Oracle® Revenue Management and Billing Analytics

Version 2.8.0.0.0

Installation Guide

Revision 1.1

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ORACLE

Oracle Revenue Management and Billing Analytics Installation Guide

F25719-01

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Preface

About This Document

This guide helps you install and configure Oracle Revenue Management and Billing Extractors, Schema and Oracle Revenue Management and Billing Analytics Dashboards. Unless otherwise stated, this guide refers to these two products together as Oracle Revenue Management and Billing Analytics (ORMBA). If any topic is specific to only one of the products, it will be specifically mentioned.

Intended Audience

This document is intended for the following audience:

- Administrators
- Development Team
- Consulting Team
- Implementation Team

Organization of the Document

The information in this document is organized into the following sections:

Section No.	Section Name	Description
Section 1	About Oracle Revenue Management and Billing Analytics	Provides an overview of Oracle Revenue Management and Billing Analytics
Section 2	Before you begin	Details the source and target system requirements
Section 3	Preparing for Installation	Explains how to prepare source and target systems for installation
Section 4	ORMBA Database Component Installation	Includes procedure to create database schemas, installing ORMBA schema and post installation checks
Section 5	ORMBA Admin Tool Installation	Details the installation process of Admin Tool Component
Section 6	ORMBA ETL Component Installation	Details the installation process of ETL component
Section 7	ORMBA Dashboard Installation	Details the installation process of Dashboard Component
Section 8	ORMBA Modeling Configuration	Details the configuration of Modeling Component
Section 9	ORMBA Spatial Analysis Configuration	Details the configuration of Spatial analysis

Related Documents

You can refer to the following documents for more information:

Document	Description
Oracle Revenue Management and Billing Analytics Security Guide	Describes how to configure security for Oracle Revenue Management and Billing Extractors and Schema, and Oracle Revenue Management and Billing Analytics

Change Log

Revision	Last Update	Updated Section	Comments
1.1	09-Jul-2021	Section 6.4.3: Installing the ETL Component	Added Information
		Section 6.5.8: (Optional) Generating and Exporting ODI Scenarios	Added Information

Contents

1. About Oracle Revenue Management and Billing Analytics

Oracle Revenue Management and Billing Analytics comprises of two modules:

- **Oracle Revenue Management and Billing (ORMB) Extractors and Schema**: It loads data from the source application to the data warehouse and provides out-of-the-box extraction and transformation of data. Oracle GoldenGate (OGG) and Oracle Data Integrator (ODI) perform the extraction, transformation and load (ETL) processes. There are two Extractors and Schema product available:
    1. Oracle Financial Services Revenue Management and Billing Extractors and Schema
    2. Oracle Insurance Revenue Management and Billing Extractors and Schema
- **Oracle Revenue Management and Billing Dashboards**: It provides out-of-the-box reports based on Oracle Business Intelligence Enterprise Edition (OBIEE). There are five dashboards or workbenches available:
    1. Oracle Financial Services Revenue Management and Billing Operations Manager Workbench
    2. Oracle Financial Services Revenue Management and Billing Product Manager Workbench
    3. Oracle Financial Services Revenue Management and Billing Relationship Manager Workbench
    4. Oracle Insurance Revenue Management and Billing Executive Dashboards
    5. Oracle Insurance Revenue Management and Billing Operations Manager Workbench

Oracle Revenue Management and Billing Analytics installation involves installation of the following components:

- Star Schema Definitions
- Extract, Transform and Load (ETL) process built on Oracle Data Integrator (ODI)
- ORMBA Admin Tool
- Pre-built Analytics Dashboards based on Oracle Business Intelligence Enterprise Edition (OBIEE)
- Modeling or Simulation feature

1.1 ORMBA Architecture

The following figure graphically represents the logical architecture of Oracle Revenue Management and Billing Analytics:

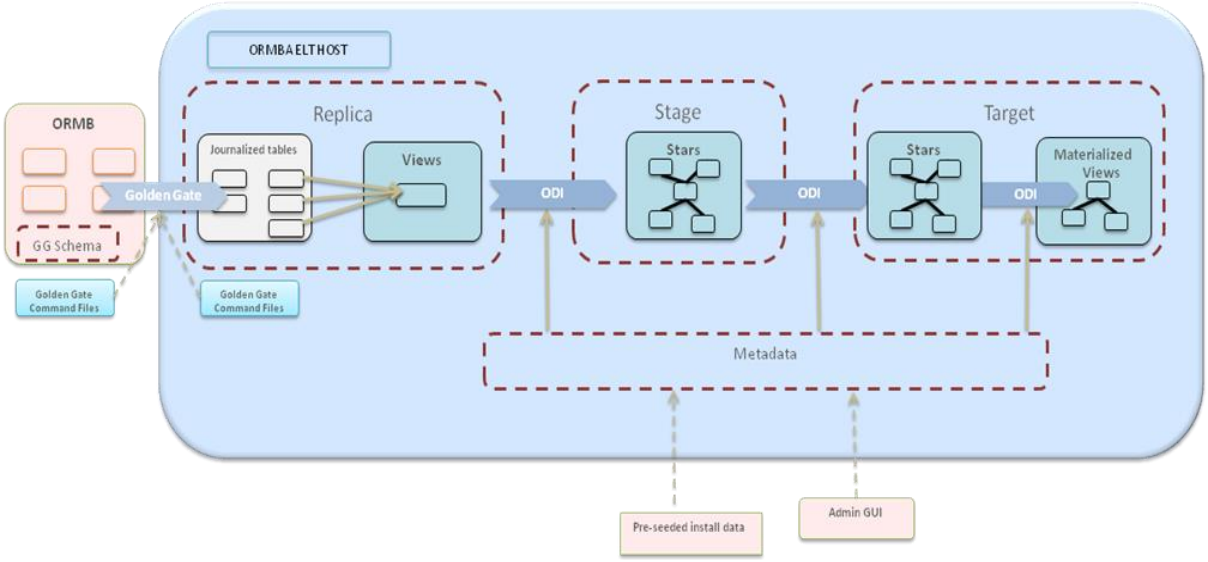

Figure 1: Logical Architecture

The following figure graphically represents a typical high-level architecture of Oracle Revenue Management and Billing Analytics:

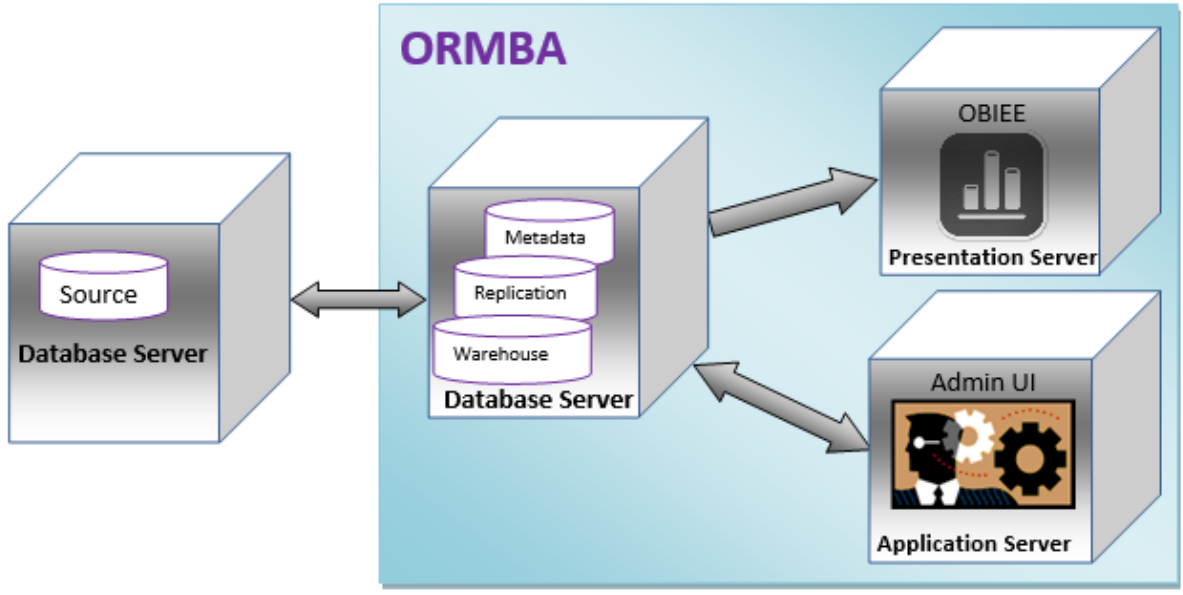

Figure 2: High Level Architecture

Note: We recommend a physical architecture as illustrated in the above image.

2. Before You Begin

This section gives you an overview of the infrastructure requirements needed for ORMBA installation. The download and installation of the prerequisite software is covered in subsequent sections. The topics included in this section are:

Note: All images / screen captures in this document are indicative and not exact.

2.1 Source System Requirements

2.1.1 ORMB

Oracle Revenue Management and Billing (ORMB) is the standard source system for ORMB Analytics and the current ORMBA release supports versions 2.8.0.0.0, 2.7.0.1.0, 2.7.0.0.0 and 2.6.0.1.0 of ORMB.

2.1.2 Database

The source system database should be compatible with the ORMB installation. The recommended Oracle Database versions are 12.2.0.1.0 and 12.1.0.2.0.

2.1.3 Prerequisite Software List

Before beginning the installation, please ensure that you have purchased the following software for the source system:

- Oracle GoldenGate version 12.3.0.1.0

2.2 Target System Requirements

2.2.1 Operating System

ORMBA supports the following operating systems in the target:

- Oracle Linux 7.6 (64-bit) x86 -64
- RedHat Linux 7.6 Enterprise Edition (64-bit) x86-64

2.2.2 Database

The ORMB Analytics requires either one of the following database configuration:

- Oracle Database Server Enterprise Edition 12.2.0.1.0 (with partitioning)
- Oracle Database Server Enterprise Edition 12.1.0.2.0 (with partitioning)

Optional – If you prefer to use the ORMBA Spatial Analysis feature, you need to opt for the additional option - Oracle Spatial and Graph while purchasing the 12c database.

Note: Oracle Revenue Management and Billing Analytics Version 2.8.0.0.0 is supported on Oracle Unbreakable Enterprise Kernel. Oracle Revenue Management and Billing Analytics Version 2.8.0.0.0 is supported on Oracle VM 2.2.2. Refer to the knowledge base article ID 249212.1 on My Oracle Support for Oracle's Support Policy on VM Ware.

2.2.3 Prerequisite Software List

Before beginning the installation, please ensure that you have purchased the following list of software for the target system:

- Java Development Kit version 1.8.0_221
- Oracle Fusion Middleware Infrastructure version 12.2.1.3.0
- Oracle Data Integrator version 12.2.1.3.0
- Oracle GoldenGate version 12.3.0.1.0
- Oracle Business Intelligence Enterprise Edition version 12.2.1.3.0

2.2.4 Web Browser Support

The browsers and versions supported for each of the ORMBA components are listed below:

- ORMBA Admin Tool – Supported on Internet Explorer 11 and Mozilla Firefox 69+
- ORMBA Dashboards & Reports – Supported on Google Chrome 79 and Mozilla Firefox 69+
- ORMBA Mobile Application – Supported on Android Lollipop and iOS 8.3+

3. Preparing for Installation

We recommend you to prepare the infrastructure by downloading and installing the required prerequisite software, before proceeding with ORMBA installation. As a pointer, perform the following tasks while preparing for installation:

- Deciding the Implementation Strategy
- Installing Prerequisite Software – Source
- Installing Prerequisite Software – Target
- Downloading ORMBA Media Pack
- Deciding ODI Work Repository Type
- Creating Repositories for Extractors and Schema
- Creating Weblogic Domains for Extractors and Schema
- Enabling SSL for ORMBA

3.1 Deciding the Implementation Strategy

3.1.1 Deciding Data Transfer Mode

While transferring historical data from source to replication for the first time, ORMBA uses the DBMS Data Pump feature, instead of Oracle GoldenGate. The Data Pump feature exports the dump of source system tables from source system and imports to ORMBA Replication schema. For transferring data dump between source and target systems, you can use either Network Link or FTP.

- **Network Link**: Choose this option for data transfer if there is sufficient network bandwidth for transfer of huge volumes of data. This is the default and recommended option.
- **FTP**: You can choose this option if Network Link option is not feasible due to insufficient network bandwidth. For example, when your source and target systems are located in two geographic locations choose this option.

Before you proceed with ORMBA installation, decide if the data transfer from source to replication is to be done via Network Link or FTP. Once you decide the mode of data transfer, update the same in ormba.properties file as explained in section 6.2 of this document.

Note: If the data transfer mode of initial load is FTP, you need to create ORMBA_DIR in the source and target database as explained in sections 3.1.2 and 3.3.1.

3.1.2 Setting Up Source System Database

Before proceeding with prerequisite software installation, ensure that ORMB database is up and running. The ORMB database can be single-tenant or multi-tenant.

Set the following database parameters in the source database by executing the respective commands on the source database prior to ORMBA installation:

Note: If your database is in Container mode, execute the below commands as Container SYS user.

- Enable Supplemental Logging

```
ALTER DATABASE ADD SUPPLEMENTAL LOG DATA;
```

- Enable Force Logging Mode

```
ALTER DATABASE FORCE LOGGING;
```


- Ensure that you specify primary key constraint in all database tables
- Enable Golden Gate replication parameter

  ```
  ALTER SYSTEM SET ENABLE_GOLDENGATE_REPLICATION = TRUE
  SCOPE=BOTH;
  ```

- (Optional) If the data transfer mode of initial load is FTP, create ORMBA_DIR in the source pluggable database. To do this, log on to the pluggable database of source system as SYS user and execute the following statement:

  ```
  CREATE DIRECTORY ORMBA_DIR AS <PATH>;
  ```

3.2 Installing Prerequisite Software – Source

This section explains the installation and initial configuration of prerequisite software on the Source system.

Note: Please proceed with the installation of prerequisite software only after completing the source system (ORMB) installation on the source system database.

3.2.1 Downloading and Installing Oracle GoldenGate (OGG)

Download Oracle GoldenGate version 12.3.0.1.0 from Oracle Software Delivery Cloud and follow the instructions here to install OGG on the source system.

3.2.2 Setting Up Oracle Golden Gate

Data Replication in ORMBA is implemented via Oracle GoldenGate (OGG). You need to install OGG on both source and target environments.

