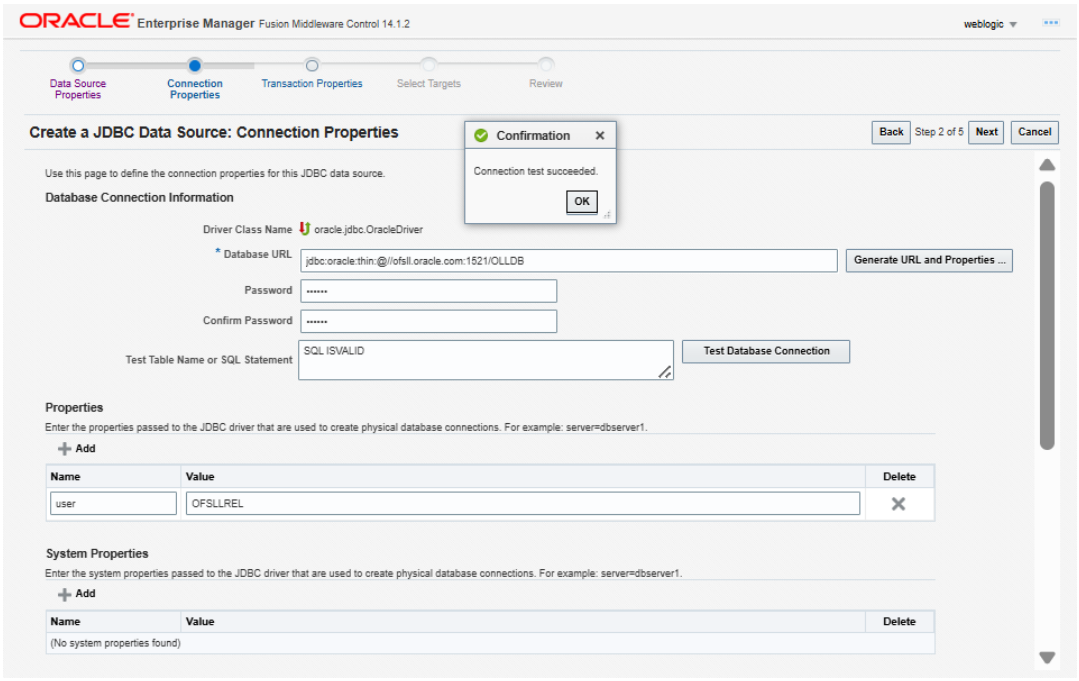


9. Enter the Database details.
   - Click **Ok**.

   The following window is displayed.

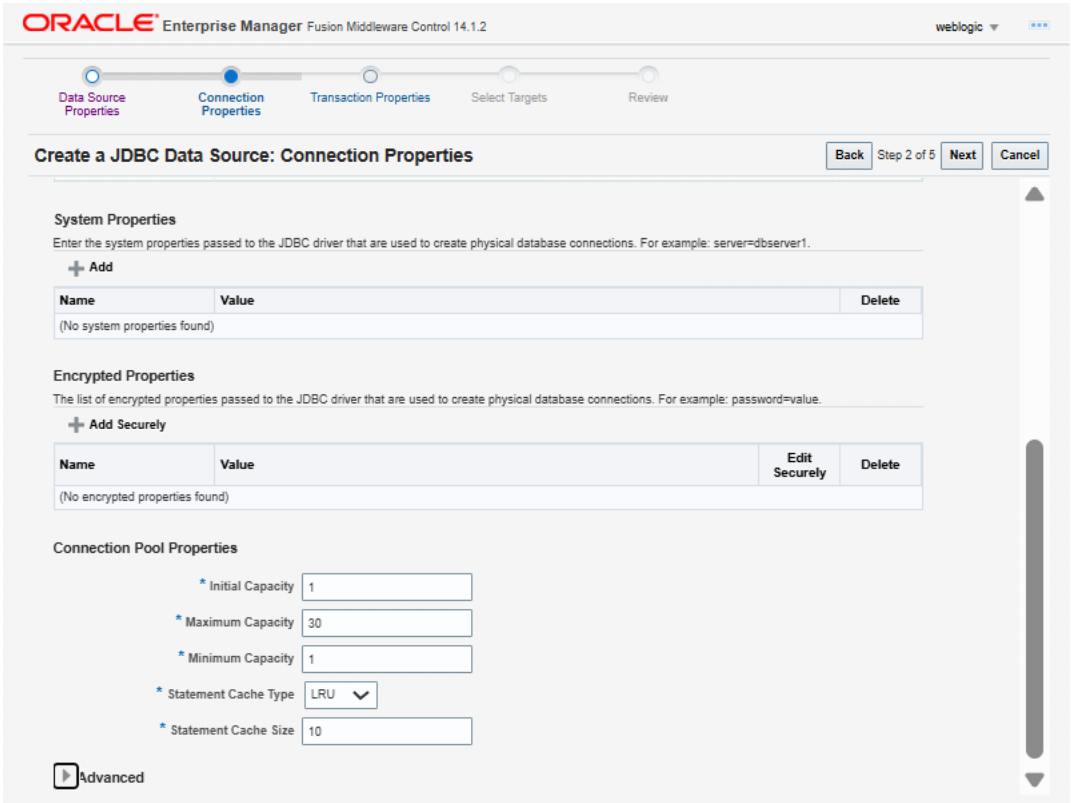


10. Enter OFSLL DB schema “Password” and Confirm Password”.
    - Click **Test Database Connection**. On completion, displays a confirmation message as ‘Connection test succeeded’.



11. Initial capacity and Maximum capacity is defaulted to 30, if the number of concurrent users are more this needs to be increased.

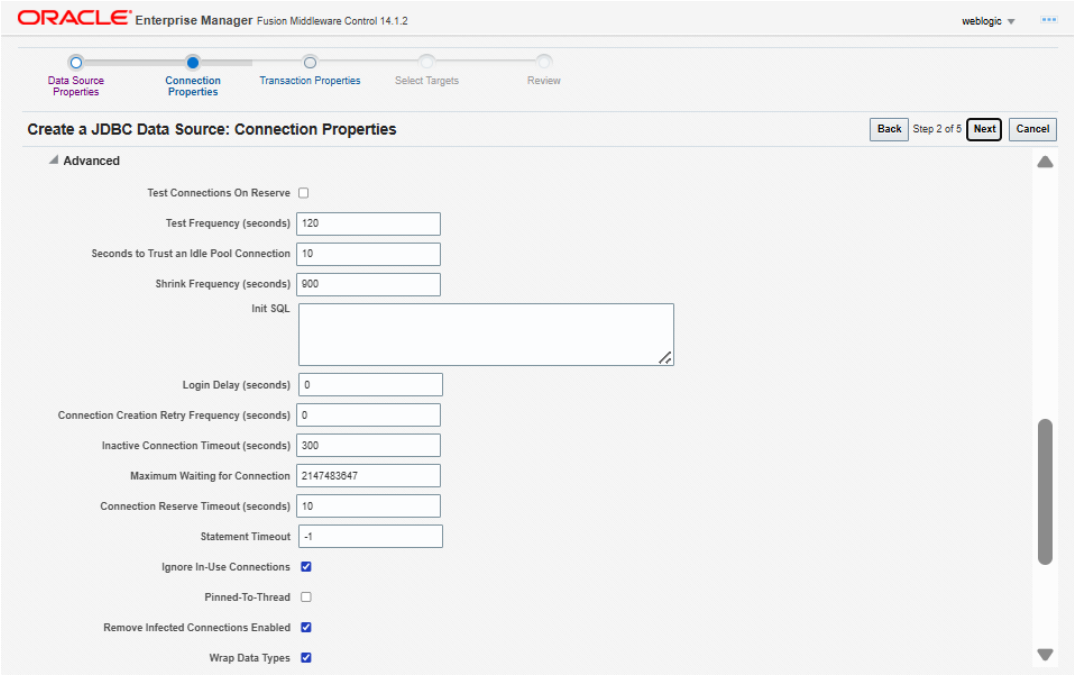
    The following window is displayed.



12. Click **Advanced** and update the ‘Inactive Connection Timeout’ to 300 seconds.

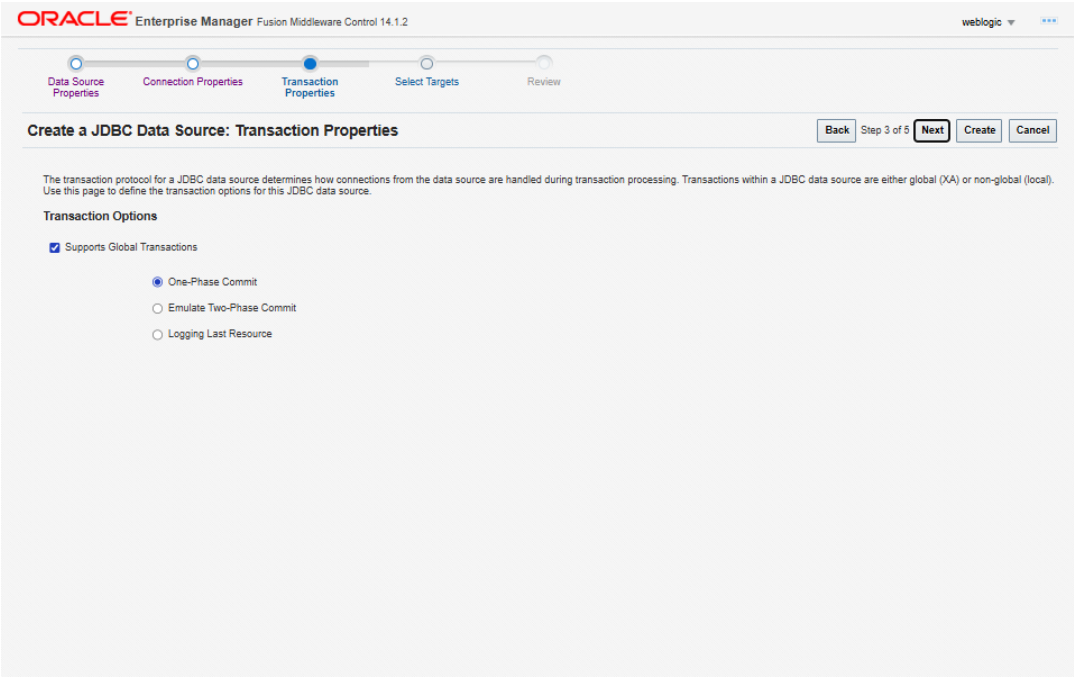
- Click **Next**.

The following window is displayed.