After downloading and installing the software on the source system, you need to set up Golden Gate on the database server. Setting up Golden Gate involves the following steps:

1. (Optional) Create GG user in Container DB and grant required privileges
2. Create GG user in Pluggable DB and grant required privileges
3. Create the required directory structure
4. Verify GG installation

Note: If the source database is single tenant, skip section 3.2.2.1 and proceed with 3.2.2.2.

3.2.2.1 (Optional) GG user creation in Container DB

Where: Container DB of source system

1. Go to Oracle GoldenGate Home (OGG_HOME) where OGG is installed and connect to the container database as SYS user using SQL *Plus.
2. Create a golden gate user and grant the required privileges by executing the following commands:

   ```
   GRANT CREATE SESSION TO <GOLDEN GATE USER NAME>
   container=all;
   GRANT CONNECT TO < GOLDEN GATE USER NAME> container=all;
   GRANT RESOURCE TO < GOLDEN GATE USER NAME> container=all;
   GRANT ALTER ANY TABLE TO < GOLDEN GATE USER NAME>
   container=all;
   GRANT ALTER SYSTEM TO < GOLDEN GATE USER NAME>
   container=all;
   ```

```
GRANT SELECT ANY TRANSACTION TO < GOLDEN GATE USER NAME>
container=all;
EXEC DBMS_GOLDENGATE_AUTH.GRANT_ADMIN_PRIVILEGE (GRANTEE=>'<
GOLDEN GATE USER
NAME>',PRIVILEGE_TYPE=>'CAPTURE',GRANT_SELECT_PRIVILEGES=>TR
UE, DO_GRANTS=>TRUE);
GRANT UNLIMITED TABLESPACE TO < GOLDEN GATE USER NAME>
container=all;
GRANT SELECT ANY DICTIONARY TO < GOLDEN GATE USER NAME>
container=all;
```

3.2.2.2 GG user creation in Pluggable DB

Where: Pluggable DB of source system

1. Switch to Pluggable Database of source system as SYS user using SQL *Plus.
2. Create a new table space for the new user.
3. Create a new user named RMB01SRC and assign the newly created table space to RMB01SRC.
4. Grant the required privileges to RMB01SRC user by executing the following commands:

```
GRANT CONNECT, RESOURCE TO RMB01SRC;
GRANT ALTER SESSION TO RMB01SRC;
GRANT CREATE TABLE TO RMB01SRC;
GRANT ALTER ANY TABLE TO RMB01SRC;
GRANT FLASHBACK ANY TABLE TO RMB01SRC;
GRANT SELECT ANY DICTIONARY TO RMB01SRC;
GRANT SELECT ANY TABLE TO RMB01SRC;
GRANT EXECUTE ON DBMS_FLASHBACK TO RMB01SRC;
GRANT EXECUTE ON UTL_FILE TO RMB01SRC;
GRANT EXP_FULL_DATABASE TO RMB01SRC;
GRANT IMP_FULL_DATABASE TO RMB01SRC;
GRANT EXECUTE ON SYS.DBMS_LOB TO RMB01SRC;
```

5. Execute the following commands:

```
@marker_setup.sql
@role_setup.sql
```

Note: While executing the above scripts, you will be prompted to “Enter Oracle GoldenGate schema name”. Enter **RMB01SRC** as the response.

6. Exit SQL*Plus.

3.2.2.3 Create Directory Structure

Where: Source database server

1. Log on to the source database server and navigate to OGG_HOME.
2. If not already present, create **diroby** directory.

3.2.2.4 Verify GG Installation

Where: Source database server

1. Log on to the source database server and navigate to OGG_HOME.

2. Log on to GG client using the command: `./ggsci`
3. Execute the command info all to check if MANAGER is in RUNNING mode.

3.3 Installing Prerequisite Software – Target

This section explains how to download and install the prerequisite software required in the target system for ORMBA installation, if not already done. The list of software and their versions are available in section 2.2.3.

Note: You should have sufficient experience in installing Oracle applications and software to handle the installation of the above-mentioned prerequisite software.

3.3.1 Installing and Setting Up Target System Database

You need to download and install Oracle Database Enterprise Edition 12.2.0.1.0 or 12.1.0.2.0 on the target database server. Ensure the following points during database installation:

- Create a pluggable database exclusively for ORMBA

Note: Refer to the ORMB Analytics Admin Guide to perform the recommended database settings on the pluggable database.

- If you are using Network Link as the Data Transfer Mode (as explained in section 3.1.1), check if there are Oracle key words available in the service names of target database. If included, rename the service names and restart the database. For example, if the service name is pdborcl.in.oracle.com, rename it to exclude the keyword “in”.

While setting up the target system database, perform the following tasks:

- Execute the statements below on the target pluggable database to set database parameters:

```
ALTER SYSTEM SET DEFERRED_SEGMENT_CREATION=TRUE SCOPE=BOTH;
ALTER SYSTEM SET "_PARTITION_LARGE_EXTENTS"=FALSE
SCOPE=BOTH;
ALTER SYSTEM SET RECYCLEBIN = OFF DEFERRED;
```

Note: You need to set the parameter **_PARTITION_LARGE_EXTENTS** to FALSE only if you have space constraints.

- Create ORMBA_DIR in the target pluggable database by logging on as SYS user, using the following statement:

```
CREATE DIRECTORY ORMBA_DIR AS <PATH>;
```

- Enable Golden Gate replication parameter in the container database using the statement:

```
ALTER SYSTEM SET ENABLE_GOLDENGATE_REPLICATION = TRUE
SCOPE=BOTH;
```

3.3.2 Installing Java Development Kit (JDK)

To install Java Development Kit, follow the instructions below:

1. Navigate to the Java SE 8 Archive Downloads page on Oracle Tech Network.
2. Scroll down to Java SE Development Kit 8u221 section and download the file corresponding to Linux x64.
3. After downloading the file, proceed with the installation of JDK in the presentation server following the documentation here.

3.3.3 Installing Fusion Middleware (FMW)

To download Oracle Fusion Middleware Infrastructure, follow the instructions below:

1. Navigate to Oracle Technology Network and open the Downloads for Oracle ADF page.
2. Accept the license agreement.
3. Under Oracle ADF Downloads section, select 12.2.1.3.0 in the Application Development Runtime drop-down list.
4. Click Download File.

After downloading the file, you can proceed with the installation of FMW infrastructure software on the application server. Detailed installation instructions are available here.

3.3.4 Installing Oracle Data Integrator (ODI)

Download ODI version 12.2.1.3.0 from the link below:

http://www.oracle.com/technetwork/middleware/data-integrator/downloads/index.html

After downloading the file, you can proceed with the installation of ODI Enterprise Edition. Detailed instructions for installation are available here.

3.3.5 Setting Up Oracle Golden Gate

Download Oracle GoldenGate version 12.3.0.1.0 from Oracle Software Delivery Cloud and follow the instructions here to install OGG on the source system.

1. To verify Oracle GoldenGate installation on the target database server, follow the steps below:
2. Log on to the target database server and navigate to OGG_HOME.
3. If not already present, create `diroby` directory.
4. Log on to GG client using the command: `./ggsci`
5. Execute the command info all to check if MANAGER is in RUNNING mode.

3.3.6 Setting Environment Variables

Before initiating the installation process, you must set the respective environment variables. The environment variables to be set are listed below:

- JAVA_HOME – on all machines
- ORACLE_SID
- ORACLE_HOME
- LD_LIBRARY_PATH
- FMW_HOME
- ODI_SDK – <FMW_HOME>/odi/sdk

Note: FMW_HOME and ODI_SDK variables are not required for presentation server.

3.3.7 Installing Oracle Business Intelligence Enterprise Edition (OBIEE)

To install Oracle Business Intelligence Enterprise Edition on the presentation server, follow the instructions below:

Note: Prior to installing OBIEE, verify if FMW version 12.2.1.3.0 is installed on the same server.

1. Click the link below to view the downloads for OBIEE 12.2.1.3.0:
   http://www.oracle.com/technetwork/middleware/bi/downloads/default-3852322.html
2. Download the files under Linux x86-64-bit option.
3. Download Oracle Business Intelligence Developer Client Tool for Microsoft Windows x86-64-bit from the same page.
4. Install OBIEE following the instructions in the documentation below:

   https://docs.oracle.com/middleware/12213/lcm/BIEIG/toc.htm

Note: As part of OBIEE installation, repositories are created using Repository Creation Utility.

3.4 Downloading ORMBA Media Pack

ORMBA 2.8.0.0.0 media pack is available for download in Oracle Software Delivery Cloud page. Both Financial Services and Insurance products are available within the same release and while downloading, you must select only those components that are relevant to your license. The component folders that are relevant to each license are as below:

License Name	Components to download
Oracle Financial Services Revenue Management and Billing Extractors and Schema	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Database Component for Banking
	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - ETL Component for Banking
	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Web Component for Banking
Oracle Financial Services Revenue Management and Billing Product Manager Workbench	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Product Manager Workbench Component for Banking
Oracle Financial Services Revenue Management and Billing Relationship Manager Workbench	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Relationship Manager Workbench Component for Banking
Oracle Financial Services Revenue Management and Billing Operations Manager Workbench	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Operations Manager Workbench Component for Banking
Oracle Insurance Revenue Management and Billing Extractors and Schema	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Database Component for Insurance
	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - ETL Component for Insurance
	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Web Component

License Name	Components to download
	for Insurance
Oracle Insurance Revenue Management and Billing Operations Manager Workbench	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Operations Manager Workbench Component for Insurance
Oracle Insurance Revenue Management and Billing Executive Dashboards	Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Executive Dashboards Component for Insurance

Follow the procedure below to download the pack:

1. Log on to eDelivery and search for Oracle Financial Services Revenue Management and Billing Analytics under Release category. All releases of the product will be listed.
2. Click on the link REL: Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0. This adds the release to Selected Software list.
3. Click on the Selected Software link.

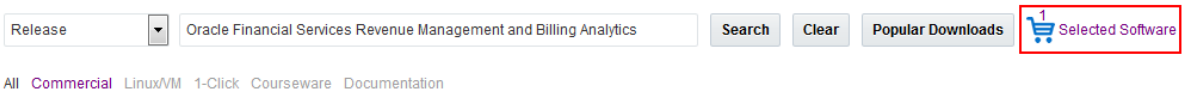

Figure 3: Selected Software Link

4. Click Continue on the next page. This opens the Oracle Standard Terms and Restrictions page.
5. Read and agree to the terms and conditions and click Continue.
6. You will now see a list of all components within the ORMBA release, with all items selected by default. The components available are:
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Web Component for Banking
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Database Component for Banking
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Operations Manager Workbench Component for Banking
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - ETL Component for Banking
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Operations Manager Workbench Component for Insurance
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Web Component for Insurance
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Executive Dashboards Component for Insurance
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Database Component for Insurance
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - ETL Component for Insurance
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Product Manager Workbench Component for Banking
    - Oracle Financial Services Revenue Management and Billing Analytics 2.8.0.0.0 - Relationship Manager Workbench Component for Banking

7. Uncheck the components that are irrelevant to your installation and click Download.

   Note: Download only those components that your license entitles you to download. The list of components you should download for each software license is available at the beginning of this section.

8. You can see the progress of download in a pop-up. Once the download is complete, click on Open Files link. This opens each of the component folders.
9. Move each of the folders to temporary directories within the respective servers by referring to the table below:

Product	Unzipped Component Folders	Move to:
Financial Services	ORMBA-V2.8.0.0.0-Database	Database server
	ORMBA-V2.8.0.0.0-ETL	Application server
	ORMBA-V2.8.0.0.0-Web	Application server
	ORMBA-V2.8.0.0.0-RM-Dashboards	Presentation server
	ORMBA-V2.8.0.0.0-PM-Dashboards	Presentation server
	ORMBA-V2.8.0.0.0-Ops-Dashboards	Presentation server
Insurance	ORMBA-V2.8.0.0.0.Insurance-Database	Database server
	ORMBA-V2.8.0.0.0.Insurance-ETL	Application server
	ORMBA-V2.8.0.0.0.Insurance-Web	Application server
	ORMBA-V2.8.0.0.0.Insurance-Ops-Dashboards	Presentation server
	ORMBA-V2.8.0.0.0.Insurance-Exe-Dashboards	Presentation server

10. Create a temporary directory named `TEMPDIR` on database server and copy the database component folder to it.
11. Create a temporary directory named `TEMPDIR` on application server and copy the ETL and Web component folder to it.

    Note: If you have purchased Extractors and Schema component of ORMBA alone, copy only `Database`, `ETL and Web` component folders.

12. Create a temporary directory named `TEMPDIR_DASH` on the presentation server and copy the folders within the Dashboards component folders to it.

    Note: If you have purchased more than one workbench licenses, move contents of the respective dashboard component folders to the `TEMPDIR_DASH` folder. While copying contents of the Dashboards component folders, if asked whether you want to overwrite the files/folders, click Yes.

3.5 Deciding ODI Work Repository Type

An ODI work repository can be of two types:

- **Development**: This type of repository allows management of design-time objects such as data models and projects (including interfaces, procedures, etc.). A development repository also includes run-time objects (scenarios and sessions). This type of repository is suitable for development environments.
- **Execution**: This type of repository only includes run-time objects (scenarios, schedules and sessions). It allows launching and monitoring of data integration jobs in Operator Navigator. Such a repository cannot contain any design-time artifacts. Designer Navigator cannot be used with it. An execution repository is suitable for production environments.

By default, ORMBA installation uses ODI in Development mode. However, it is possible to install ODI in Execution mode in security critical environments, say Production, which demands only the scheduled execution of scenarios provided. In this case, you should have at least one other environment with ORMBA installed in Development mode, which is in accord with the environment in Execution mode.

Note: To know more about ODI Work Repository types, see ODI documentation available here.

3.6 Creating Repositories for Extractors and Schema

You need to create metadata schemas in target database server for Oracle Fusion Middleware and Oracle Data Integrator using the Repository Creation utility. You can find documentation on Repository Creation Utility (RCU) in the link below:

https://docs.oracle.com/middleware/1221/core/RCUUG/GUID-58F349C6-4913-4693-911E-C66646F37DED.htm#RCUUG143

Note: Before you proceed with repository creation, check if you have successfully installed Oracle Fusion Middleware Infrastructure on the application server.

To create repositories for Extractors and Schema, follow the procedure below:

1. In the application server node, change to the `<FMW_HOME>/oracle_common/bin` directory, where `<FMW_HOME>` is the location where Oracle Fusion Middleware is installed in the application server.
2. Execute the Repository Creation utility using the command: `./rcu`
3. The Repository Creation Utility – Welcome page appears.
4. Click Next. The Create Repository page appears.
5. Perform the following in the Create Repository page:
6. Select the Create Repository option, if not already selected.
7. Select the System Load and Product Load option.
8. Click Next. The Database Connection Details page appears.
9. Enter the required details in the Database Connection Details page:
    - Database Type: Oracle Database
    - Host Name: Name of the target database server
    - Port: Port number for target DB
    - Service Name: Service name for DB

- User Name: Pluggable DB User with DBA or SYSDBA privileges E.g. SYS
- Password: Password for the DB User
- Role: SYSDBA

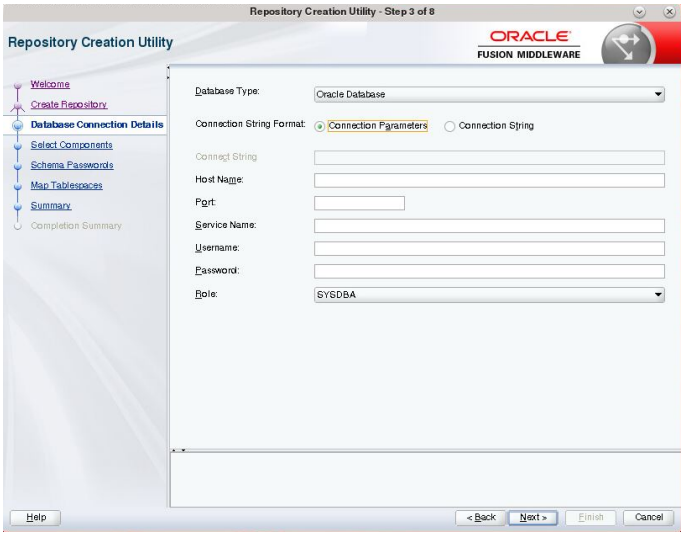

Figure 4: Database Connection Details Page

10. Click Next. The installer checks the prerequisites and attempts to establish the connection with the specified database.

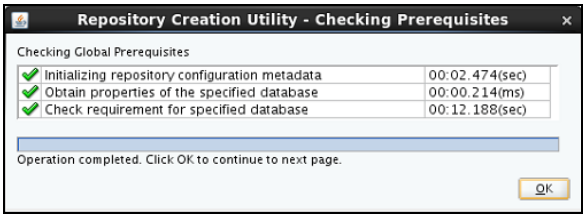

Figure 5: Checking Prerequisites

- If an error occurs while establishing the connection, the error messages are listed In the Message field of Database Connection Details page.
- If there are no errors, click OK in the Checking Prerequisites page.

11. The Select Components page appears. Use this page to select the component schemas you want to create. Enter the required details as indicated below:
    - Select Create new prefix and enter ORMBA as the new prefix. This is used to create logical grouping of schemas in database.
    - Select Audit Services under the AS Common Schemas section. The other audit check boxes (Audit Services Append and Audit Services Viewer) are selected automatically.
    - Select Oracle Data Integrator. The Master and Work Repository check box under the Oracle Data Integrator section and the Oracle Platform Security Services check box under the AS Common Schemas section are selected automatically.

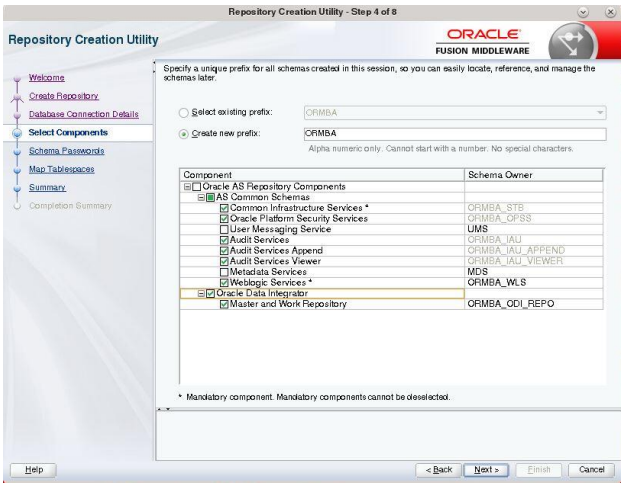

Figure 6: Select Components Page

12. The Select Components page also lists the schema owners for each component. If needed, you can edit the names.
13. Click Next. The installer checks the prerequisites.

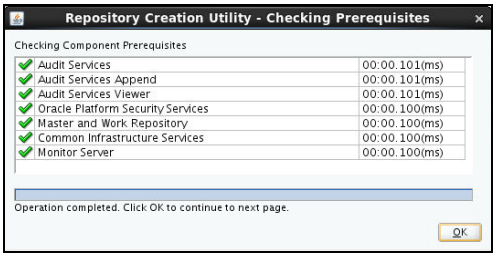

Figure 7: Checking Component Prerequisites

- If an error occurs while checking the prerequisites, the error messages appear in the Messages field on the Select Components page.
- If there are no errors, click OK.

14. The Schema Passwords page appears. Use this page to enter the password for the schema you are creating. Enter the details as shown below:
    - Select Use same passwords for all schemas option
    - Enter required password in the Password and Confirm Password fields

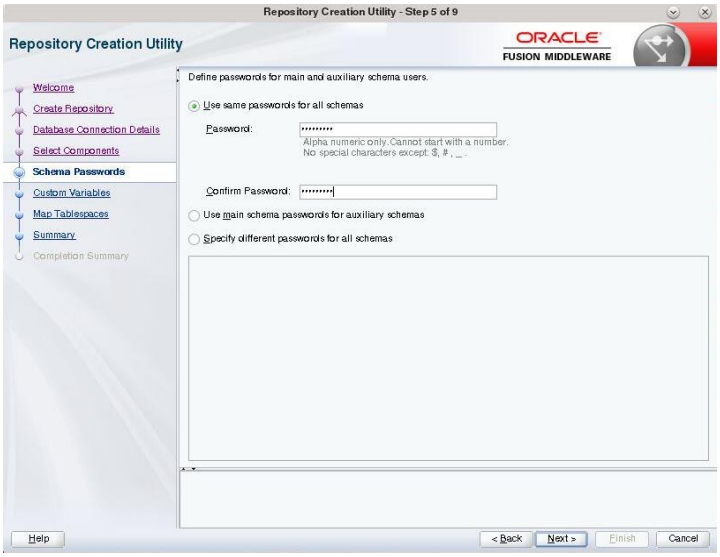

Figure 8: Schema Passwords Page

15. Click Next. The Custom Variables page appears. Use this page to enter additional configuration details needed by the ODI – Master and Work Repository Component during runtime.
16. Enter values for custom variables.

Field	Value
Supervisor Password	Password of the ODI supervisor user (Login user)
Confirm Supervisor Password	Confirm the Supervisor password
Work Repository Type	D (The Work Repository will be created as a development repository.)
Work Repository Name	WORK_REPO A unique name for the Work Repository
Work Repository Password	Password for the Work Repository
Confirm Work Repository Password	Confirm the Work Repository password
Encryption Algorithm	AES-128 (Default value)

Note: If you want to install ODI in EXECUTION mode, select **E** in the Work Repository Type field.

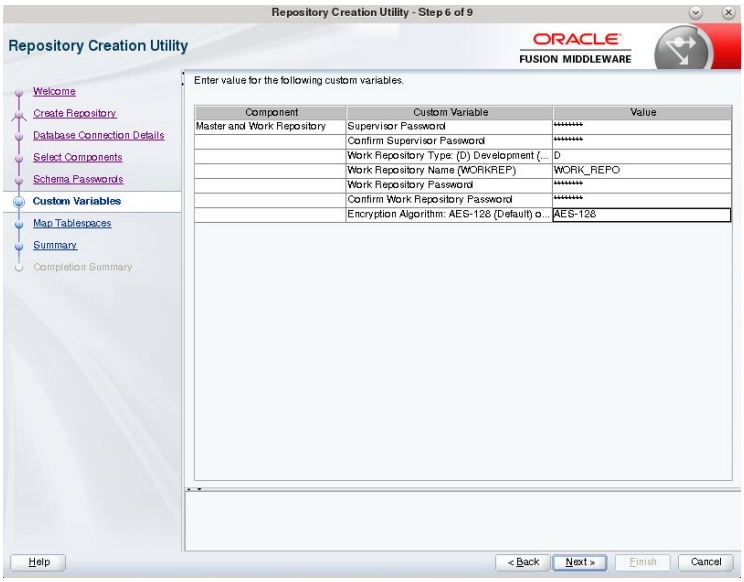

Figure 9: Custom Variables Page

17. Click Next. The Map Tablespaces page appears. Use this page to enter the default and temporary tablespace mappings for each of the schemas being created.

18. Review the Default Tablespace and Temp Tablespace fields for each component and if needed, edit the values.

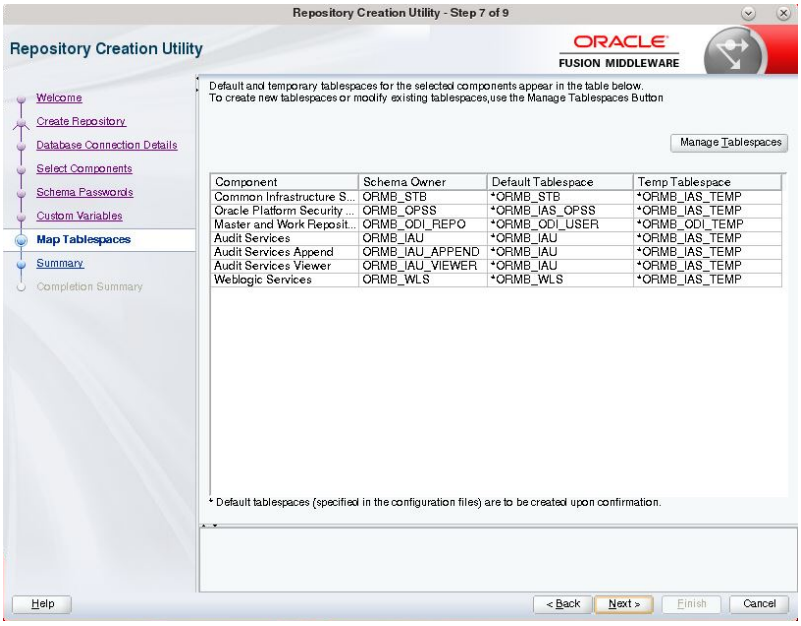

Figure 10: Map Tablespaces Page

19. Click Next. You will be asked to confirm the creation of tablespaces for the new schemas.
20. Click OK. The installer displays the progress of table space creation.

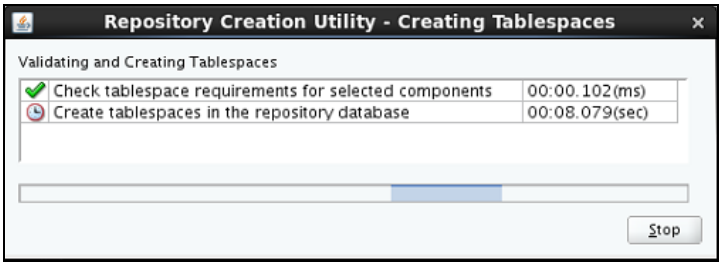

Figure 11: Validating and Creating Tablespaces

21. The Summary page appears and gives a summary of the actions that are going to be carried out.

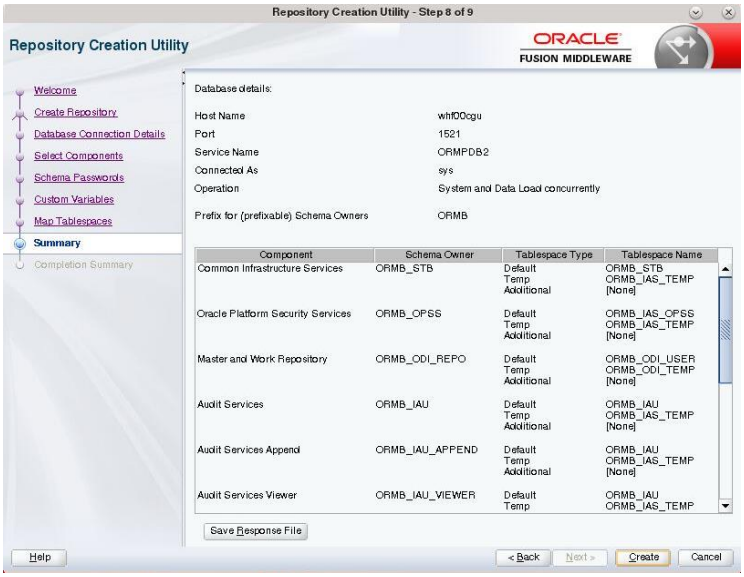

Figure 12: Summary Page

22. Review the information and click **Create** to begin schema creation. The installer displays the progress.

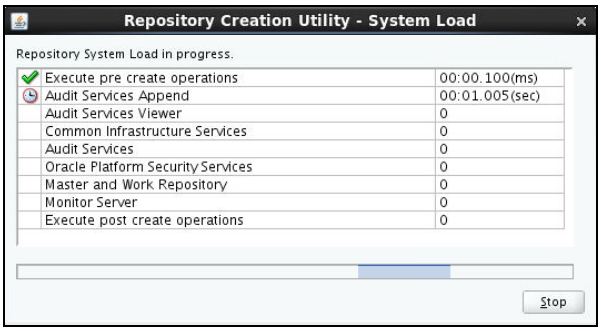

Figure 13: Repository System Load in progress

23. When the schema creation is completed, the Completion Summary page appears. This page displays a summary of the actions performed.