13. Click **Next**.

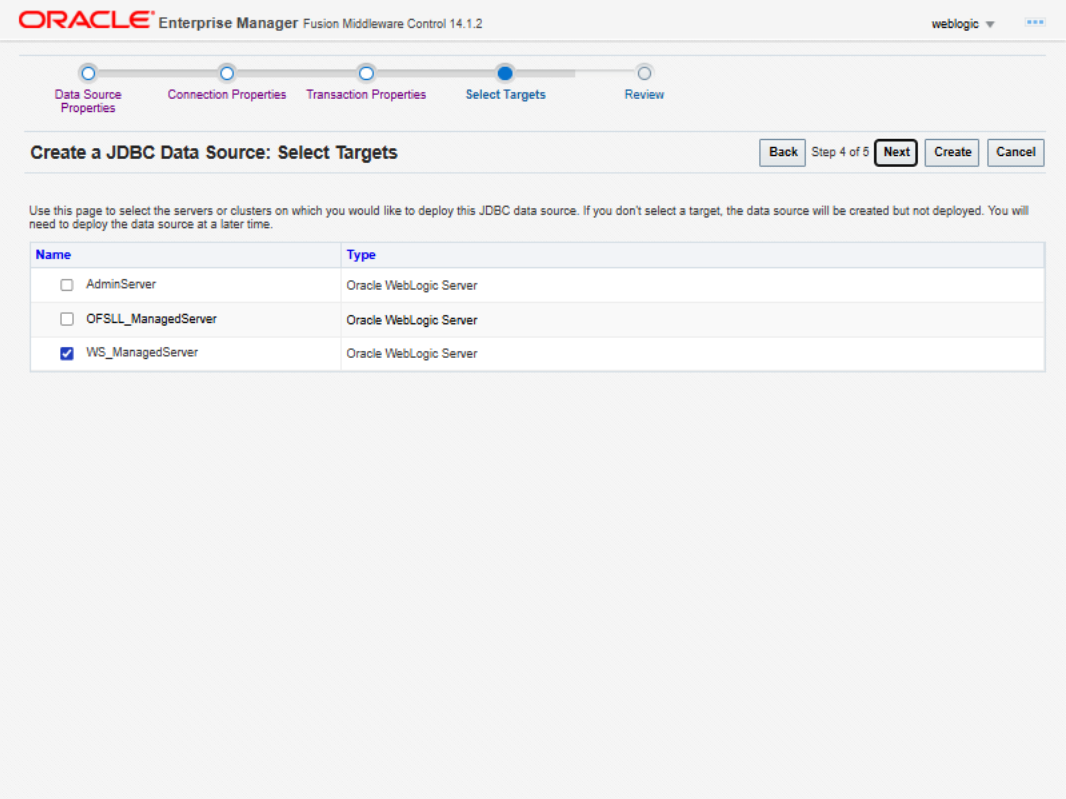
The following window is displayed.



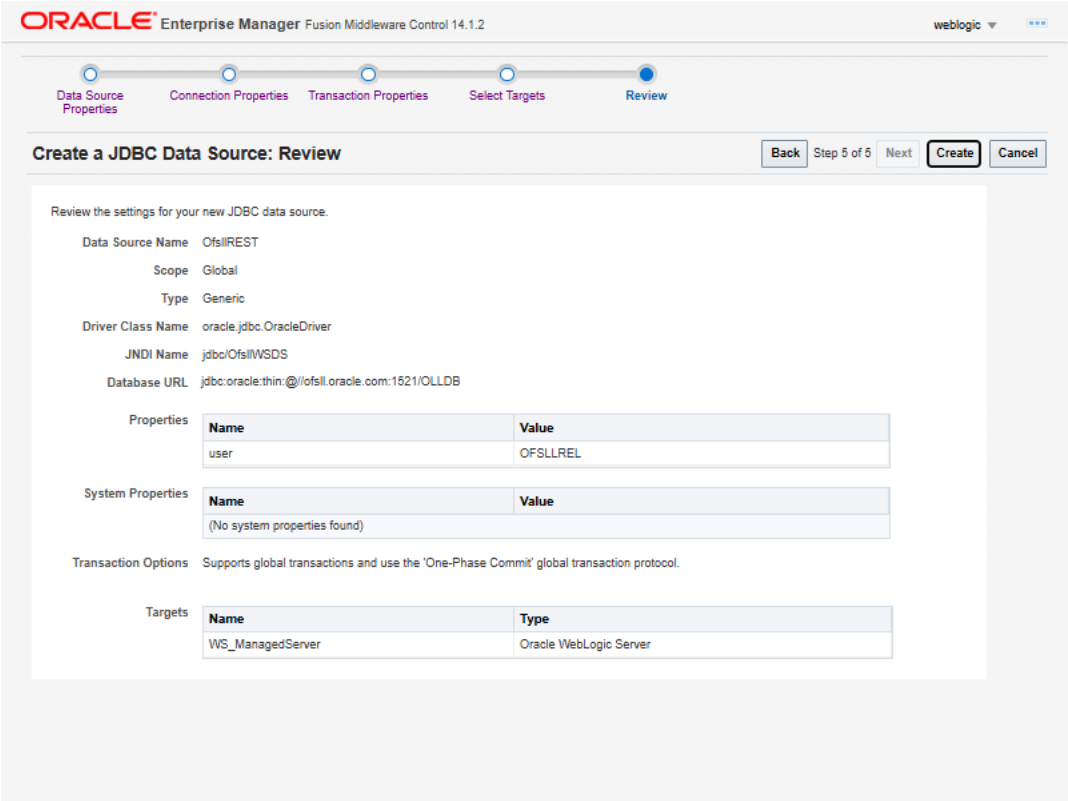
14. Click **Next**.

- Select target Server as ‘WS_ManagedServer’.

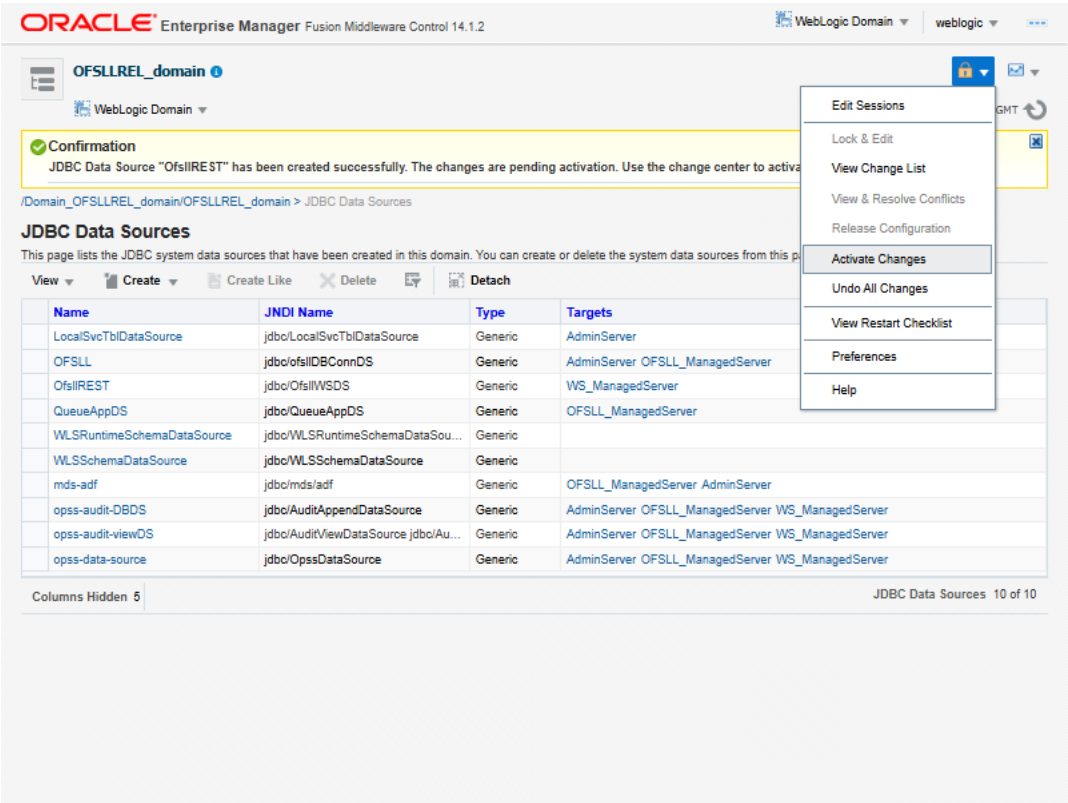
The following window is displayed.



15. Click **Create** to activate the changes



16. **Activate Changes** from Change Center.



2.2 Statement Timeout Configuration

When APIs are integrated with Client systems, you may need to specify how long your client system waits for an API call to complete before a timeout occurs. If the Client system times out earlier than the API call, you may see inappropriate responses.

Hence, a client timeout value higher than the API response time is required to avoid such a situation.

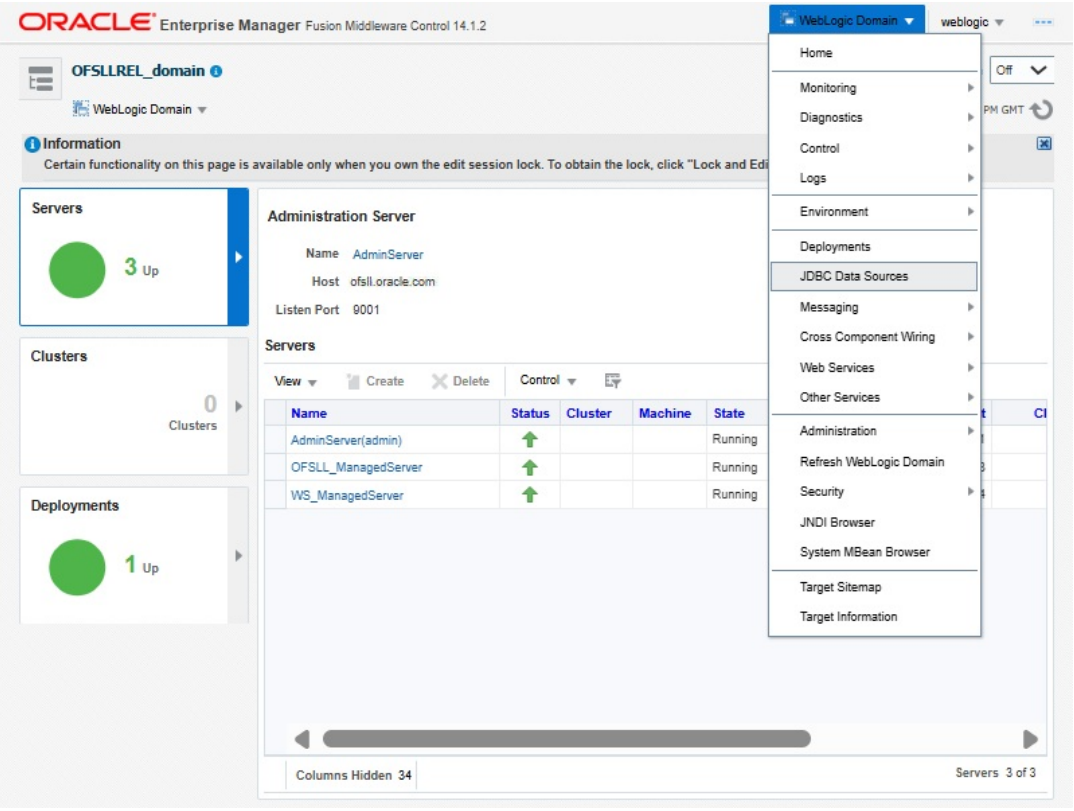
Ensure that the time out settings is always defined in decreasing order. Which means, the time out value of managed components configured between the 'Client Server' and 'OFSLL Managed Servers' should have decreasing value so that last managed server before OFSLL has least timeout value.

Follow the below steps to set the statement timeout value.

1. Login to WebLogic Server 14c em (http://hostname:port/em) using the valid credentials.
2. Click **WebLogic Domain > JDBC Data Sources**.

   The following screen is displayed.