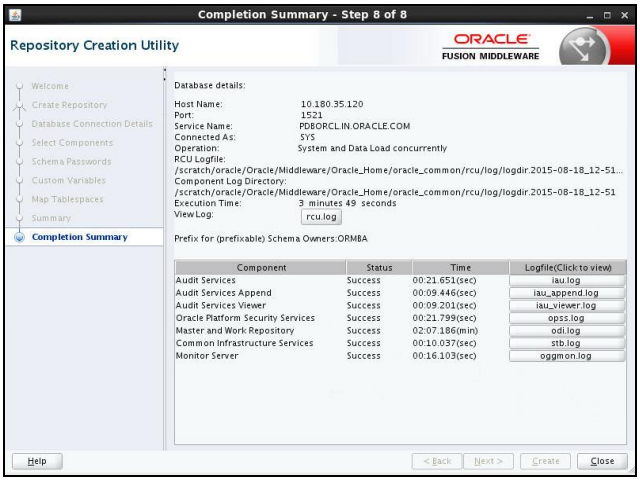

Figure 14: Completion Summary

24. Connect to the pluggable Database as SYS user using SQL *Plus and check if the schemas and tablespaces are created successfully.

3.7 Creating Weblogic Domains for Extractors and Schema

You can create WebLogic domains for ODI Agent and Admin UI using the WebLogic Server Configuration Wizard.

Note: Before you proceed with WebLogic domain creation, check if you have installed Oracle Fusion Middleware Infrastructure and Oracle Data Integrator on the application server.

The Configuration Wizard simplifies the process of creating and extending a domain.

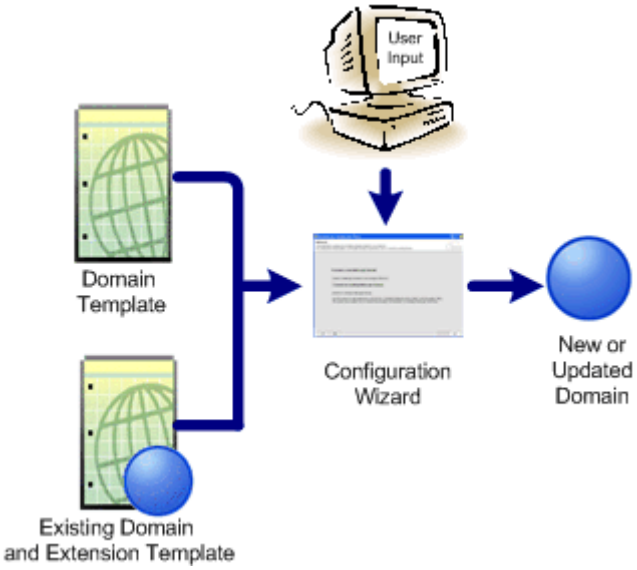

Figure 15: WebLogic Domain Creation

To create or extend a WebLogic domain by using the Configuration Wizard, select the product components (product templates) to be included in the domain (or choose an existing template), and provide basic configuration information. The Configuration Wizard then creates or extends the domain by adding the resources defined in the selected product templates.

Note: Use the Configuration Wizard only in **OFFLINE** mode (i.e. when the WebLogic server is not running).

To create the WebLogic domain, follow the procedure below:

1. Change to the <FMW_HOME>/oracle_common/common/bin directory, where FMW_HOME is the location where Oracle Fusion Middleware is installed in the application server.
2. Start the Configuration Wizard in Graphical mode using the command ./config.sh
3. The Fusion Middleware Configuration Wizard appears.
4. Perform the following steps in the page:
    - Select the Create a new domain option.
    - Enter `<FMW_HOME>/user_projects/domains/ormba_domain` in the Domain Location field, where ormba_domain is the unique directory name of the new domain.

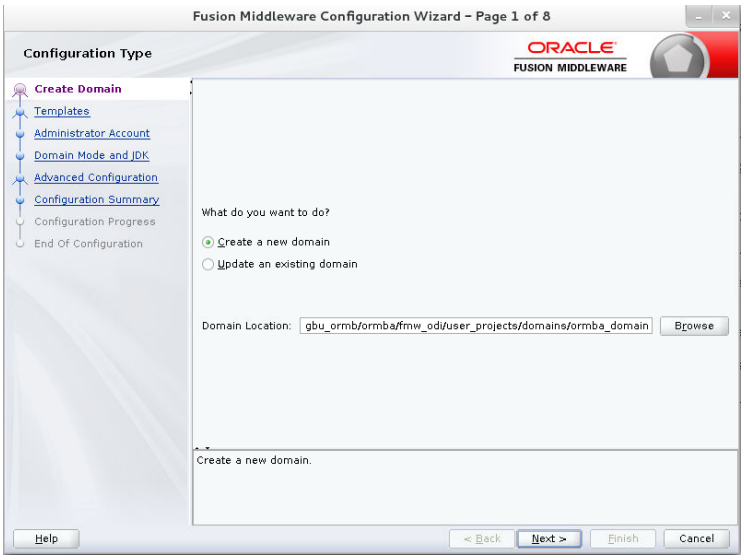

Figure 16: Create Domain Page

5. Click Next. The Templates page appears. Use this page to indicate that you want to create the new domain using an existing product template.
    - Select Create Domain Using Product Templates. The page displays the entire list of Product Templates readily available along with the various Fusion Middleware products installed in the system (Application server). Each template in the list is associated with a JAR file, which configures the required domain resources for the product.
    - Select the following templates to ensure that the WebLogic domain supports ODI. The other related templates are automatically selected.
        - Oracle Data Integrator - Agent - 12.2.1.3.0 [odi]
        - Oracle Data Integrator - Agent Libraries- 12.2.1.3.0 [odi]
        - Oracle Data Integrator - Console - 12.2.1.3.0 [odi]
        - Oracle Data Integrator – Standalone Collocated Agent – 12.2.1.3.0 [odi]
        - Oracle Data Integrator SDK Shared Library Template – 12.2.1.3.0 [odi]
        - Oracle Enterprise Manager – 12.2.1.3.0 [em]

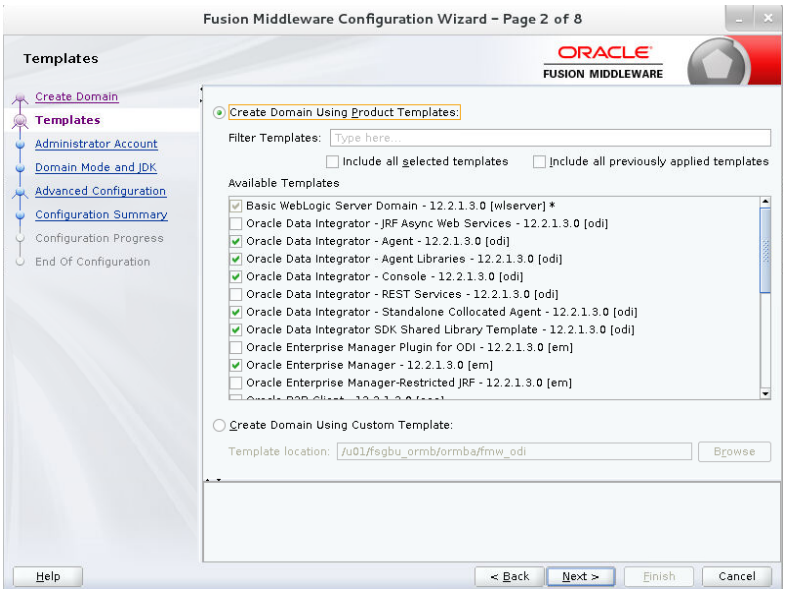

Figure 17: Templates Page

6. Click Next. The Application Location page appears. Use this page to specify the full path to the directory where you want to store the applications that are associated with the domain. This location is also referred to as the Application home directory.
7. Enter `<FMW_HOME>/user_projects/applications/ormba_domain` in the Application location field.

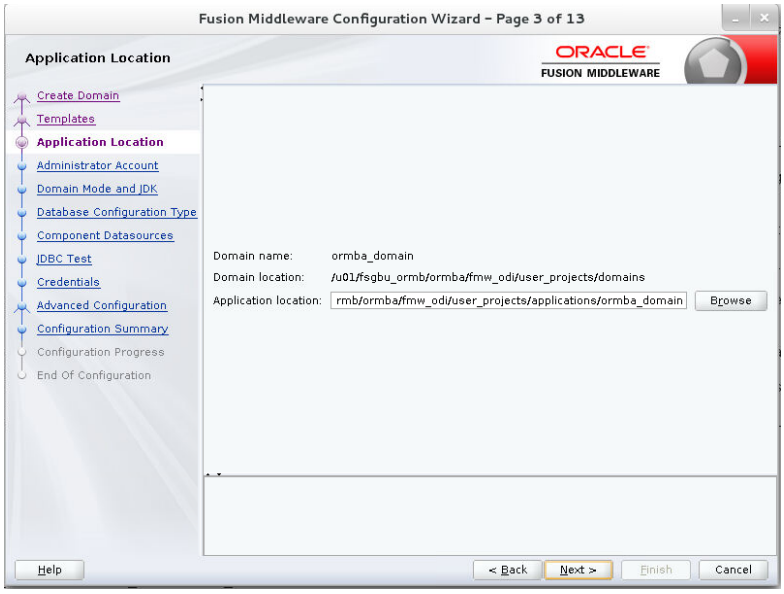

Figure 18: Application Location Page

8. Click Next. The Administrator Account page appears. Use this page to define the default WebLogic Administrator account for the domain, which is used to boot and connect to the domain's Administration Server.
9. Enter the login user name and password for the WebLogic Administrator account. Please note down the credentials, as this is required while updating the `ormba.properties` file.

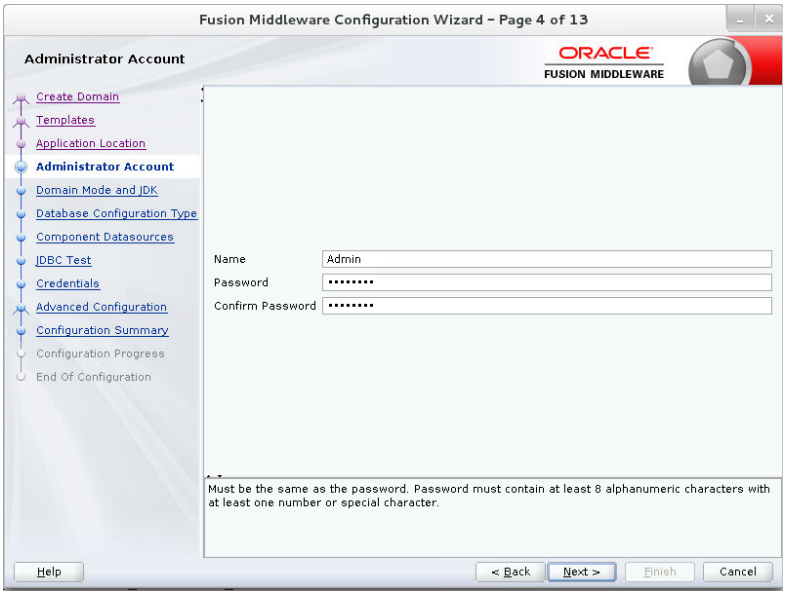

Figure 19: Administrator Account Page

10. Click Next. The Domain Mode and JDK page appears. Perform the following steps in the page:

- Select Production in the Domain Mode section. (In this mode, the security configurations are relatively stringent; requiring a username and password to deploy applications and to start the Administration Server.)
- Select the JDK used to install WebLogic in the application server.

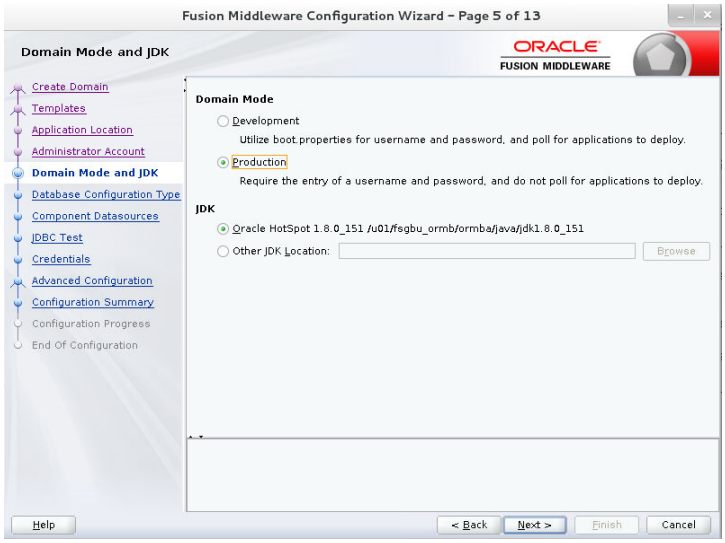

Figure 20: Domain Mode and JDK Page

11. Click Next. The Database Configuration Type page appears. Use this page to specify the information for connecting to the database to retrieve schema information that is to be populated in the schema fields on the subsequent 'JDBC Component schema' screen. Perform the following steps in the page:

Note: You can skip this step and manually configure each component schema on the next screen (JDBC Component Schema).

- Select RCU Data and select driver as Oracle's Driver (Thin) for Service connections; Versions:9.0.1 and later.
- Select Connection Parameters and configure the fields with the connection information specified for the Service Table (STB) component in the Repository Creation Utility (RCU) as shown below:
    - Host Name: Name of the Database server
    - Port: Port number on which DB listens
    - DBMS/Service: DBMS name or Service name of the target database
    - Schema Owner: ORMBA_STB
    - Schema Password: Password for ORMBA_STB user

12. Click Get RCU Configuration to test the connection and retrieve the schema information. The Connection Result Log section of the page indicates whether the connection to the database server was established successfully.

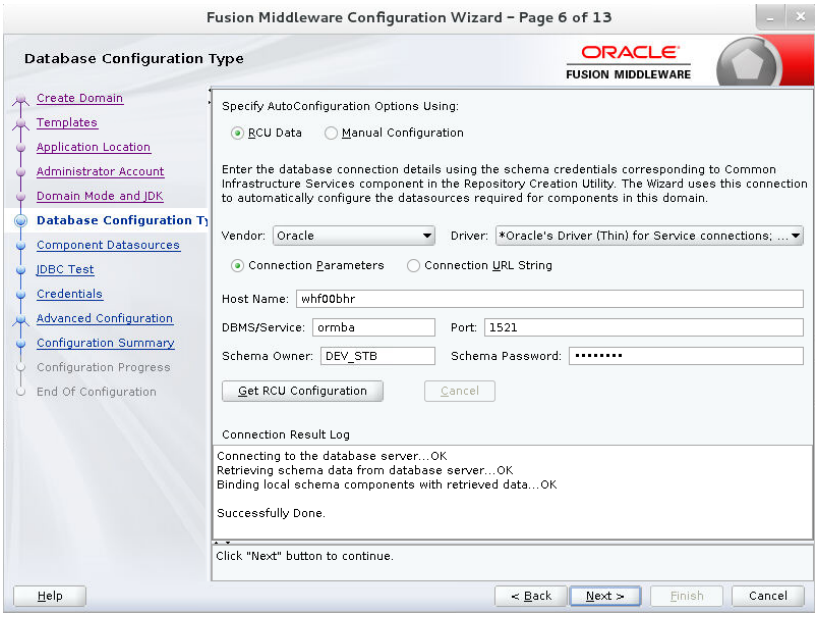

Figure 21: Database Configuration Type Page

Note: Click **Get RCU Configuration** button to retrieve the schema passwords that were specified when you created the schemas via RCU.