Figure 2-4 JDBC Data Sources window

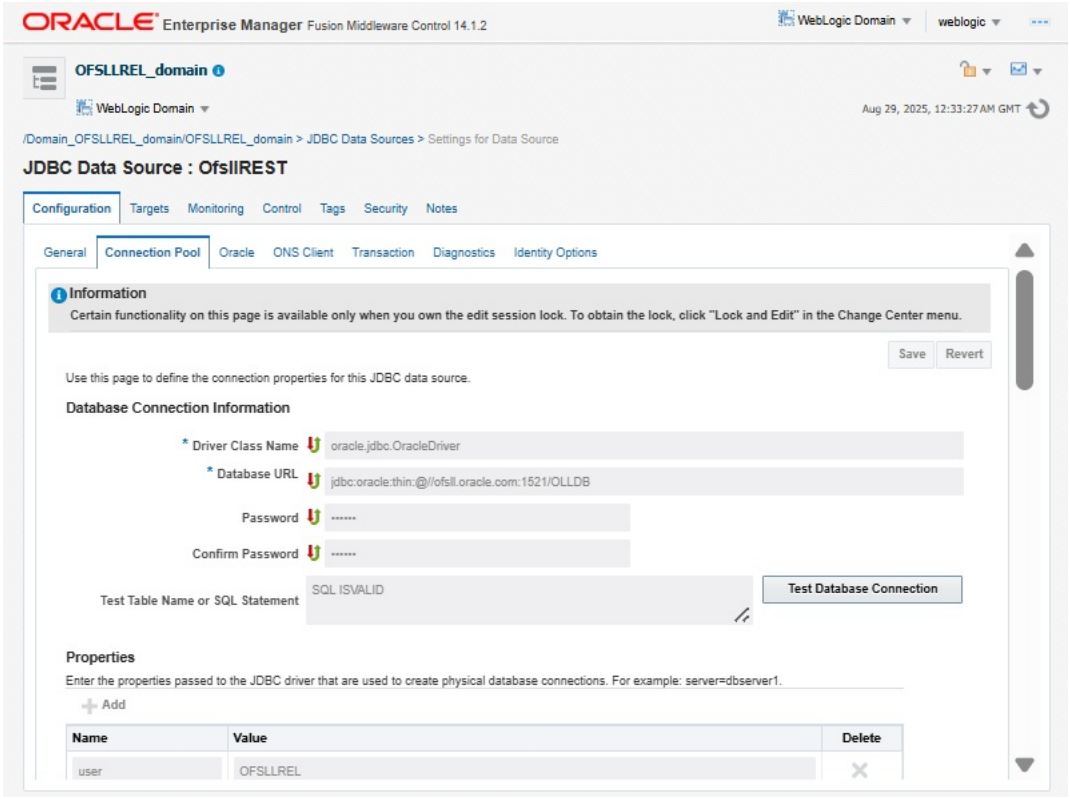


3. Click on the configured Restful data source.

   for example 'OfsllREST'
4. Navigate to Configuration > Connection Pool.

   The following screen is displayed.

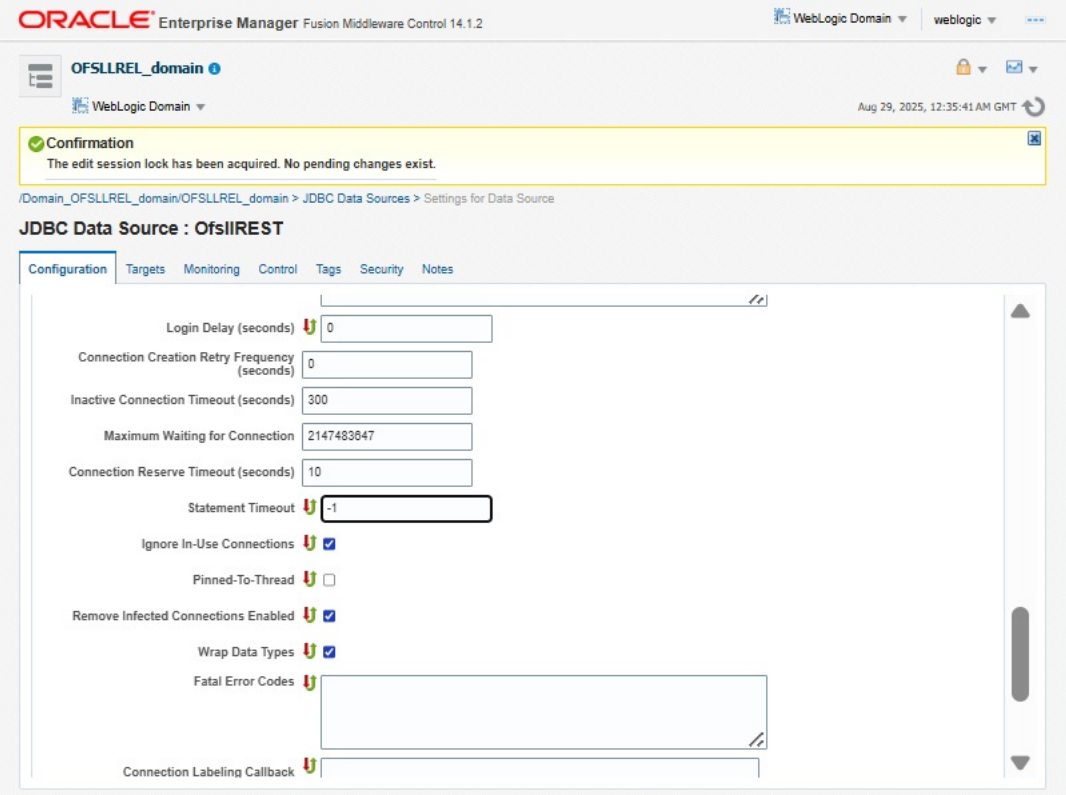
Figure 2-5 Connection Pool tab



5. Click **Lock & Edit** option from the Change Center menu.
6. Scroll down and click the **Advance** option.

   The following screen is displayed.

Figure 2-6 Advance option - Statement Timeout



7. Set the **Statement Timeout** value as appropriate. This is the time after which a statement currently being executed will time out. For more information, refer to **Guidelines_OFSLL API Timeout Period.pdf** shared along with fix.
8. Once done, for changes to take effect, you need to restart the Data Source. Click on the **View changes and restarts** from the Change Center menu.

2.3 OAuth Implementation

(Optional) To extend OFSLL SaaS, OAuth2 can be used for securing OFSLL web services user access Authentication.

Web services authentication using OAuth2 is one of the best approach for securing user authentication to extend OFSLL SaaS. This uses Oracle / Non-Oracle PaaS to authenticate service access request from an external partner application without sharing OFSLL environment access credentials (UID / Password) and leverages the built-in support for OAuth 2.0.

OAuth 2.0 is an open standard token-exchange technology for verifying a user's identity across multiple systems and domains without risking the exposure of a password.

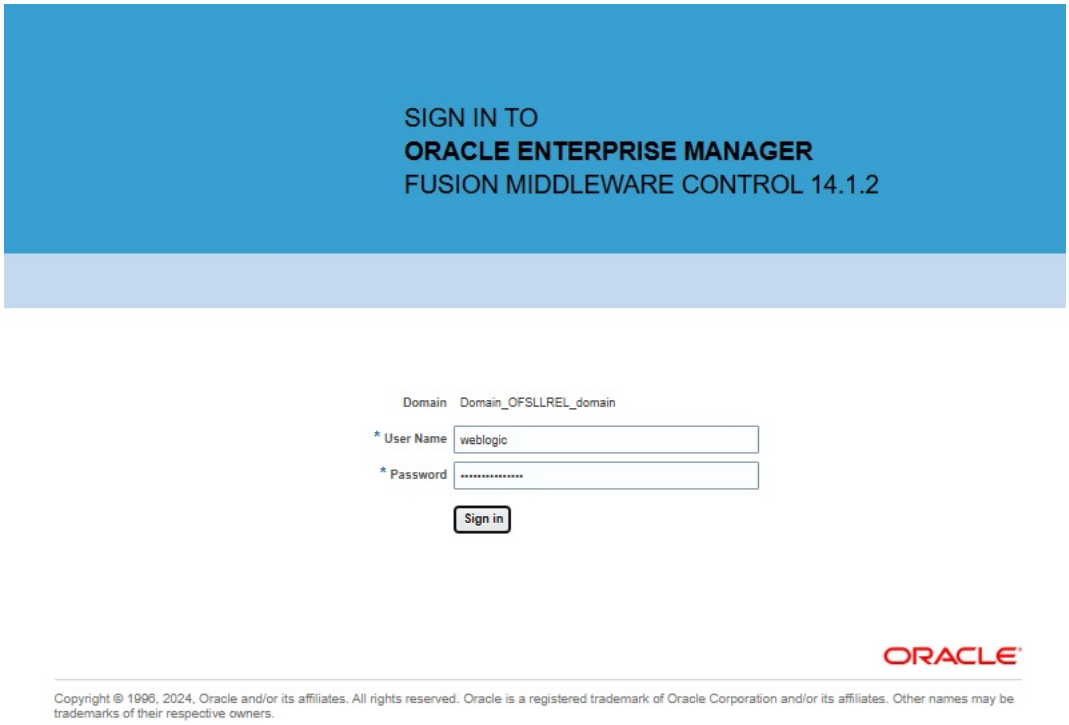
For detailed information, refer to the OAuth Implementation Guide shared in OTN library.

2.4 Deploying RESTful WebService

Please follow the below steps to deploy RESTful WebService.

1. Login to Web Logic application server enterprise manager (e.g.: `http://hostname:port/em`)

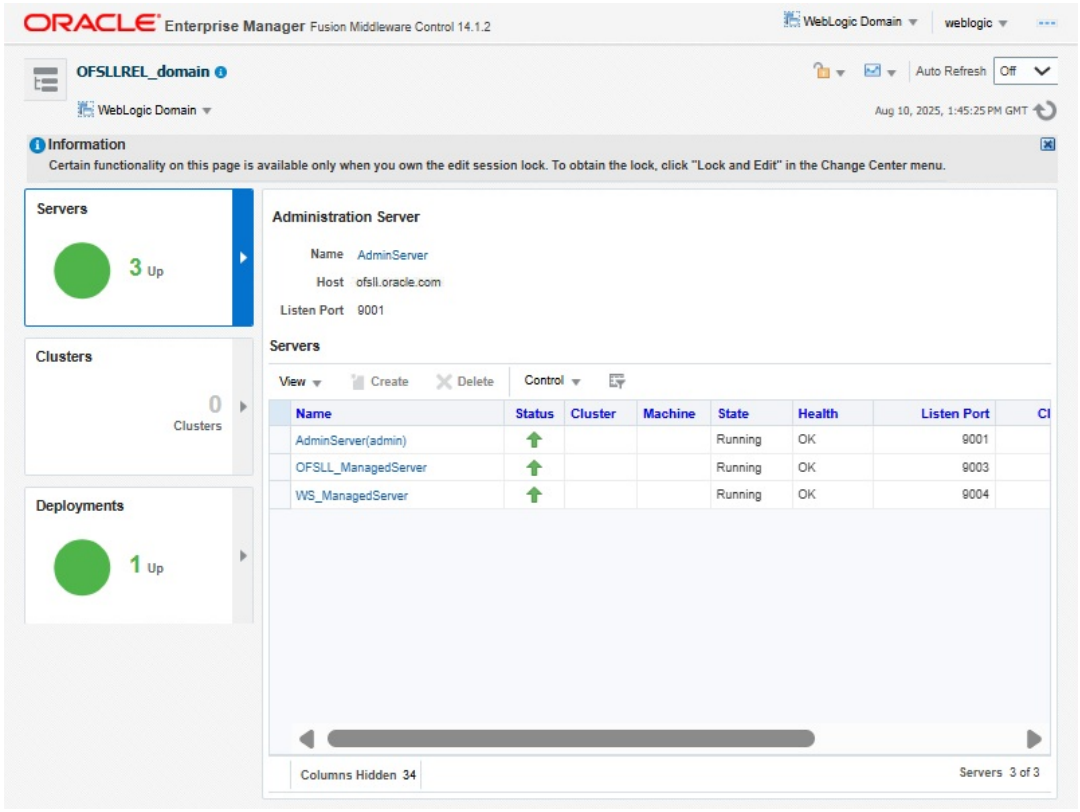
Figure 2-7 Deploy RESTful WebService 1



2. Enter valid login credentials.

   The following window is displayed.

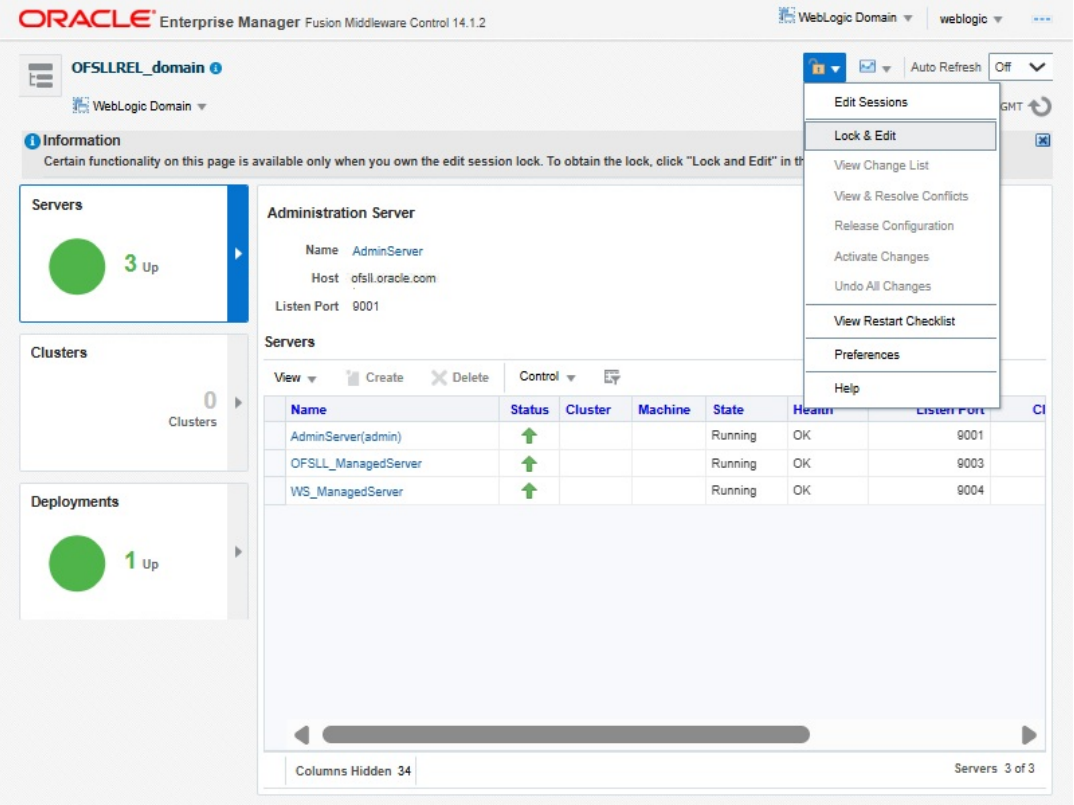
Figure 2-8 Deploy RESTful WebService 2



3. Select **Lock & Edit** option in the lock drop-down list available in the header.
4. Click **Deployment** in the left panel. Select **Lock & Edit**option in the lock drop-down list available in the header.

   The following window is displayed.

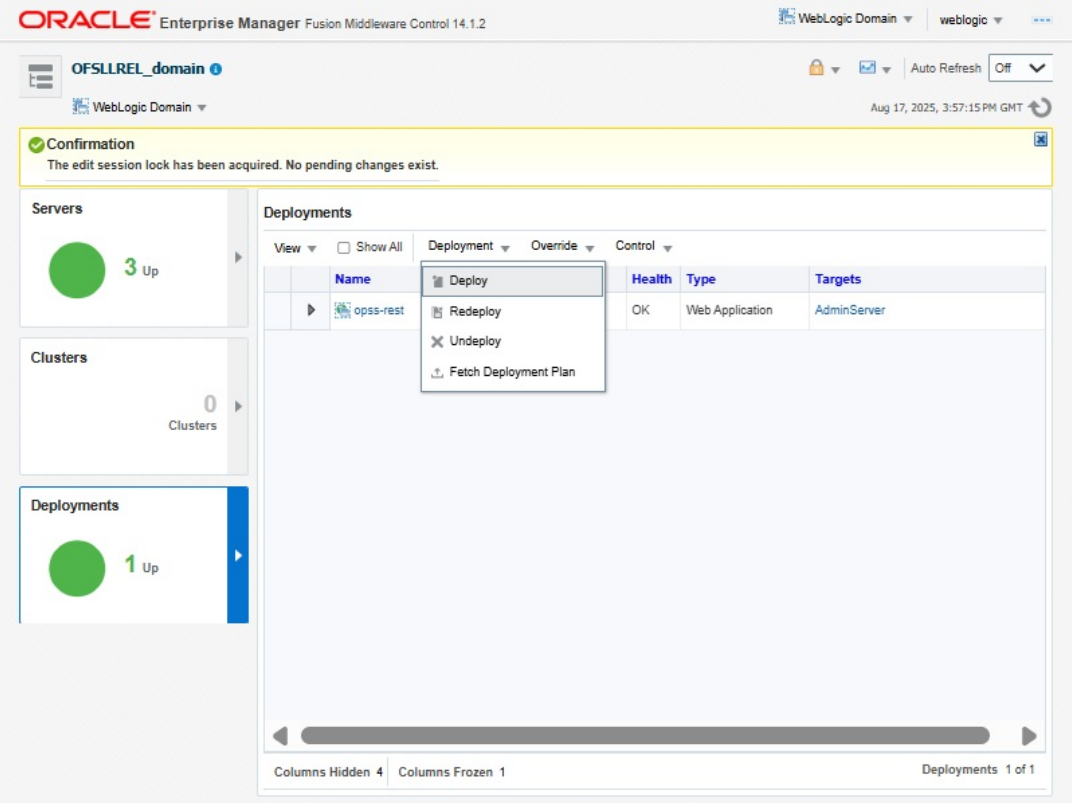
Figure 2-9 Deploy RESTful WebService 3



5. Select **Deploy** from the Deployment drop-down list.

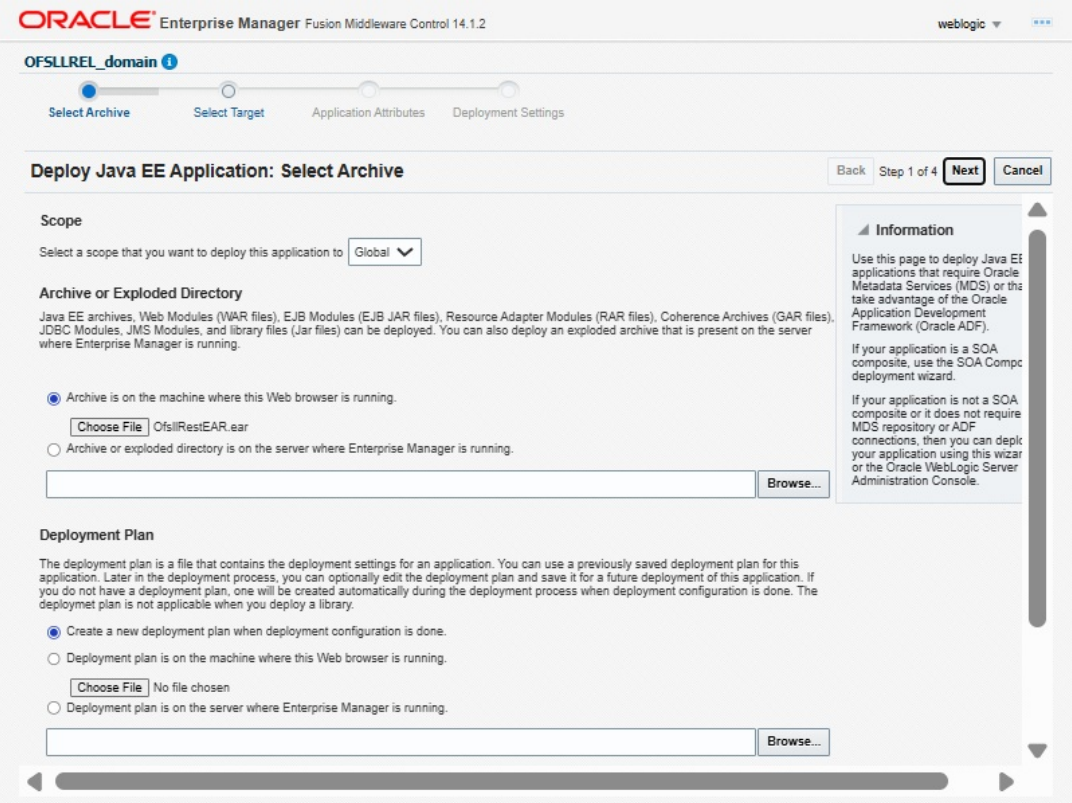
   The following window is displayed.