13. Click Next. The JDBC Component Schema page appears.
    - If you had changed the schema passwords from the original passwords set via RCU, you must manually enter the new passwords in the Schema Password field.
    - Verify the details to see if they are correct for all schemas.

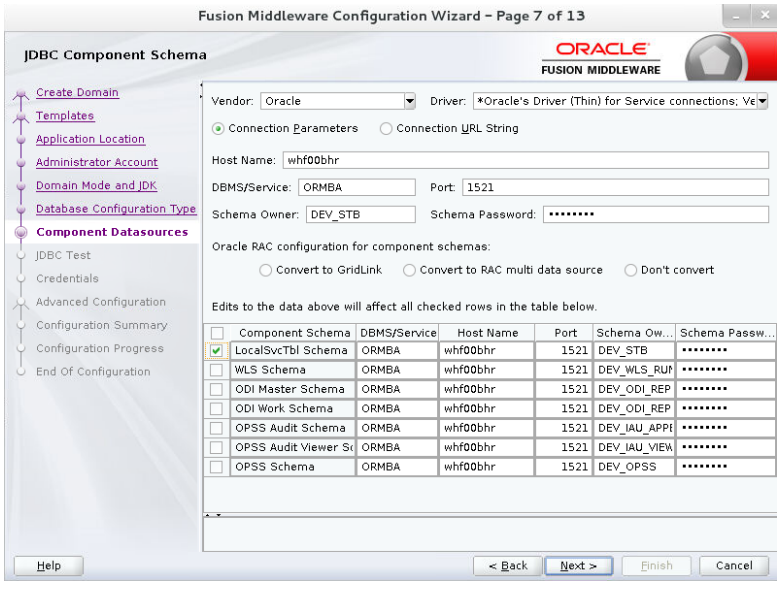

Figure 22: JDBC Component Schema Page

14. Click Next. The JDBC Component Schema Test page appears and the wizard tests the configuration for each schema.
    - The Status column indicates the result of the test. A green tick (✔) indicates success.
    - The Connection Result Log section displays details of the JDBC connection.
    - If you want to test only selected schemas, select the required schemas and click Test Selected Connections. You can view the result in the Connection Result Log section.

15. Click Next. The Credentials page appears. Use this page to configure credentials for each key in the domain. Perform the following steps in the page:
    - Configure the user name and password of ODI Admin User (Key Name = SUPERVISOR).

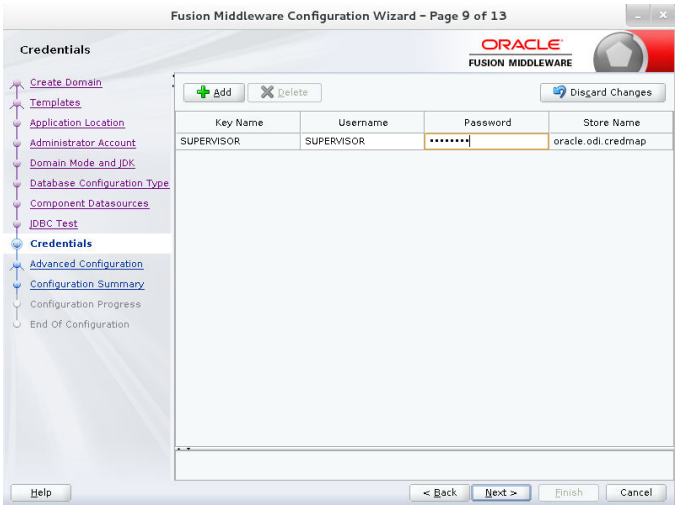

Figure 23: Credentials Page

16. Click Next. The Advanced Configuration page appears. Use this page to perform the advanced configurations against selected categories.
17. Select Administration Server, Node Manager, and Topology. Based on the categories selected, the respective configuration screens are listed in the left pane of the Configuration Wizard.

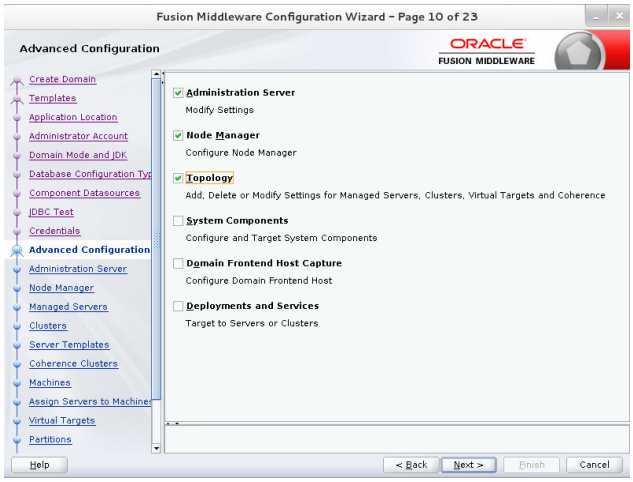

Figure 24: Advanced Configuration Page

18. Click Next. The Administration Server page appears. Use this page to configure the central point from where you can manage the domain. Enter the details as shown below:
    - Server Name: AdminServer
    - Listen Address: All local addresses
    - Listen Port: 7001 (default value for the Administration Server) The valid listen port range is from 1 to 65535.

Note: Please note down the Listen Address and Listen Port values given here, as this will be required while updating ormba.properties file.

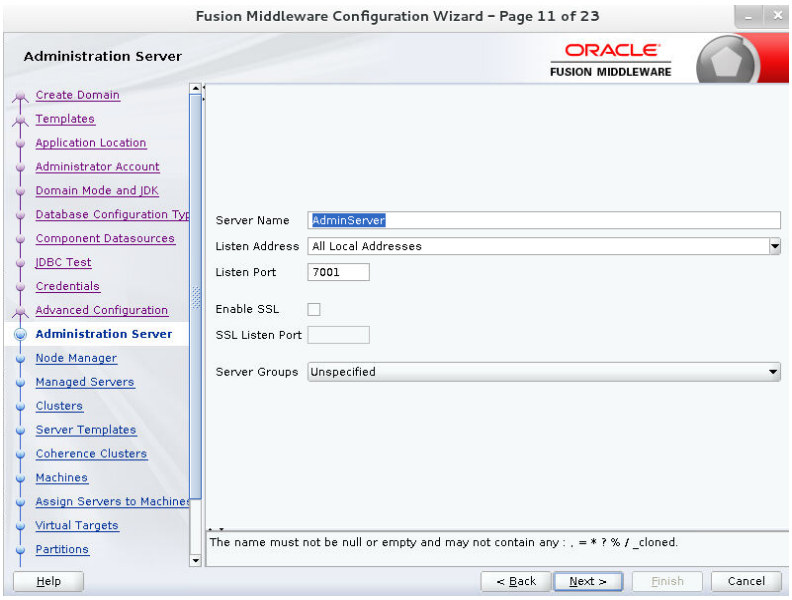

Figure 25: Administration Server Page

19. Click Next. The Node Manager page appears. Use this page to configure the Node Manager's credentials and home directory.
    - Select Per Domain Default Location under Node Manager Type section.
    - In the Node Manager Credentials section, enter the username and password for starting the Node Manager.

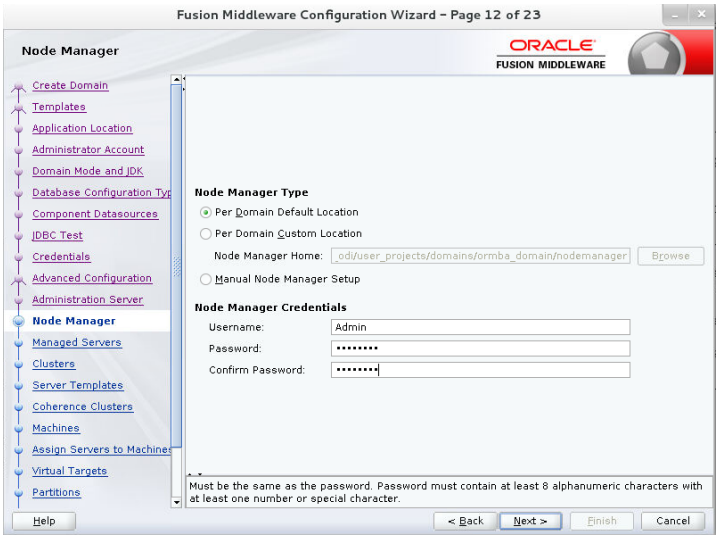

Figure 26: Node Manager Page

20. Click Next. The Managed Servers page appears. Use this page to add ODI_server1 for ODI Agent. Perform the following steps:
    - Click Add. A new row appears in the grid.
    - In the Server Name field, enter ODI_server1.
    - In the Listen Address field, select the IP Address of the application server node where we are creating the domain. If the required IP address is not available in the list, you can type it in.
    - In the Listen Port field, enter 15101. The valid listen port range is from 1 to 65535.
    - In the Server Groups field, select `ODI-MGD-SVRS`.

Note: Please note down the values of Listen Address and Listen Port configured here, as you need to specify these as values of parameters ormba.repository.agent.host and ormba.repository.agent.port in the ormba.properties file.

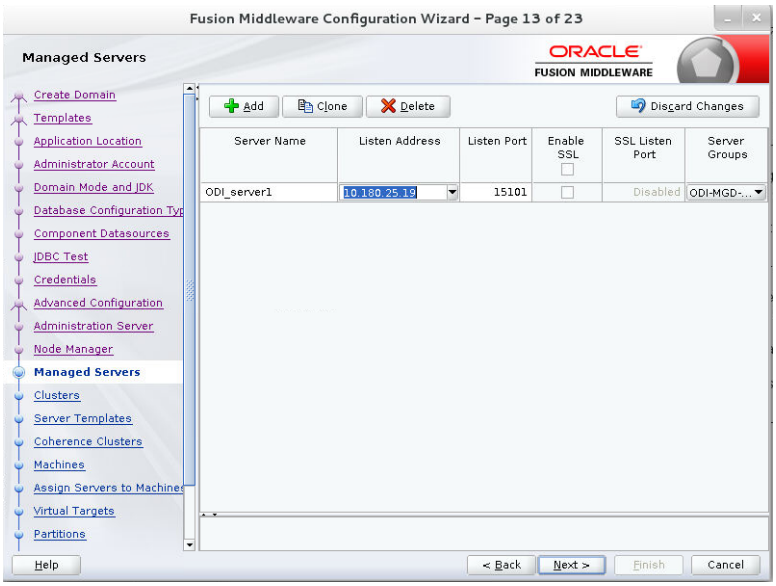

Figure 27: Managed Servers Page

21. Click Next. The Clusters page appears. Use this page to create a new cluster. Follow the steps below in the page:
    - Click Add and enter a name in the Cluster Name field.
    - Leave the Cluster Address and Frontend Host fields blank.
    - Leave the default value (0) in the fields `Frontend HTTP Port` and Frontend `HTTPS`.

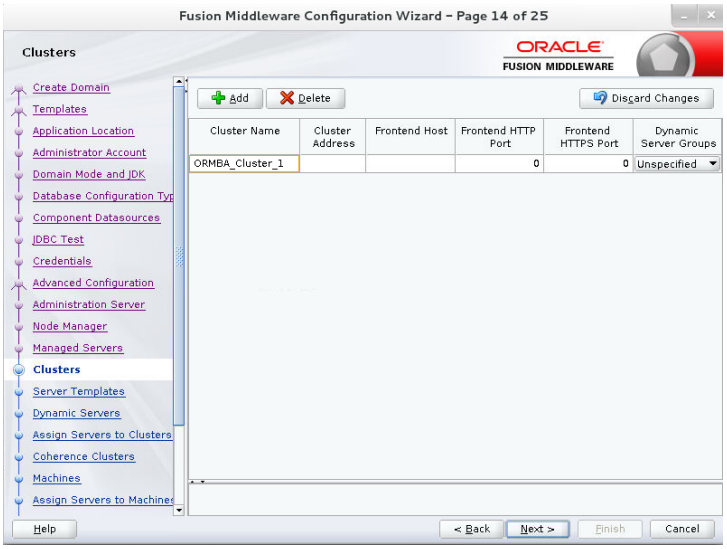

Figure 28: Clusters Page

22. Click Next and skip the Server Templates and Dynamic Servers pages.
23. Click Next. The Assign Servers to Clusters page appears. Use this page to assign Managed Servers to Clusters. Perform the steps below on this page:
    - In the Clusters section, select the cluster we created in the previous step.
    - Select `ODI_server1` in the Servers section and click the right arrow ( ). This moves the managed server from the Servers section to Clusters section.

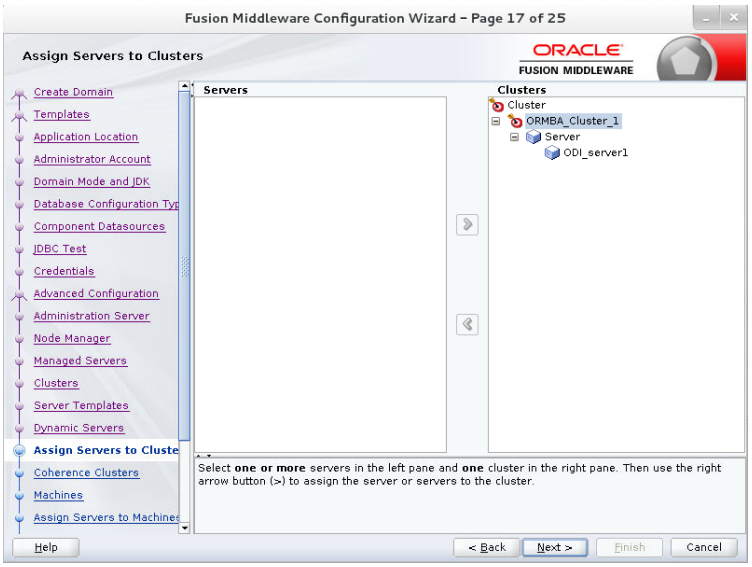

Figure 29: Assign Servers to Clusters Page

24. Click **Next**. The Coherence Clusters page appears. The page lists the coherence cluster associated with the domain. Retain the default coherence cluster configuration.
25. Click **Next**. The Machines page appears. The page displays the default machine configurations.
26. Click **Next**. The Assign Servers to Machines page appears. Use this page to assign the managed server (`ODI_server1`) to the machine defined in the previous step.
    - In the Machines section, select `LocalODIMachine`.
    - Select `ODI_server1` in the Servers section and click the right arrow ( ). This moves the managed server from the Servers section to the Machines section.

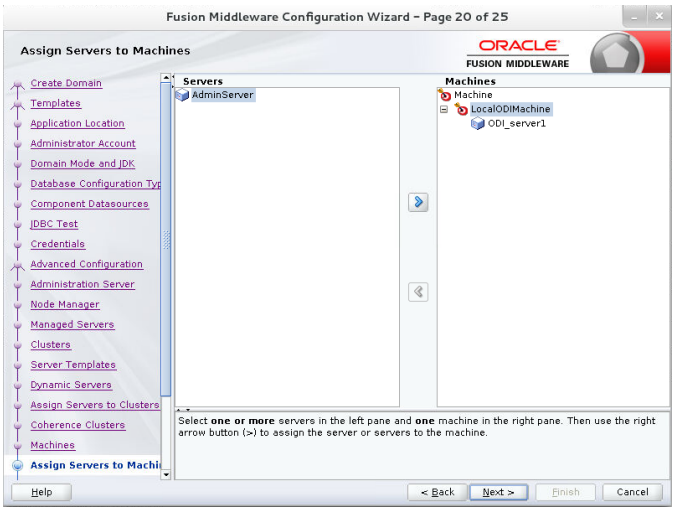

Figure 30: Assign Servers to Machines Page

27. Click Next and skip the Virtual Targets and Partitions pages.
28. Click Next. The Configuration Summary page appears. The page displays the detailed configuration information of the domain being created.

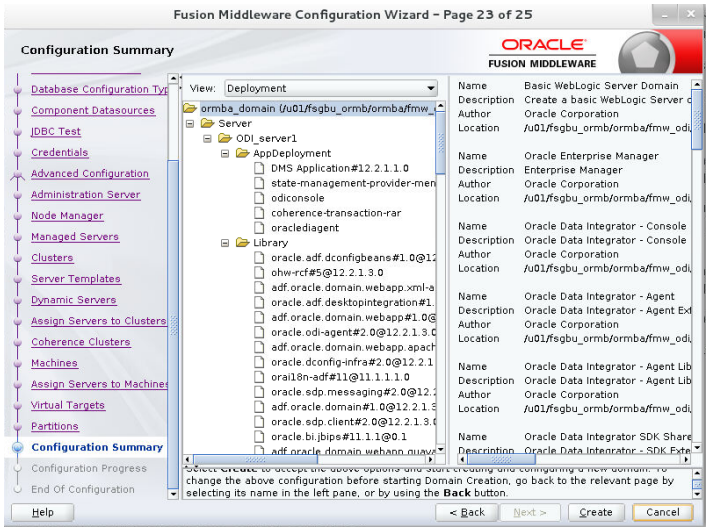

Figure 31: Configuration Summary Page

29. Verify the configuration details and click Create to initiate the domain creation. The Configuration Progress page appears showing the progress of domain creation.
30. Once the domain creation is completed, the Configuration Success page appears. Note down the information displayed on this page.
31. Click Finish to close the Configuration Wizard.

3.7.1 Creating the boot.properties File

Once you create the domain, follow the procedure below to create the `boot.properties` file:

1. Change to the below path in the application server:

   `<FMW_HOME>/user_projects/domains/ormba_domain/`

   a. Create the following folder structure:

      `servers/<Server_Name>/security`

   b. Create the boot.properties file with the following attributes:

      username=`<weblogic username>`

      password=`<weblogic password>`

      Note: Use the credentials given during weblogic domain creation.

   c. Repeat the previous step to create boot.properties file for each server in the domain (AdminServer and ODI_server1).

      Note: If you do not see the folder structure in the domain initially, start the server and check again. If the folder structure is still not available, manually create the folder structure.

3.7.2 Starting the WebLogic Admin Server

To start the WebLogic admin server, follow the procedure below:

1. Change to the `<FMW_HOME>/user_projects/domains/ormba_domain/bin` directory.

   a. Execute the following command:

      ```
      nohup ./startWebLogic.sh > startWLS.log &
      ```

b. Check the startWLS.log file in the same path to see if it includes the message “The server started in RUNNING mode”.

c. Access the Administration Server console using the Administration Server URL (`http://<administration server host>:<administration server port>/console`).

> **Note:** Use the Listen Address and Listen Port configured in Step 16 of section 3.7.

d. Log on using the Administrator Account username and password. The Home page appears.

> **Note:** Check whether you have enabled SSL for ormba_domain and if not, refer section 3.8 for more details.

3.7.3 Starting the ODI Managed Server

To start the WebLogic managed server for ODI agent, follow the procedure below:

1. Change to the `<FMW_HOME>/user_projects/domains/ormba_domain/bin` directory.

   a. Execute the following command:

   ```
   nohup ./startManagedWebLogic.sh ODI_server1> startManagedWLS.log &
   ```

   b. Check the `startManagedWLS.log` file in the same path to see if it includes the message “The server started in RUNNING mode”.

   c. Access the Oracle Enterprise Manager using the Enterprise Manager URL (`http://<administration server host>:<administration server port>/em`). The Login page appears.

   > **Note:** Use the Listen Address and Listen Port configured in Step 18 of section 3.7.

   d. Log on using the administrator account’s username and password. The Welcome page appears.

   e. Check the Servers section to verify if the Administration Server and Managed Server (`AdminServer and ODI_server1`) are up and running.

   f. To verify the ODI Console, log on to `http://<ODI server host>:<managed server port>/odiconsole` with SUPERVISOR username and password.

3.8 Enabling SSL for ORMBA

To enable SSL for ORMBA, you need to enable it for Admin server and BI server in OBIEE WebLogic console and for Admin server and ODI server in ODI Weblogic console. To do this, follow the procedure below:

1. Navigate to `<Domain_Home>/bin` and open the file setDomainEnv.sh.

> **Note:** `<Domain_Home>` is the location where the Oracle Fusion Middleware domain is getting created. **For example:**
>
> OBIEE Domains: `/scratch/Oracle/Middleware/user_projects/domains/bi`
>
> ODI Domains: `/scratch/Oracle/Middleware/user_projects/domains/ormba_domain`

2. To support TLSv1.2 Protocol, open the file setDomainEnv.sh and change JAVA_PROPERTIES="-Dwls.home=${WLS_HOME} -Dweblogic.home=${WLS_HOME} " into
   JAVA_PROPERTIES="-Dweblogic.security.SSL.minimumProtocolVersion=TLSv1.2 -Dwls.home=${WLS_HOME} -Dweblogic.home=${WLS_HOME}"
3. Log on to OBIEE Weblogic Console (http://<host_name>:<port>/console).
4. Navigate to Servers, select AdminServer and go to General tab.
5. Check the below check boxes:
   - SSL Listen Port Enabled
   - Client Cert Proxy Enabled
6. If required, update the value in **SSL Listen Port** field and click Save.
7. Under the Advanced Option section in the General Tab, select **yes** in **WebLogic Plug-In Enabled** field and click Save.
8. Navigate to SSL Tab and under the Advanced Option, select **None** in **Hostname Verification** field. Click Save.
9. Repeat steps 4 to 8 for **bi_server1**.
10. Stop AdminServer through Weblogic Administration Console.
11. Navigate to <DOMAIN_HOME>/bitools/bin and run **stop.sh** file.
12. Repeat the steps 3 to 8 for ODI AdminServer and **odi_server1** by logging on to ODI Weblogic Console.
13. Restart all servers that are updated.

4. ORMBA Database Component Installation

This section explains how to install the database component of Oracle Revenue Management and Billing Analytics Version 2.8.0.0.0. This section includes the following tasks:

- Creating Database Schemas
- Installing ORMBA Schema
- Post Installation Check

Note: Before proceeding with ORMBA installation, we strongly recommend you to ensure that all prerequisite software are installed successfully.

Note: In case of French installation, check if the database is having a compatible character set, like AL32UTF8. If not, alter the character set before proceeding with product installation.

4.1 Creating Database Schemas

All the schemas will be created in a PDB with a CDB in the Target database. To create various users and schemas for ORMBA in the target database server, follow the procedure below:

1. Connect to the target PDB as SYS user using SQL * Plus.
2. Create the following table spaces:
    - DWADM_01 – Data Warehouse Schema
    - MDADM_01 – Metadata Schema
    - REP_01 – Replication Schema
    - MAPADM_01 (Optional) - Map Metadata Schema

    Note: Ensure that the initial storage size of the table spaces DWADM_01 and REP_01 is greater than or equal to the storage size of table spaces in the source schema. Also, ensure that DWADM_01 table space has an initial storage of 64K.

Eg:

CREATE TABLESPACE DWADM_01 DATAFILE '/scratch/oracle/datafiles/dwadm_01.dbf' SIZE 30G AUTOEXTEND ON NEXT 10240K MAXSIZE UNLIMITED DEFAULT STORAGE (INITIAL 64K NEXT 4M) LOGGING ONLINE SEGMENT SPACE MANAGEMENT AUTO;

3. Create database users with default table spaces as listed below:

Users	Table spaces
DWADM	DWADM_01
DWREAD	DWADM_01
MDADM	MDADM_01
DWSTAGE	DWADM_01
MODELADM (not required for Healthcare)	MDADM_01
MAPADM (Optional)	MAPADM_01
RMB1REP (Default Replication Schema)	REP_01

Note: MAPADM user is required only if you opt for Spatial analyses in Financial Transactions dashboard.

4.1.1 Providing Grants to ORMBA DB Users

1. Navigate to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database` directory, where `<TEMPDIR>` folder is the location where you have extracted the contents of the Oracle Revenue Management and Billing Analytics V2.8.0.0.0 Database Component package.

   Open UserGrants.sql in this folder and edit the code snippet "`define ODI_REPO=<Master Repository Name>`" where `<Master Repository Name>` is the value seen in step 11 of section 3.6 of the document. Eg: ORMBA_ODI_REPO

   a. Log on to the pluggable database (PDB) in the target database server as **SYS** user.

   b. Execute the edited UserGrants.sql file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database` folder.

   c. Execute the following command using SQL*Plus:

   ```
   GRANT READ, WRITE ON DIRECTORY ORMBA_DIR TO MDADM;
   ```

Note: While installing ORMBA in an environment where ODI is in EXECUTION mode, you will see errors while executing UserGrants.sql file. You can ignore these errors.

4.2 Installing ORMBA Schema

In this section, you will install the following schemas of ORMBA:

- Metadata schema (MDADM)
- Warehouse schema (DWADM)
- ODI master repository schema (created using RCU)
- Replication schema (RMB1REP)

Note: If ORMBA installation is in French, set NLS_LANG parameter with a compatible character set before connecting to SQL * Plus. E.g.: `export NLS_LANG=AMERICAN_AMERICA.AL32UTF8`

Follow the procedure below to create the ORMBA schemas:

1. Change to the <TEMPDIR>/ORMBA-V2.8.0.0.0-Database directory.
2. Open the InstallSchemas.sql file to edit the values in following code snippets:

   ```
   define RELEASE_PATH=<TEMPDIR/ORMBA-V2.8.0.0.0-Database>
   define LANGUAGE_NAME='ENG'
   define SOURCE_SCHEMA ='<Source Data Schema Name>'
   define ODI_REPO ='<ODI Repository Schema name>'
   define STARTDATE=<date of oldest entry in source in dd/mm/yyyy format>
   define ENDDATE=<future date, say 01/01/4000 in dd/mm/yyyy format>
   ```

   Note: LANGUAGE_NAME is available only for GTB installation and you can give the language code that you need; for example: ENG for English, FRA for French, etc.

   The STARTDATE and ENDDATE values in InstallSchemas.sql are used to create entries in default dimensions.

3. Log on to the pluggable database (PDB) in the target database server with MDADM credentials using SQL *Plus.
4. Execute the following command to install the first four schemas: `@InstallSchemas.sql`

   Note: Spool the messages to a text file.

5. Verify if all schema objects are created successfully in all schemas. To do this, see section 4.3 of this document.

   Note: You can ignore errors that occur during the View Creation, as these errors are due to missing tables that will be created later on.

4.2.1 Installing MODELADM Schema

To install MODELADM schema, follow the procedure below:

1. Log on to the pluggable database (PDB) in the target database server as **SYS** user using SQL *Plus.
2. Navigate to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MODELADM` folder and execute the `MODELADM_Grants.sql` file.
3. Connect to the database using any SQL client (such as SQL*Plus) with `MODELADM` credentials.
4. Open the `InstallMODELADM.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MODELADM` and edit the release path in the following code snippet:

   ```
   define RELEASE_PATH=path upto <TEMPDIR>/ORMBA-V2.8.0.0.0-Database
   ```

5. Execute `InstallMODELADM.sql`.

4.3 Post Installation Check

After installing the ORMBA database component, you need to verify and see if the database scripts have applied correctly to the respective schemas. Follow the procedure below for database verification:

1. Change to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database` folder.

   d. Connect to the database using any SQL client with MDADM credentials. If you are already connected, skip this step.

   e. Execute the following command**:** `set serverout on;`

   f. Open the checkDBObjects.sql file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database` folder and edit the ODI Repository Name in the following statement:

   ```
   define ODI_REPO='<Master Repository Name>'
   ```

   g. Execute the following command: `@checkDBObjects.sql`

   h. To check the object count in MODELADM schema execute the `checkModeladmObjects.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MODELADM` folder using the command:

   ```
   @checkModeladmObjects.sql
   ```

   i. In case of success, the SQL console displays success messages. Proceed with the installation ONLY if the post installation check is successful. If there are errors, follow section 4.3.1.