Figure 2-10 Deploy RESTful WebService 4



6. The following window is displayed.

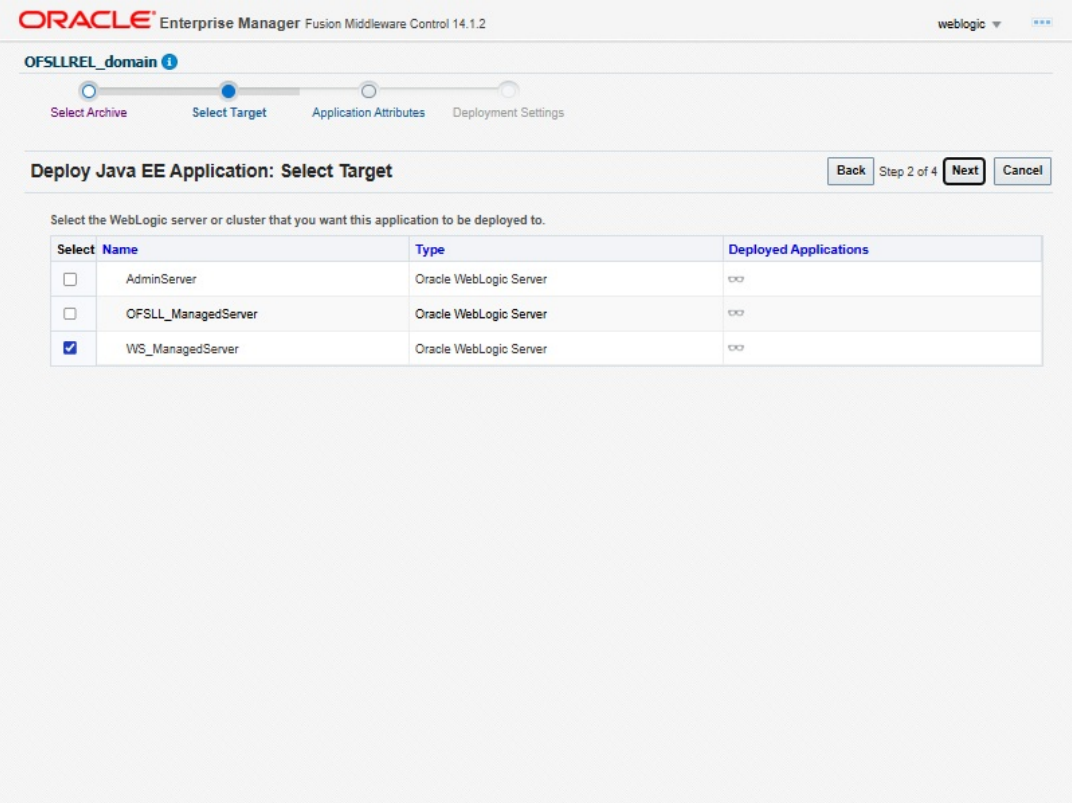
Figure 2-11 Deploy RESTful WebService 5



7. Browse to the folder containing the WebService. Eg: `C:/OfsllRestEAR.ear`
8. Click **Next**.

   The following window is displayed.

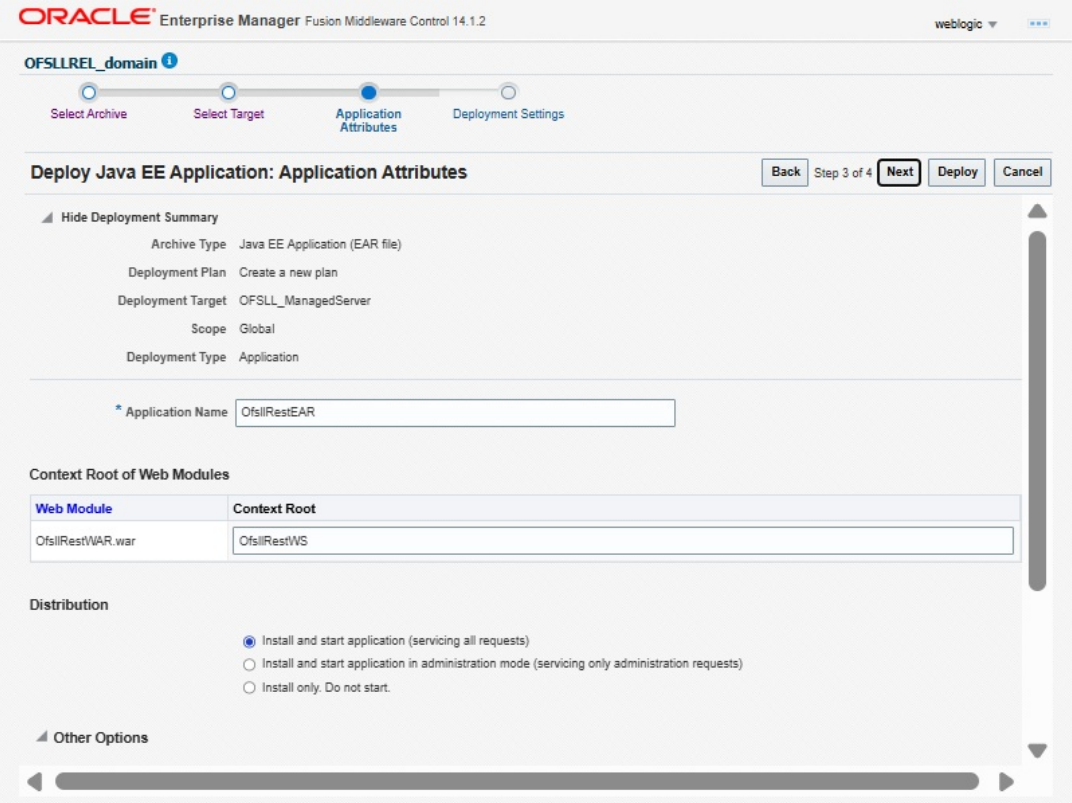
Figure 2-12 Deploy RESTful WebService 6



9. Select the server on which the WebService needs to be deployed.
10. Click **Next**.

    The following window is displayed.

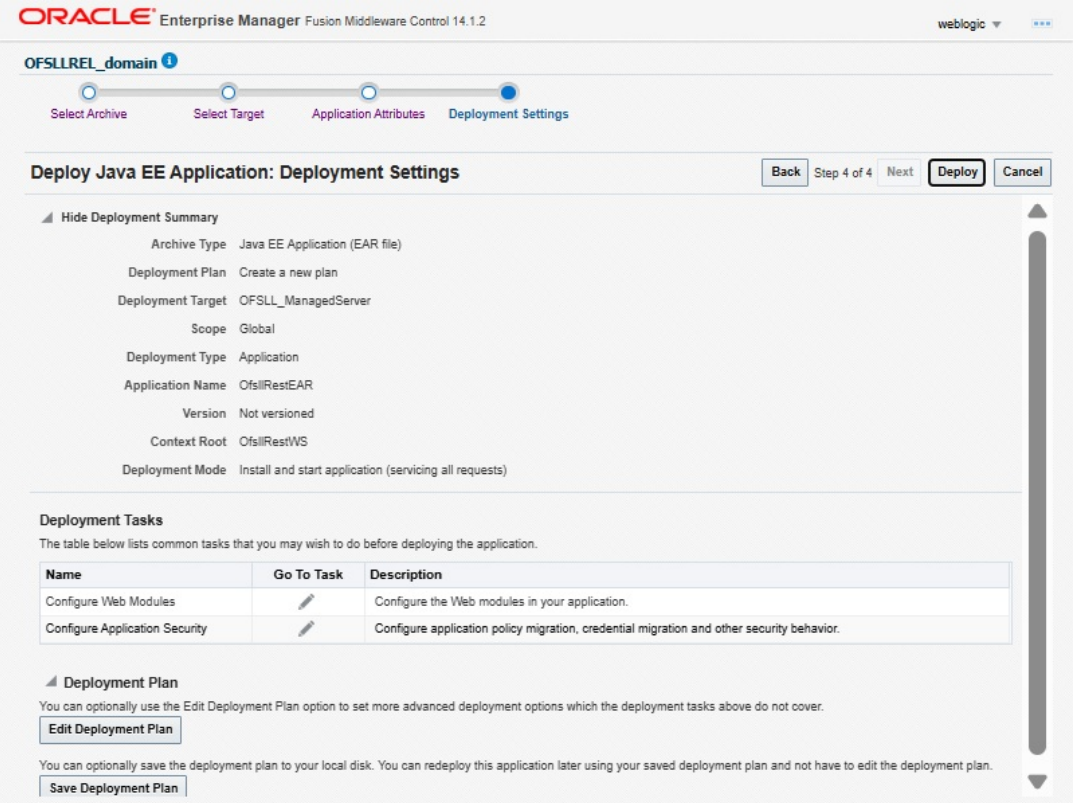
Figure 2-13 Deploy RESTful WebService 7



11. Select the option **Install and start application (servicing all requests)**.
12. Check the context root and click **Next**.

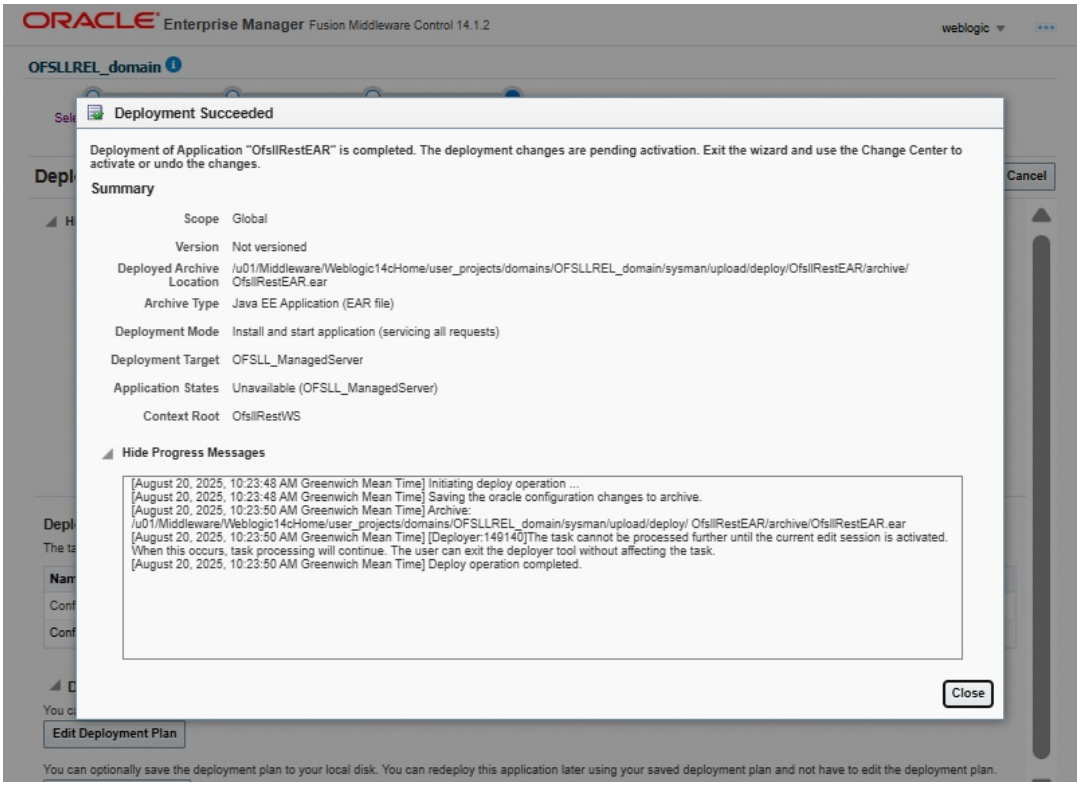
    The following window is displayed.

Figure 2-14 Deploy RESTful WebService 8



13. Click **Deploy** . On successful deployment, the following window is displayed.

Figure 2-15 Deploy RESTful WebService 9



14. Click **Close**. Post deployment, you need to activate the changes by selecting **Active Changes** option from **Edit Session** drop-down list as indicated in step 4 above.

The next step is to **Identifying the RESTful Webservice URL**.

- Identifying the RESTful Webservice URL

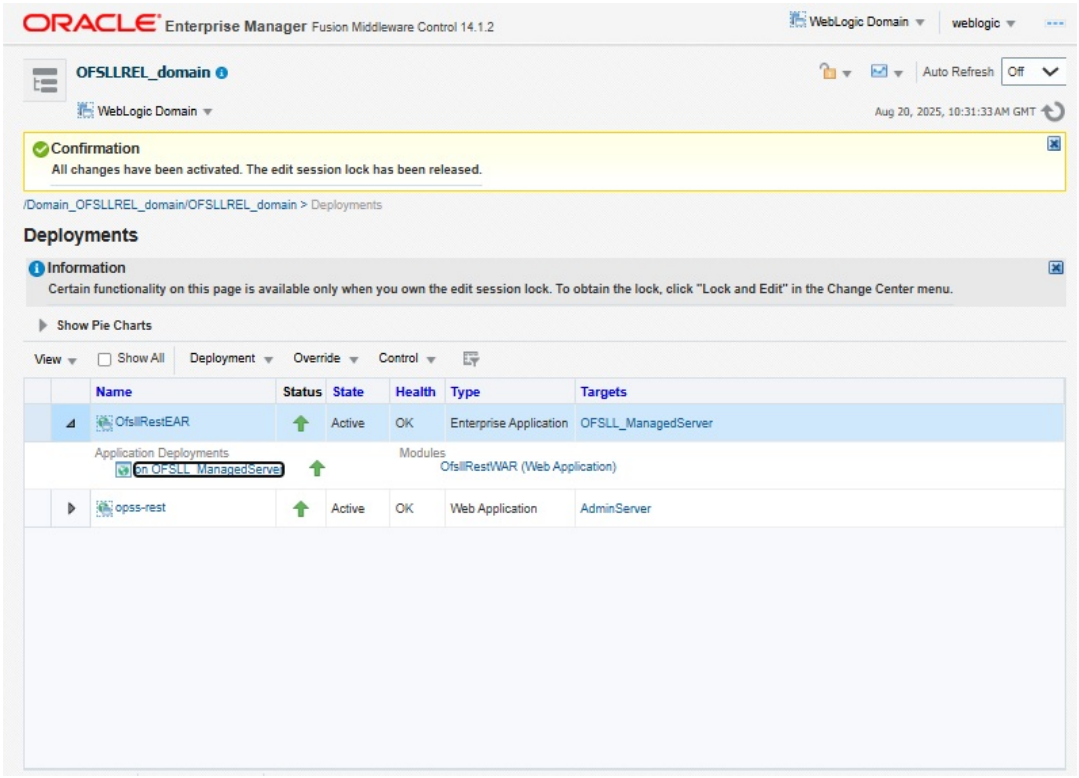
2.4.1 Identifying the RESTful Webservice URL

The following section briefs how to identify the RESTful Webservice URL.

1. Login to WebLogic Server 14c em (`http://hostname:port/em`).
2. Click **Deployments** and expand **OfsllRestEAR** services.
   - Click **Application Deployment**.

   The following window is displayed.

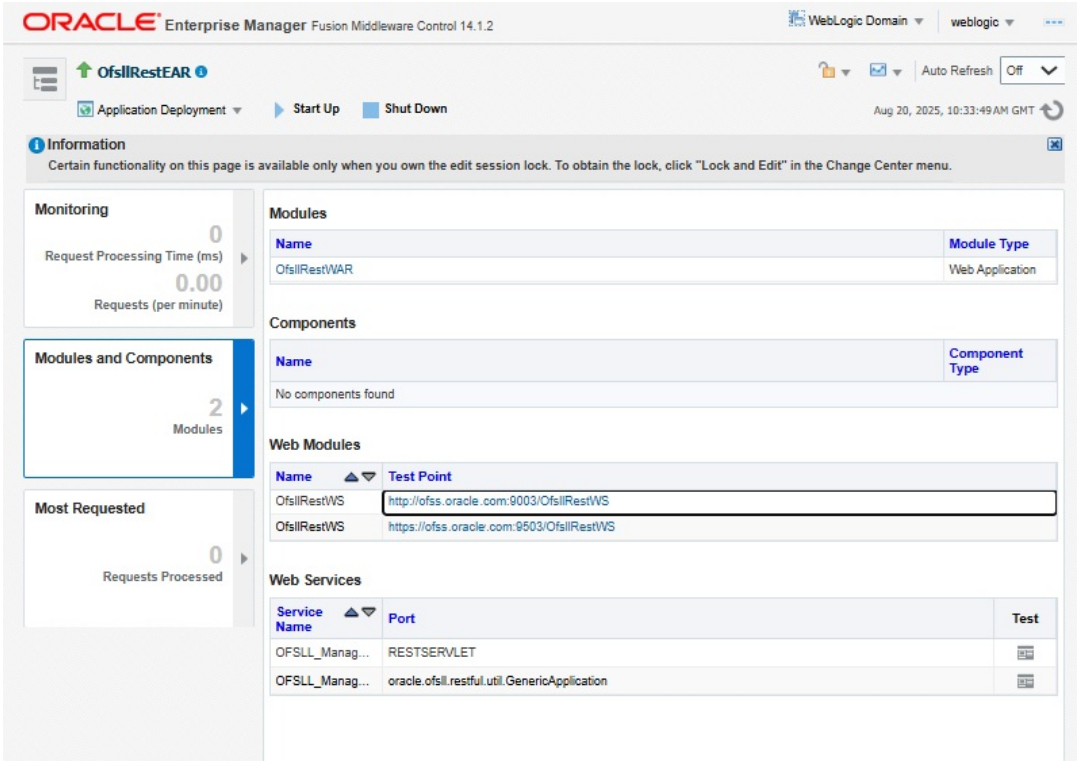
Figure 2-16 Identifying URL 1



3. Click **Modules and components**.

   The following window is displayed.

Figure 2-17 Identifying URL 2



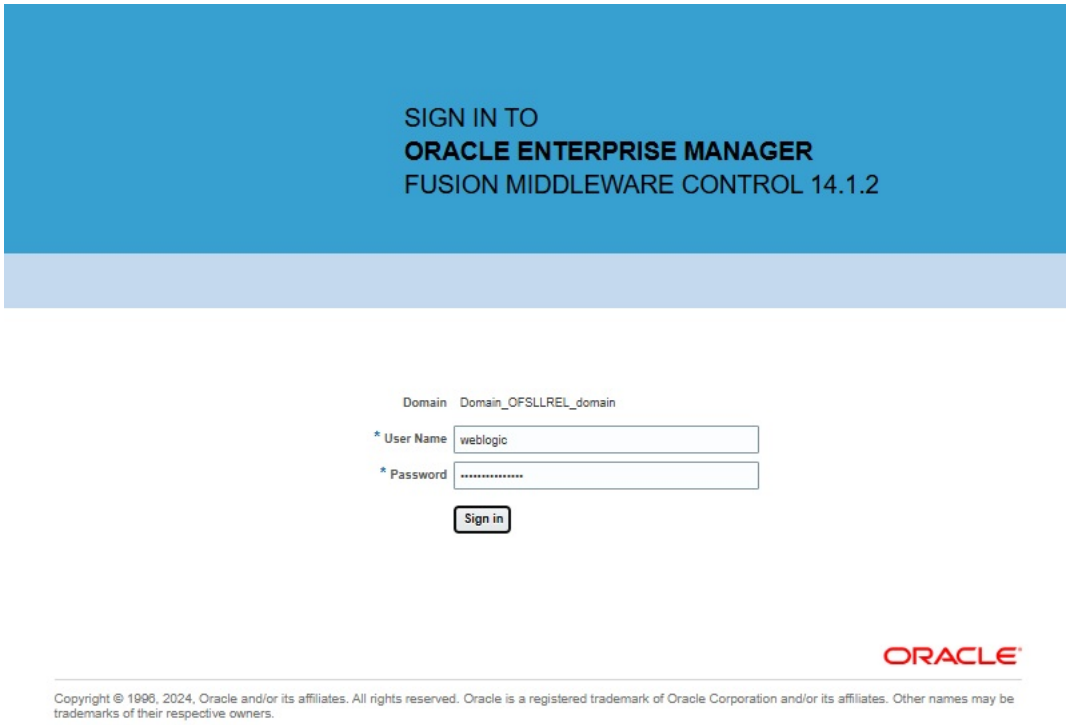
4. You can view the **OfsllRestful** Services URL as shown.
5. Swagger documentation for RESTful web services can be accessed using the following URL type - http://<server_name>;<port>/<Application_context>/swagger.json

2.5 Deploying RESTful Credit Bureau WebService

Please follow the below steps to deploy RESTful Credit Bureau WebService.

1. Login to Web Logic application server enterprise manager (e.g.:`http://hostname:port/em`).

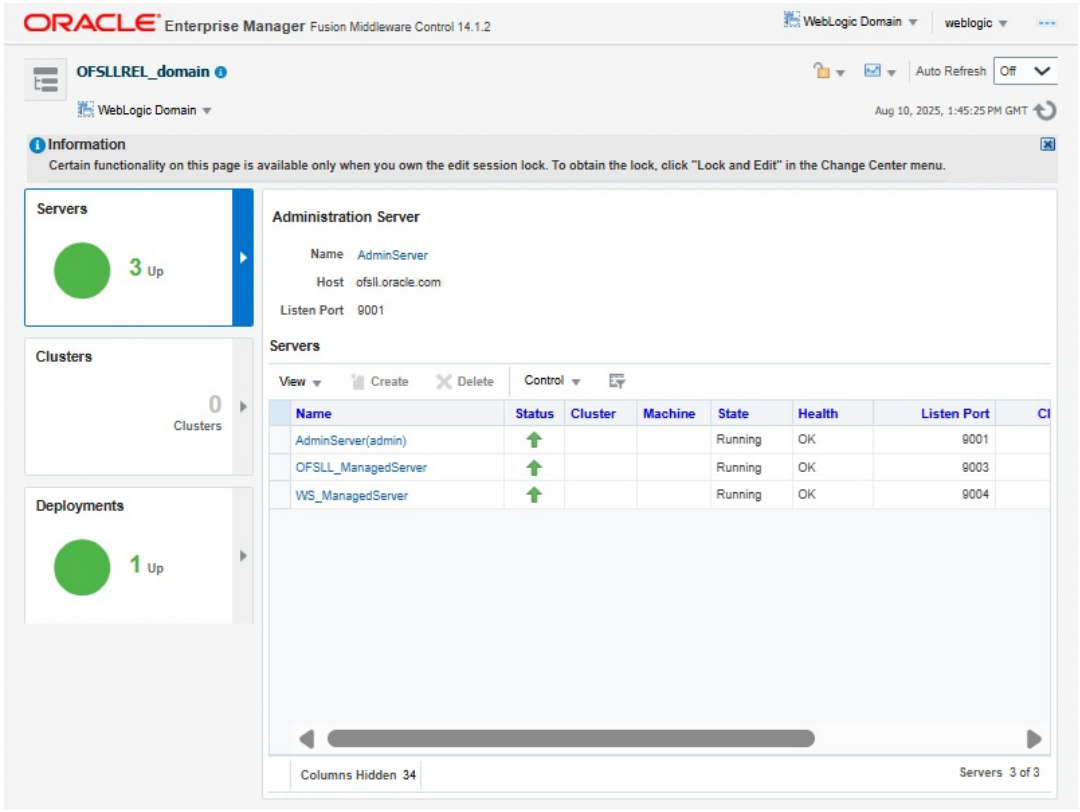
Figure 2-18 Deploy Bureau WebService 1



2. Enter valid login credentials.

   The following window is displayed.