4.3.1 Handling Errors

If an error occurs while installing the schemas, follow the procedure below to clean up the respective schema:

1. Check the output of `checkDBObjects.sql` and `checkModeladmObjects.sql` to find out the schemas that are not installed successfully.
2. Log on to the pluggable database (PDB) in the target database server as SYS user

    a. Execute the cleanup script `CleanUpORMBASchemas.sql` file available in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database` folder. While executing this script, you are prompted to specify the schema to be cleaned.

```
SQL> @CleanUpORMBASchemas.sql
Enter a schema name (DWADM/RMB1REP/MODELADM/MDADM): DWADM
```

    b. Examine the spool file of the schema installation script to check which object creation failed and its cause.

    c. Correct the error and execute the corresponding install script after defining the following attributes using SQL *Plus:

    - set define off
    - set define `
    - define `RELEASE_PATH=<TEMPDIR>/ORMBA-V2.8.0.0.0-Database`
    - define `LANGUAGE_NAME='ENG'`
    - define `SOURCE_SCHEMA ='<Source Data Schema Name>'`
    - define `ODI_REPO ='<ODI Repository Schema name>'`
    - define `STARTDATE=<date of oldest entry in source in dd/mm/yyyy format>`
    - define `ENDDATE=<future date, say 01/01/4000 in dd/mm/yyyy format>`

Schema	Install Script
DWADM	`InstallDWADM.sql`
MDADM	`InstallMDADM.sql`
RMB1REP	`InstallREP.sql`
MODELADM	`InstallMODELADM.sql`

    d. Follow the Post Installation Check procedure and verify again.

5. ORMBA Admin Tool Installation

This section describes how to install the admin tool component of Oracle Revenue Management and Billing Analytics.

Admin tool deployment requires a WebLogic domain and a corresponding metadata schema in the WebLogic domain. If you have already created a Weblogic domain, you can deploy the Admin Tool in the same; else you can create a separate one.

Admin tool installation includes the following steps:

- Configuring DataSource
- Deploying Admin Tool EAR
- Deploying Admin Tool Online Help EAR
- Configuring Admin Tool Security
- Logging on to Admin Tool
- Admin Tool Initial Settings

Note: Before proceeding with the Admin Tool installation, ensure that the WebLogic Admin server is up and running in application server. If not, you can start it by following section 3.7.2.

5.1 Configuring DataSource

For configuring datasource, follow the procedure below:

Note: Check if you have 'Execute' privilege to the shell script and if not provide the privileges.

1. Go to <TEMPDIR>/ORMBA-V2.8.0.0.0-Web/config/datasource folder.
    a. Open the datasource.properties file and edit the below parameters:

    `admin.url=<Weblogic console URL> Eg: t3://localhost:7001`

    `admin.userName=<weblogic UserName>`

    `admin.password=<weblogic Password>`

    `datasource.name=<Any name for the new datasource>` Eg: ORMBA_Admin_Connection

    `datasource.target=<Weblogic server or cluster on which Admin Tool EAR is to be deployed>` Eg: ODI_server1

    `datasource.jndiname=ormba-connectionDS`

    `datasource.url=<Database url>` Eg: jdbc:oracle:thin:@server:port/servicename

    `datasource.username=MDADM`

    `datasource.password=<Password for MDADM>`

    Note: Use the credentials given during WebLogic domain creation.

    b. Execute `configureDS.sh` in the same folder with `<FMW_HOME>/wlserver/server/bin` as argument.

    c. Check the log messages of `configureDS.sh` to see if the execution was successful.

d. Log on to the WebLogic Server Administration console and check if the configured datasource is available under ormba_domain > Services > Data Sources in the Domain Structure pane.

Figure 32: Data Sources

Note: By default, the Maximum Capacity of Connection Pool is set to **15** for the newly created datasource. You can update this property to a desired value in WebLogic Server Administration console, based on the number of users expected to access the system.

5.2 Deploying Admin Tool EAR

For deploying the Admin tool, follow the procedure below:

Note: Check if you have 'Execute' privilege to deploy.sh script and if not provide the privileges.

1. Navigate to <TEMPDIR>/ORMBA-V2.8.0.0.0-Web/admintool folder.
   a. Open the deploy_configuration.properties file and edit the following attributes:

      `domain.name=ormba_domain`

      `admin.url=<Weblogic console URL>` Eg: t3://localhost:7001

      `admin.userName=<weblogic username>`

      `admin.password=<weblogic password>`

      `target.server=<datasource.target parameter in datasource.properties file>` Eg: ODI_server1

      `file.location=.`

      `file.name=ormba-admin.ear`

      `application.name=ormba-admin`

      Note: Use the WebLogic attributes given during domain creation.

   b. Go to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/admintool` folder.

   c. Execute `deploy.sh` in application server with `<FMW_HOME>/wlserver/server/bin` as argument.

      Note: If you are installing ORMBA in French, follow the above procedure by navigating to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/admintool-french` folder instead.

5.2.1 Post Deployment Verification

To check if the Admin tool EAR is successfully deployed, follow the procedure below:

1. Log on to Enterprise Manager.

2. Go to Application Deployments.
3. Check if ormba-admin is available.
4. Try to access ORMBA Administration UI using the URL, `https://<hostname>:<port>/ormba` where `<port>` is the Listen Port of the managed server.
5. Log on using WebLogic admin user credentials. If you are able to log on, the deployment was successful.

5.3 Deploying Admin Tool Online Help EAR

For deploying the online help EAR of Admin tool, follow the procedure below:

Note: Check if you have 'Execute' privilege to deploy.sh script and if not provide the privileges.

1. Navigate to <TEMPDIR>/ORMBA-V2.8.0.0.0-Web/admintool folder.
    a. Open the deploy_configuration.properties file and edit the following attributes:

```
domain.name=ormba_domain
admin.url=<Weblogic Console URL> Eg: t3://localhost:7001
admin.userName=<Weblogic username>
admin.password=<Weblogic password>
target.server=<datasource.target parameter in datasource.properties file> Eg: ODI_server1
file.location=.
file.name=ormba-help.ear
application.name=ormba-help
```

Note: While giving Weblogic Console URL, include the non-SSL port. To know more about WebLogic attributes, refer to section 3.7.

    b. Go to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/admintool` folder.
    c. Execute deploy.sh in application server with `<FMW_HOME>/wlserver/server/bin` as argument.

5.3.1 Post Deployment Verification

To check if the Admin tool Help EAR is successfully deployed, follow the procedure below:

Note: You can follow this procedure only after configuring the Admin Tool security (as explained in section 5.4).

1. Log on to Enterprise Manager.
    a. Go to Application Deployments.
    b. Check if ormba-help is available.
    c. Log on to ORMBA Administration UI and open a page.
    d. Click the Help icon available near the page title. If you are able to view the Help page, the deployment was successful.

5.4 Configuring Admin Tool Security

To configure Admin Tool security, follow the procedure below:

1. Log on to Enterprise Manager.
    a. Right-click on the ormba_domain node. A shortcut menu appears.
    b. Select the Application Roles option from the Security sub-menu. The Application Roles page appears on the right pane.
    c. Select the ormba-admin option from the Application Stripe list and click the Search button near the Role Name field.
    d. Select the required role and then click Edit.
    e. Add members to the application role and then click OK.

Note: For more information on how to create users and roles in Admin tool, refer to the *Oracle Revenue Management and Billing Analytics Security Guide*.

5.5 Logging on to Admin Tool

To verify if the Admin Tool installation is successful, follow the procedure below:

1. Access the ORMBA Admin Tool using the URL format: `https://<hostname>:<port>/ormba` where `<port>` is the SSL listen port of managed server (e.g. ODI_Server1 managed server port).

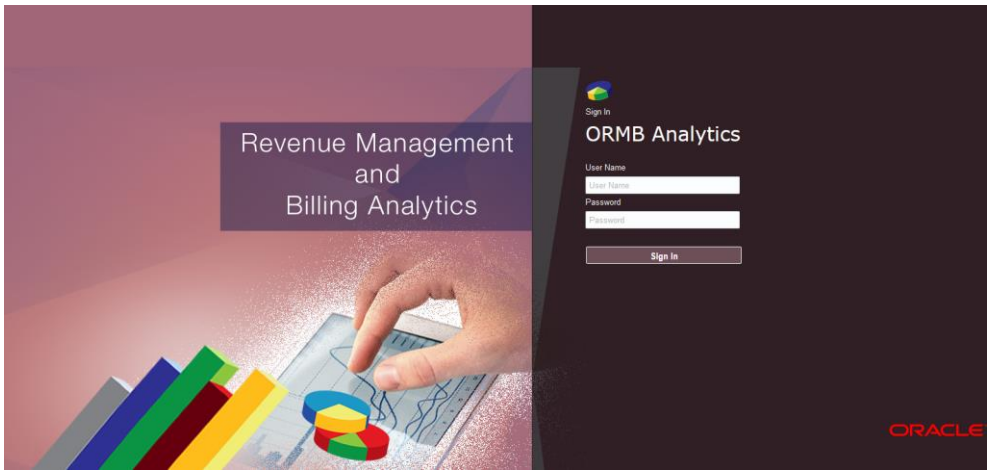

Figure 33: Admin Tool Login Page

2. Enter your login credentials and click Sign In.

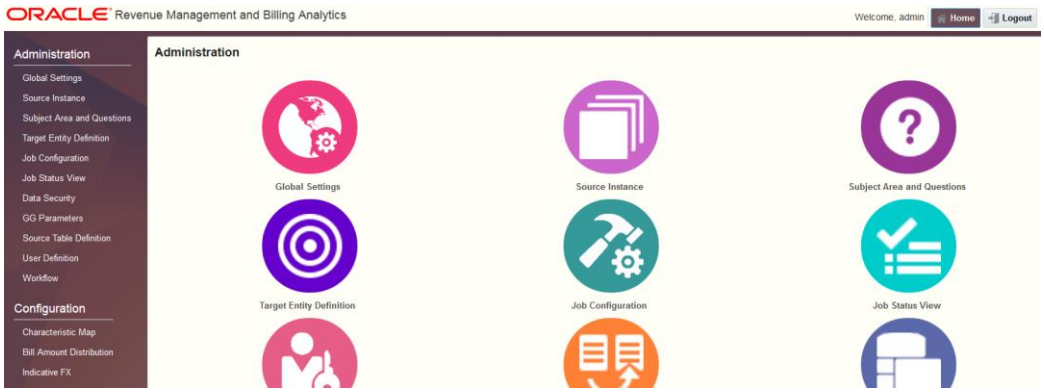

Figure 34: Admin Tool Home Page

3. You will be able to navigate to any of the pages by clicking on the tiles on the right pane, or selecting from the menu list on the left pane.

5.6 Admin Tool Initial Settings

Some of the initial configurations of ORMBA Admin Tool are available as part of installation. You need to log on to the Admin Tool and configure settings that are relevant to your implementation. Additionally, before proceeding with ETL component installation, you need to update the value of following parameters:

- Date from which all ETL jobs will be configured to start the initial load
- Date from which all ETL jobs will be configured to end the initial load

To know about the mandatory settings to be done in Admin UI during installation, see section 6.5.4 of this document.

6. ORMBA ETL Component Installation

This section describes how to install the ETL component of Oracle Revenue Management and Billing Analytics. The section includes the following topics:

Note: If you are installing ORMBA on an environment where ODI is in Execution mode, skip this chapter and proceed with Dashboard Component installation in chapter 7.

6.1 Encrypting Passwords

You need to encrypt the following passwords:

- Golden Gate Container User Password
- RMB01SRC User Password
- MDADM User Password
- (optional) Source OS Password

To encrypt the passwords, follow the procedure below:

1. Go to Oracle GoldenGate Home on the source container DB and log on to GG client using the command `./ggsci`
2. Type the command below to encrypt the password of GoldenGate Container User:

   ```
   encrypt password <password of golden gate user>, encryptkey DEFAULT
   ```

3. Edit the ormba.properties file and update the below attributes:
   - ormba.source.container.journal.username : <golden gate user name>
   - ormba.source.container.journal.encryptpassword : <Encrypted password of golden gate container user>
4. To know more about updating ormba.properties file, see section 6.2.
   a. Execute the following command to encrypt the password of RMB01SRC user.

      ```
      encrypt password <password of RMB01SRC user>, encryptkey DEFAULT
      ```

   b. Note down the encrypted password of above command and specify as value of below parameter while updating the ormba.properties file in section 6.2.

      ```
      ormba.replication.gg.src.ggpass =<encrypted password of RMB01SRC user>
      ```

   c. Execute the following command to encrypt the password:

      ```
      encrypt password <password of MDADM user>, encryptkey DEFAULT
      ```

   d. Note down the encrypted password of above command and specify as value of below parameter while updating the ormba.properties file in section 6.2.

```
ormba.replication.gg.trg.ggpass =<encrypted password of
MDADM user>
```

6.1.1 (Optional) Encrypting Source OS Password

During initial load, if you are transferring data via FTP, ODI requires encrypted password of source application server. To encrypt the password, follow the procedure below:

1. Change to `<FMW_HOME>/user_projects/domains/ormba_domain/bin` directory.
    a. Execute the following command:

    ```
    ./encode.sh -INSTANCE=OracleDIAgent1 <source OS password>
    ```

    b. Note the encrypted password and copy this as value of ormba.replication.gg.source.ospassword attribute in ormba.properties file in section 6.2.

6.2 Editing ORMBA.PROPERTIES File

1. Change to the <TEMPDIR>/ORMBA-V2.8.0.0.0-ETL/bin directory, where <TEMPDIR> folder is the location where you have extracted the contents of the media pack.
    a. Open the ormba.properties file and edit the attributes by following the guidelines given in the file against each attribute:

    > **Note:** If your source system operating system is Windows, while updating the path variables, replace '\' by '\\'.

    b. Save the file after updating the attributes.