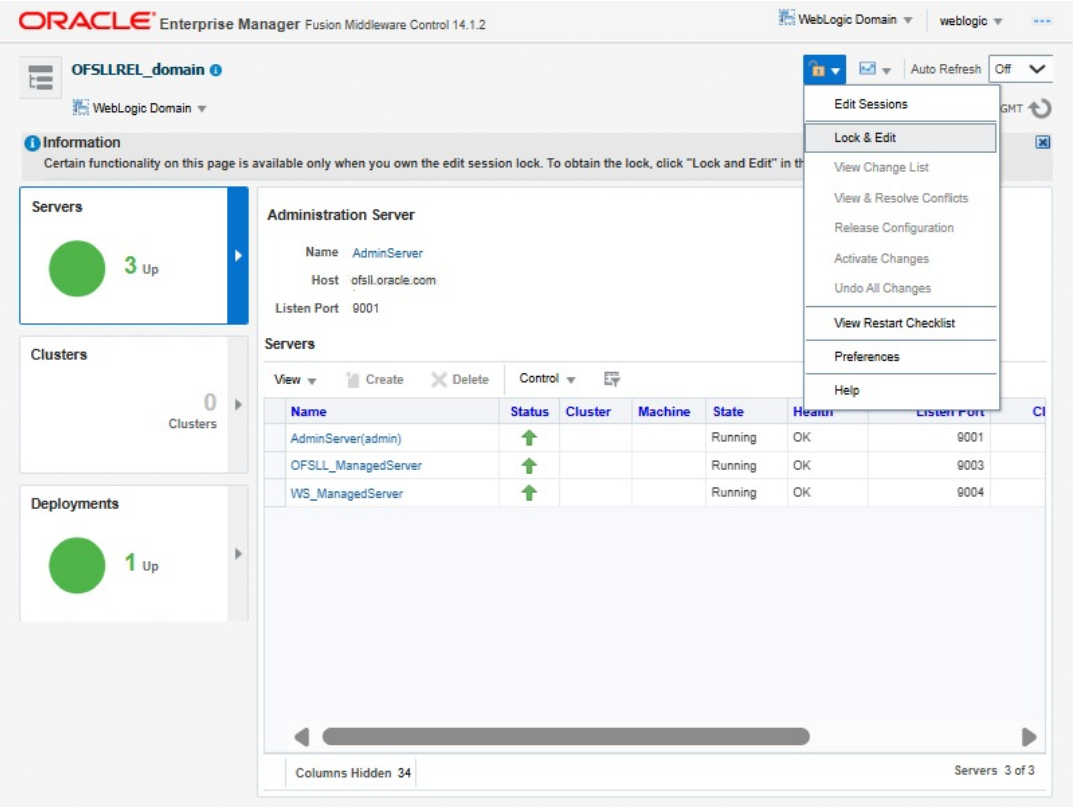
Figure 2-19 Deploy Bureau WebService 2



3. Select **Lock & Edit** option in the lock drop-down list available in the header.
4. Click **Deployment** in the left panel.

   The following window is displayed.

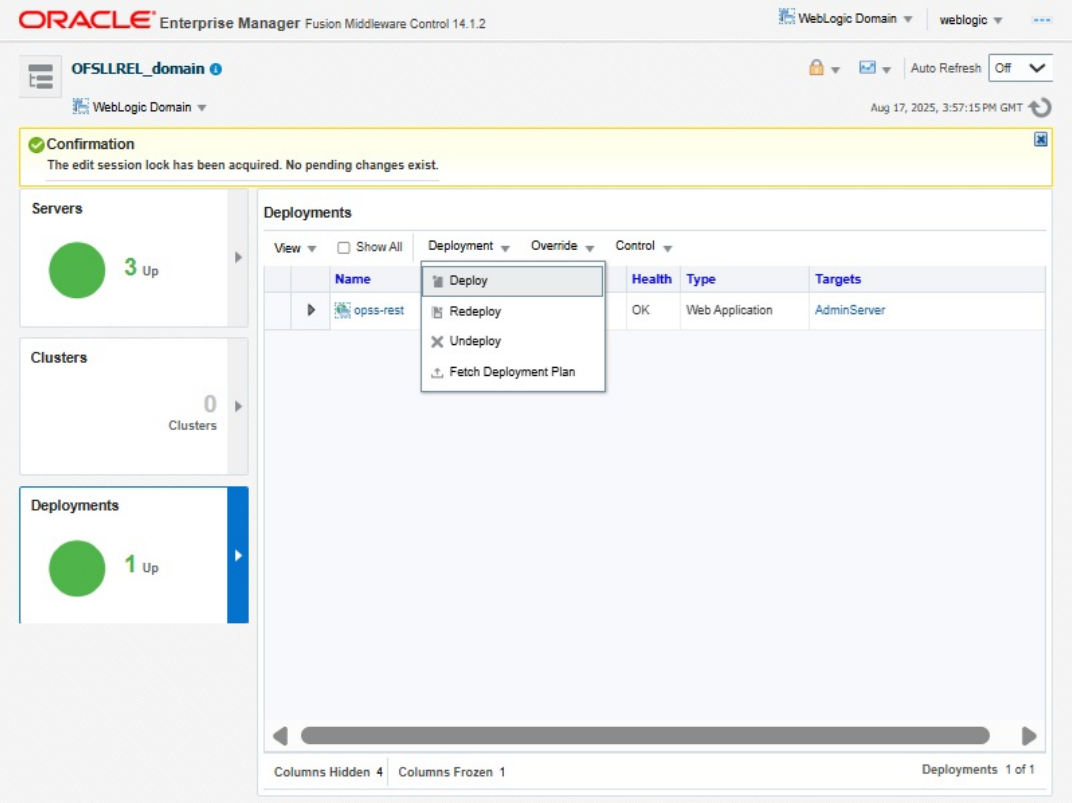
Figure 2-20 Deploy Bureau WebService 3



5. Select **Deploy** from the Deployment drop-down list.

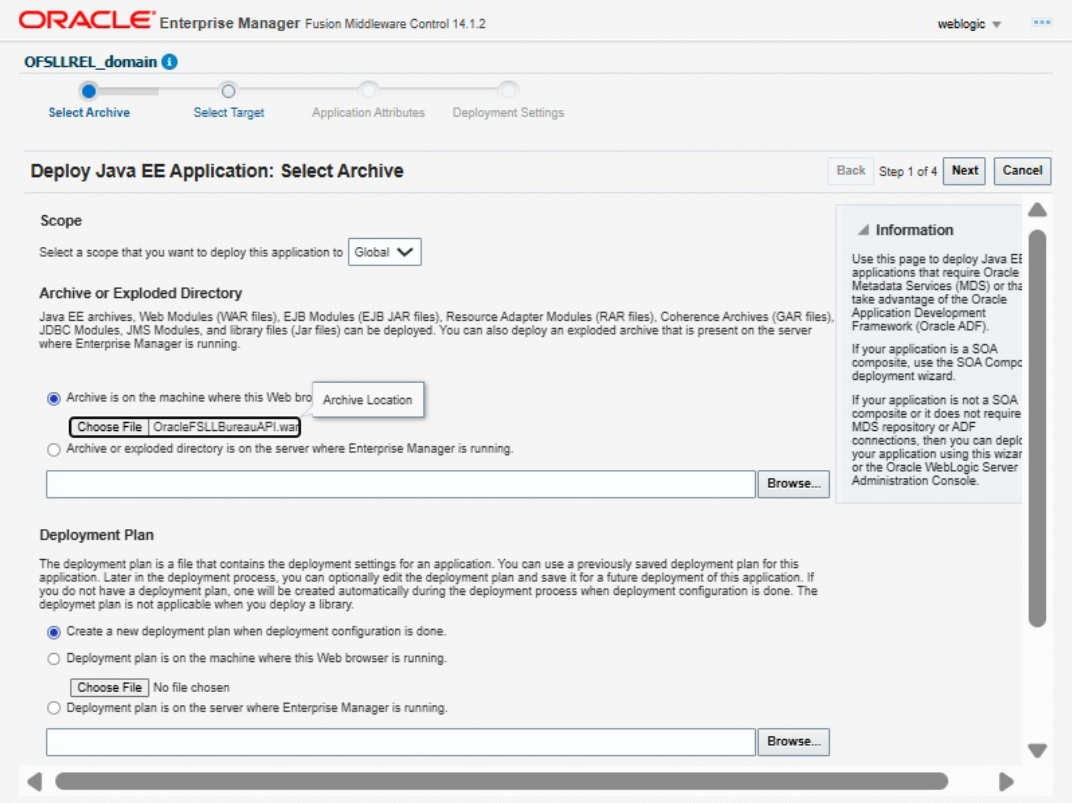
   The following window is displayed.

Figure 2-21 Deploy Bureau WebService 4



6. The following window is displayed.

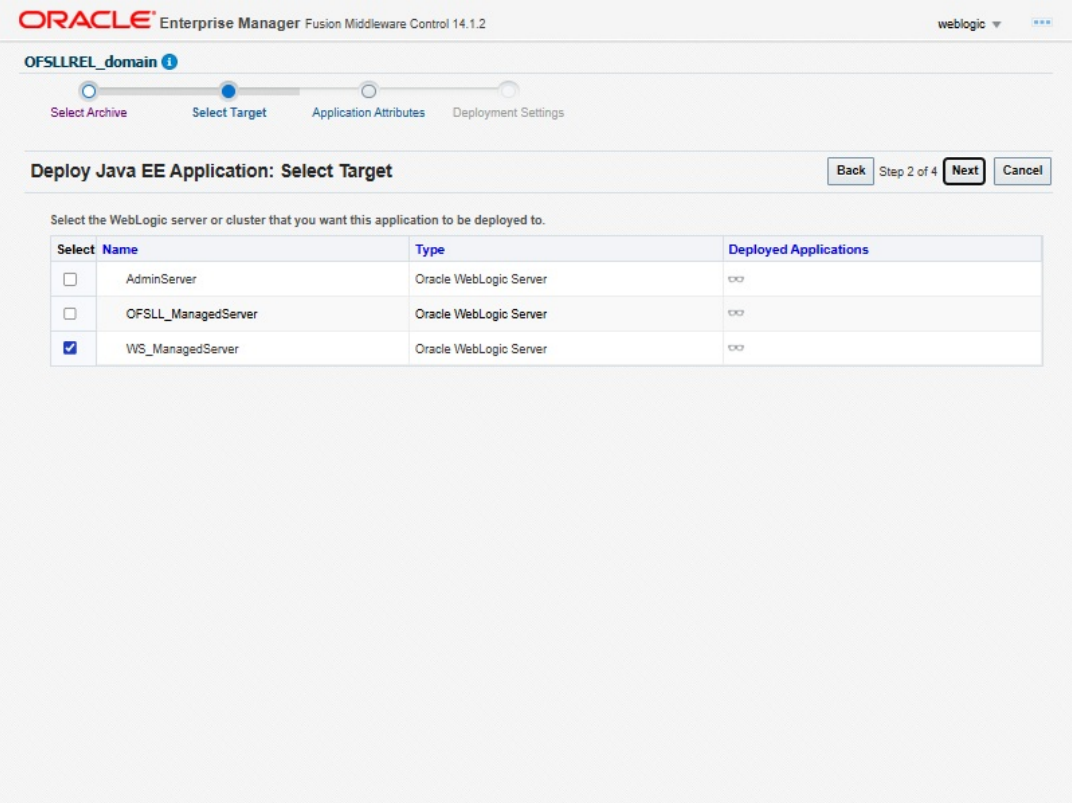
Figure 2-22 Deploy Bureau WebService 5



7. Browse to the folder containing the Credit Bureau WebService. For example: `C:/OracleFSLLBureauAPI.war`
8. Click **Next**.

   The following window is displayed.

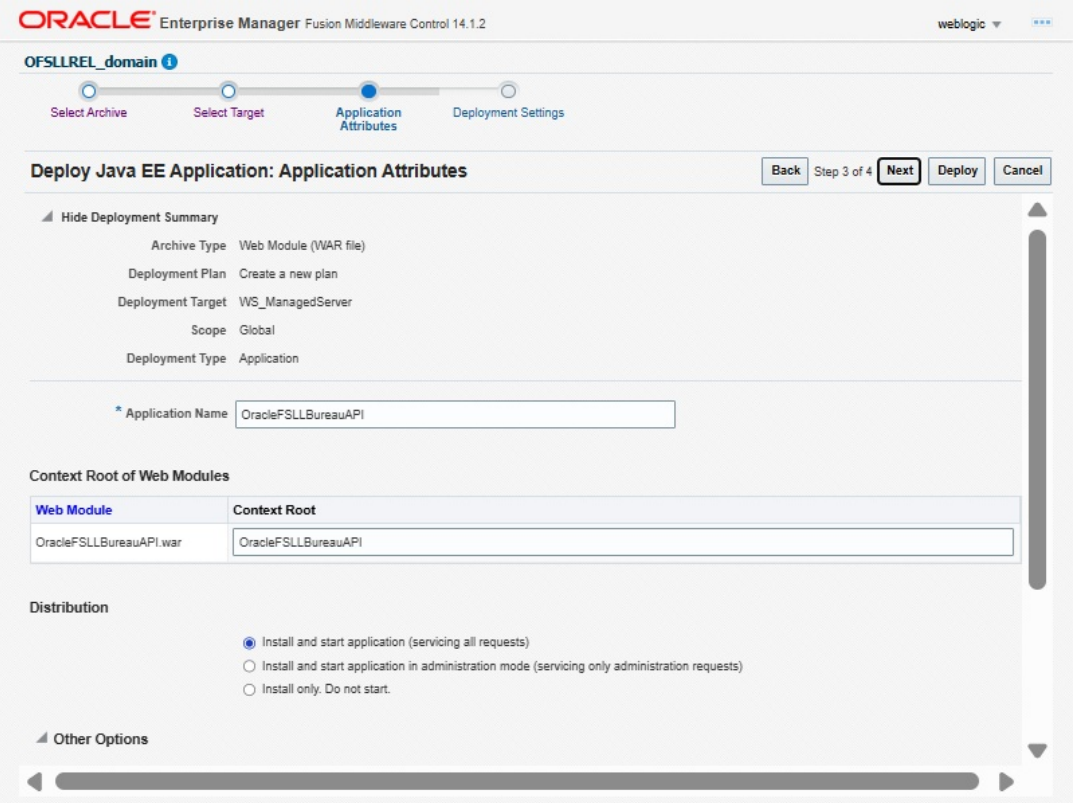
Figure 2-23 Deploy Bureau WebService 6



9. Select the server on which the WebService needs to be deployed.
10. Click **Next**.

    The following window is displayed.

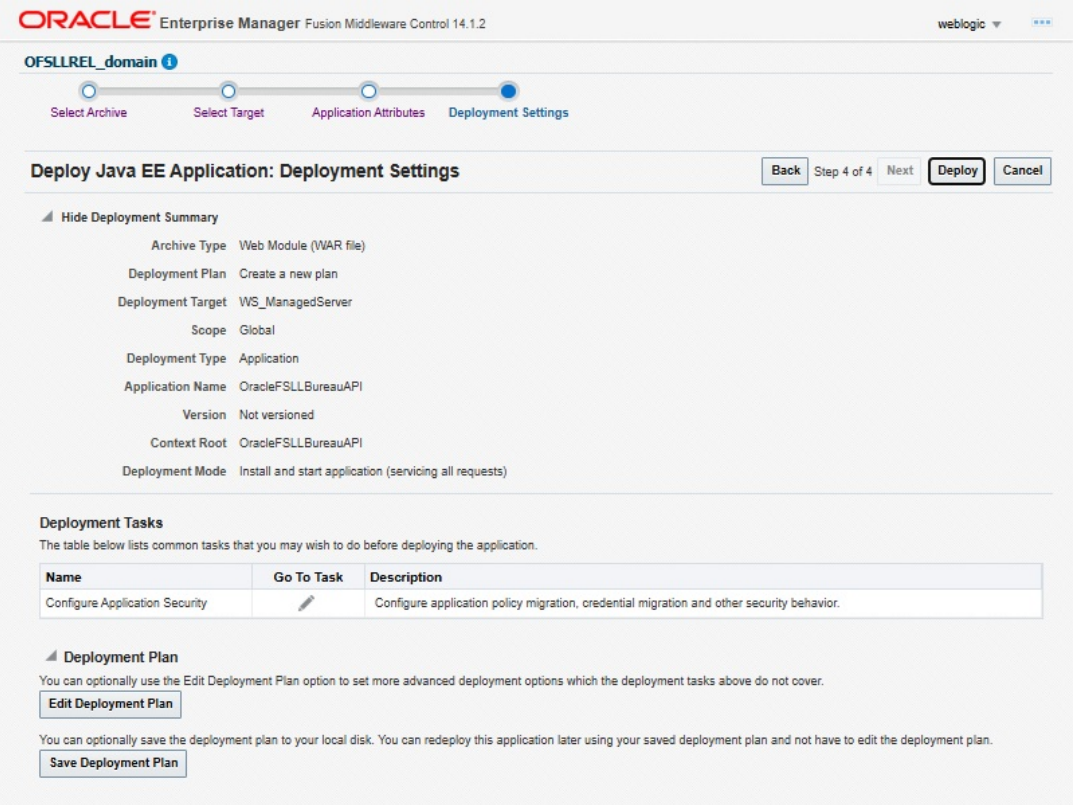
Figure 2-24 Deploy Bureau WebService 7



11. Select the option **Install and start application (servicing all requests)**.
12. Check the context root and click **Next**.

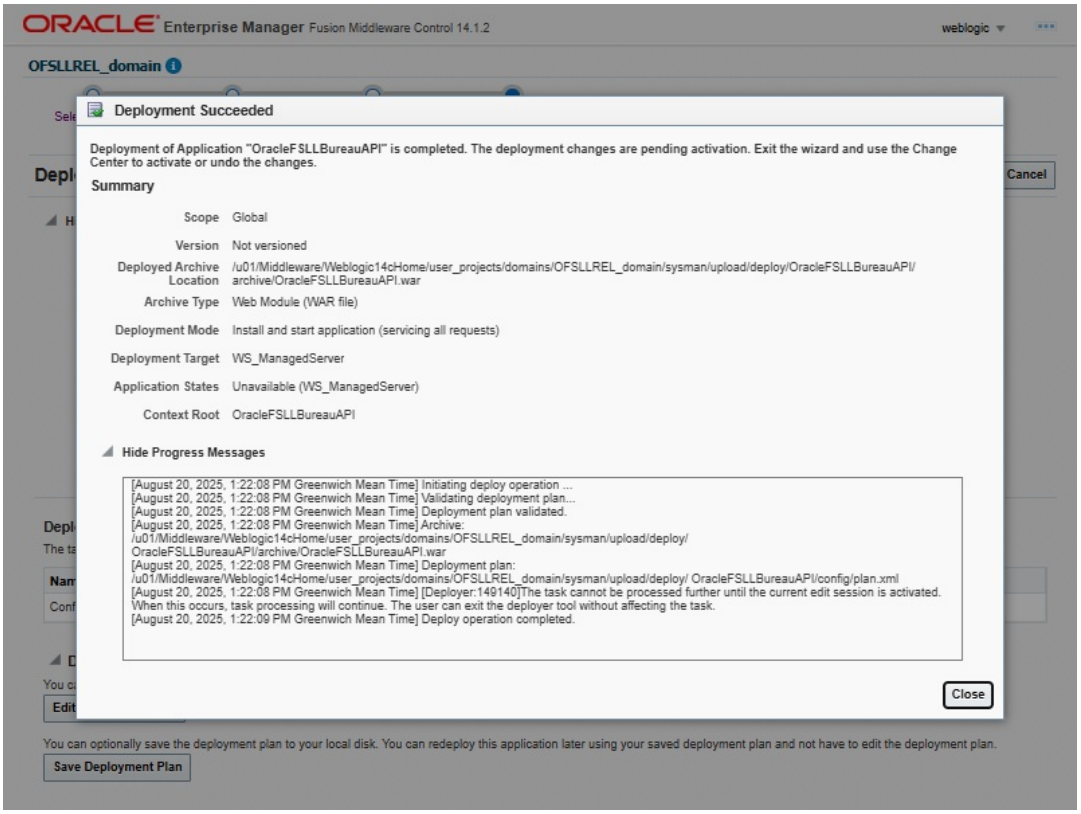
    The following window is displayed.

Figure 2-25 Deploy Bureau WebService 8



13. Click **Deploy**. On successful deployment, the following window is displayed.

Figure 2-26 Deploy Bureau WebService 9



14. Click **Close**. Post deployment, you need to activate the changes by selecting **Active Changes** option from **Edit Session** drop-down list as indicated in step 4 above.

The next step is to create.

- Creating Credentials and System Policies for Credit Bureau Interface

2.5.1 Creating Credentials and System Policies for Credit Bureau Interface

In order Configure Credit Bureau interface, you need to create credentials and system policies. The credentials are accessed through CSF framework which is managed by Oracle Weblogic Server. The keys are managed by Maps and Maps need to be given with Permissions.

Create the following Maps and corresponding keys as indicated in following table.

Table 2-1 Maps and corresponding keys

Maps	Keys	Description
ofsll.int.bureau	creditbureau_auth_mode_adapter	There are two modes: BASIC - On selecting this option, you need to define User Name and Password to authenticate. OAUTH2.0 - On selecting this option, you need to define additional enabled fields such as Grant Type, Client Id, Client Secret, Identity Domain, Token and Header Key.
	creditbureau_adapter	If Authentication mode is selected as BASIC, specify the Basic Authentication User Name and Password.

Table 2-1 (Cont.) Maps and corresponding keys

Maps	Keys	Description
	creditbureau_servi-ceurl_adapter	BureauApi or Third party RestAPI end point url.
	ProxyAuthentica-tionEnabled	Indicator used to validate proxy.
	ProxyEnabled	Indicator is for whether Proxy server info need to be set or not.
	ProxyPort	Port to which ProxyServer is running.
	ProxyServer	Name of the proxyServer to be configured
	<Bureau_name>_cert_path	The location of certificate file which contains the valid certificate for Credit Bureau.
	<Bureau_name>_cert_password	The password that requires to read the valid certificate for the Credit Bureau.
	<Bureau Name>_con-sumer_code	Consumer credentials to be configured for request creation of third party.
	<Bureau Name>_to-ken_indicator	Indicator used for whether third party token request needs to be create or not.
	<Bureau Name>_cert_-check_indicator	Indicator used for whether certificate validation is required or not.

> **Note**
>
> For certificate creation, please refer to **Interface_Certificate_Configuration.pdf** document available in the release bundle.