6.2.1 Validating ORMBA.PROPERTIES File

Before proceeding with validation of ORMBA.PROPERTIES file, you need to create a new agent under Physical architecture. To do this, follow the procedure below:

1. Log on to ODI and navigate to the Topology tab.
    a. Under Physical architecture, create a new agent named OracleDIAgent.
    b. Edit the following properties of the agent:

    Host: `<your machine name>`

    Port: `<Non-SSL port where managed server is up and running>`

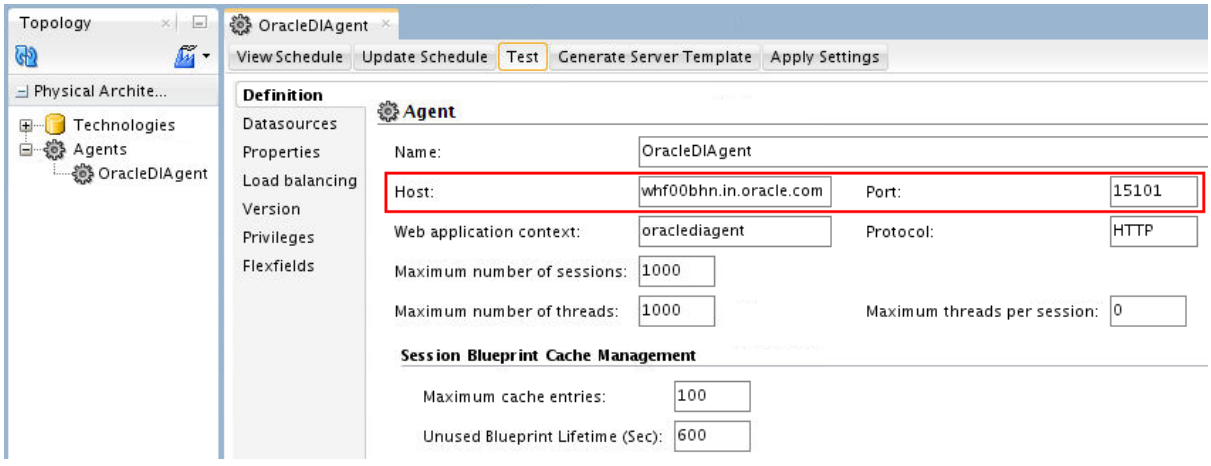

Figure 35: Creating OracleDIAgent

c. Save the configuration.

d. Under Logical architecture, create a new agent named OracleDIAgent.

e. Against Global Context, select Physical Agent from the drop-down list.

f. Save the configuration and restart the managed server.

g. Once the managed server is up and running, test the agent by clicking the Test button in ODI Agent tab.

You can now proceed with validation of properties configured in ORMBA.PROPERTIES file by following the procedure below:

1. Navigate to the location: `<TEMPDIR>/ORMBA-V2.8.0.0.0-ETL/bin`, where `<TEMPDIR>` is the folder where you have extracted the media pack.

   Note: Before proceeding with the procedure below, ensure that you have 'Execute' privileges for the script runPropertyValidator.sh and the managed server (ODI_server1) is up and running.

   a. Execute the script runPropertyValidator.sh from the terminal. This validates the properties in the file.

   b. When prompted, enter passwords as required. The passwords prompts and their expected values are listed below:

      - Enter the Metadata schema Password (MDADM): Password of MDADM schema
      - Enter ODI Admin User Password (SUPERVISOR user password): SUPERVISOR user password
      - Enter ORMBA Source Golden Gate user Password: Password of Golden Gate user in Source system
      - Enter ODI Master Repository Password: ODI Repository password
      - Enter ORMBA Source container common golden gate user password: Password of common golden gate user in CDB
      - Enter the Target schema Password (DWADM): Password of DWADM schema

   c. If validation of a property fails, it prints a 'failed' message with the property key(s) that failed during testing. You can then edit the ORMBA.PROPERTIES file to correct the errors and proceed with the validation again.

   d. Repeat the procedure until you see no 'failed' messages.

      Important: DO NOT proceed with ETL installation without resolving the errors in the ORMBA.PROPERTIES file validation.

6.3 Installing the ETL Component

ETL Component installation involves execution of eight shell scripts in the order given below:

1. importETLComps.sh
2. addInstance.sh
3. configureInstance.sh
4. configureGG.sh

5. checkConfiguration.sh
6. createSourceModel.sh
7. importData.sh
8. createReplicationModel.sh

Note: If you are installing ORMBA on an environment where ODI is in EXECUTION mode, the ETL component installation scripts are different from those listed above and you need to follow the procedure available in section 6.4.

You can find the above shell scripts in the location: <TEMPDIR>/ORMBA-V2.8.0.0.0-ETL/bin, where <TEMPDIR> is the folder where you have extracted the media pack. The following sections explain the execution of each of these scripts in detail.

Note: While executing the scripts, you may see errors from ODI indicating, "Table or view does not exist" in the console. You can ignore these warnings.

Before proceeding with the procedure below, ensure that:

- 'Execute' privileges for each of the above shell scripts
- Managed server (ODI_server1) is up and running

While executing the above listed shell scripts, you would see prompts to enter passwords at several instances. When prompted, enter the passwords and proceed with the installation. You can find the password prompts and the expected values below:

Note: Keep the passwords listed below handy prior to proceeding with ETL component installation.

- Enter the Metadata schema Password: Password of MDADM schema
- Enter ODI Admin User Password (SUPERVISOR user password): SUPERVISOR user password
- Enter ORMBA Source Golden Gate user Password: Password of Golden Gate user in Source system
- Enter ODI Master Repository Password: ODI Repository password
- Enter ORMBA Source container common golden gate user password: Password of common golden gate user in CDB
- Enter the Target schema Password (DWADM): Password of DWADM schema

6.3.1 importETLComps.sh

Purpose: This shell script imports all necessary ETL Components to the installation environment.

Prerequisite: Check if the **ormba.project.path** parameter in ormba.properties file is correctly configured, and the path (<TEMPDIR>/ORMBA-V2.8.0.0.0-ETL/ETLComps) contains the ETL components for import from the media pack.

Success Criterion: Log on to ODI IDE using the login credentials and verify the existence of below items:

- Two projects –
  - ORMB Business Intelligence
  - RMBBI_Automation
- Two models –
  - Metadata
  - Target
- Three global variables –

- BM_EXTRACT_START_DATE
- BM_HIGH_DATE
- NO_GRPS

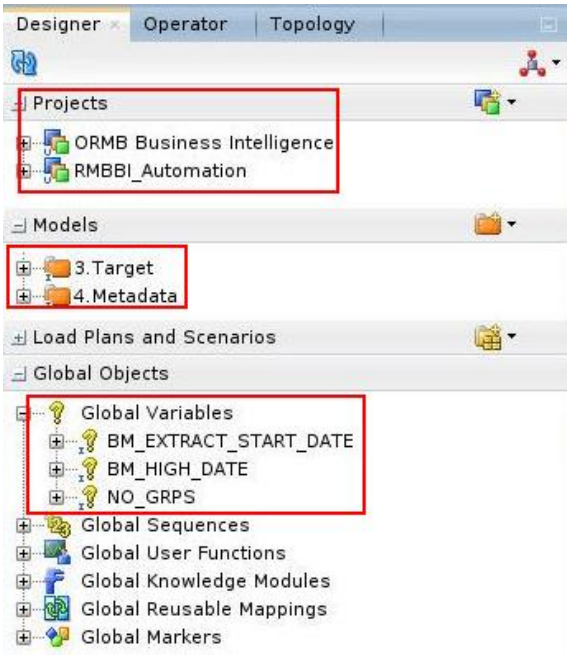

Figure 36: Verify Projects, Models and Global Variables in ODI

Errors: In case of errors, rectify the error and re-run the script. For example, if the project or model gets partially imported due to insufficient disk space, log on to ODI Studio, delete the partial import and re run the script.

6.3.2 addInstance.sh

Purpose: This shell script adds a new source instance to ORMBA.

Prerequisite: Check if you have correctly configured the source database connection string, GG user schema details and the agent configuration details in ormba.properties file.

Success Criteria:

- Check if the topology and agent creation was successful by checking the log.
- Check if the necessary background configurations in ODI are created for the new instance.
  - Oracle Topology
    - Physical – 3 new data servers (eg: BI, RMB1, RMB1_CDB)

- Logical – 9

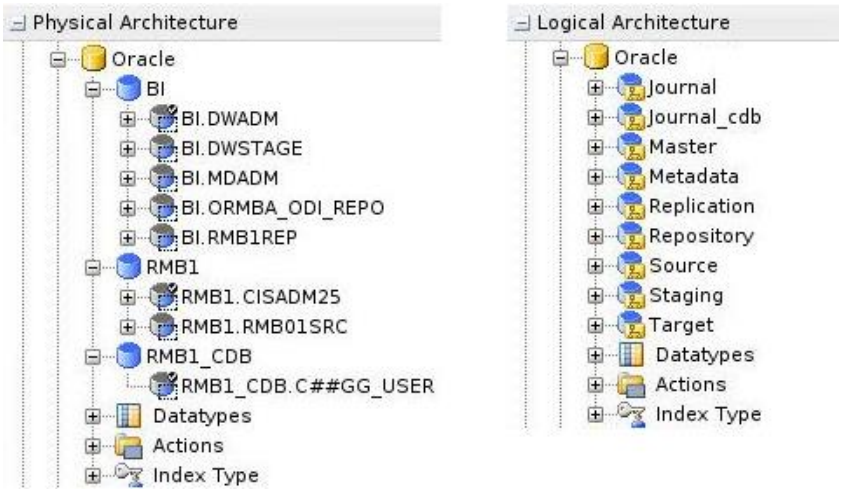

Figure 37: Logical and Physical Architecture

- Context – **RMB1**

Figure 38: Contexts

- DB Link – **RMB1_LINK** in MDADM schema

Note: Validate the public database link named **RMB<instance_num>_LINK** created in the MDADM schema. If it is incorrect, correct the link before you proceed with the next step. This link is created based on the source connect string provided in the ormba.properties file. You can verify this by connecting to MDADM schema via SQL Plus and executing the query: **select * from dba_db_links;**

- Check if data is added to BM_PROD_INSTANCE in MDADM schema.

Errors: In case of errors, check the logs to identify the issue. Rectify the issue and re-run the script after deleting the items.

Note: If you update topology attributes like username or password, delete the topology from ODI Studio and re-run the addInstance.sh script.

6.3.3 configureInstance.sh

Purpose: This shell script checks if the newly added source or target instance exists and configures the metadata for the newly added product instance.

Success Criterion: Check if data is added to BM_OBJECT in MDADM schema.

Errors: If the log shows errors like “Failed to verify the instance existence”, check the logs of **addInstance.sh** for any errors. If you fail to find any error in the log, open the ODI Operator tab and check the BM_PKG_ADD_INSTANCE package’s execution steps. In the error scenario, fix the issue and re run the package or the **addInstance.sh** script.

6.3.4 configureGG.sh

Purpose: This shell script adds GoldenGate configuration to the metadata table.

Prerequisite: Check if you have correctly configured the Source and Target GoldenGate Home and Port details in ormba.properties file.

Success Criterion: Check if data is added to BM_GG_CFG in MDADM schema.

Errors: In case of errors, check the log to identify the issue. Rectify the issue and re-run the script.

6.3.5 checkConfiguration.sh

Purpose: This shell script checks if the instance is configured correctly. If metadata information is missing for any of the source tables, this script also adds the missing metadata.

Success Criterion: Check the log for success message.

Errors: In case of errors, check the log to identify the issue. Rectify the issue and re-run the script.

6.3.6 createSourceModel.sh

Purpose: This shell script creates source model in ODI for the tables that are to be replicated (replicate flag is set to **N**). It also sets the Initial Load Data Transfer options for B1_SYNC_MODEL procedure.

Success Criterion: Log on to ODI and navigate to Designer tab > Models folder > Source folder and check if **ten** models are created as shown in the image below.

Figure 39: Verify Models under Source in ODI

Note: If your installation is for Insurance/Healthcare domain, there will be four additional models – I1CC, I1PLY, I1MEM, and I1COL.

Errors: In case of errors, check the log to identify the issue. Rectify the issue and re-run the script.

6.3.7 importData.sh

Purpose: This shell script performs the initial load of data, generates GoldenGate scripts and initiates the GoldenGate process in source and target to enable replication. The execution of this script takes some time and you can track the execution of the script in the ODI operator tab.

Prerequisite: Before proceeding with execution of importData.sh, please check if values of following attributes are configured in ORMBA Admin Tool:

- In Global Settings page:
  - Date from which all ETL jobs will be configured to start the initial load
  - Threshold value to consider for parallel loading for high volume table
  - Date from which all ETL jobs will be configured to end the initial load
- In Source Instance page:
  - Date from which all ETL jobs for the specific product instance will be configured to start the initial load
  - Date from which all ETL jobs for the specific product instance will be configured to end the initial load
  - Total number of groups, used as maximum number of sub partitions
  - Interval for month wise partition in replication tables

Note: If you have defined the above date attributes in both Global Settings and Source Instance pages, the one in Source Instance page overrides that in Global Settings page.

Execution Command: importData.sh MODEL=ALL

Note: After successful execution of importData.sh script, follow the instructions in sections 6.3.7.1 and 6.3.7.2.

Success Criterion: Connect to the replication schema as RMB1REP user and check whether the data is available on the tables. In case of errors, check the log to identify the failed model (for e.g. I1BL) and then perform the necessary corrective action. To clean the imported data (if any) and resume the process, execute the following statement:

```
importData.sh MODEL=ALL CLEAN=I1BL
```

Note: If more than one models fail, update the above command to give the failed model names separated by comma (,).

6.3.7.1 Enabling Archive Log

To enable Archive Log mode in the source database, execute the commands below:

```
SHUTDOWN IMMEDIATE
STARTUP MOUNT
ALTER DATABASE ARCHIVELOG;
ALTER DATABASE OPEN;
ALTER PLUGGABLE DATABASE ALL OPEN;
```

6.3.7.2 Packaging and Execution of GG scripts

If Oracle Golden Gate is in OFFLINE mode, follow the procedure below:

1. Change to <TEMPDIR>/ORMBA-V2.8.0.0.0-ETL/bin directory.
2. Copy the packGGScripts.sh file to the `<ormba.ggscript.location>` path and execute the shell using the command:

   ```
   sh packGGScripts.sh START
   ```

   This creates `start_source.tar.gz` and `start_target.tar.gz` files in the same path.

3. Copy the start_source.tar.gz to the source database machine and start_target.tar.gz to the target database machine.
4. Copy the copy.sh file from `<TEMPDIR>/ORMBA-V2.8.0.0.0-ETL/bin` directory to both source and target database machines.

Note: In source machine, copy the copy.sh file to the same path where start_source.tar.gz file exists, whereas in target machine, copy it to the same path where start_target.tar.gz file exists.

5. Edit the copy.sh file in both source and target machines and specify the following parameters:

```
GG_HOME=<GG home directory>
Destination=<tar filename in Source DB and tar filename in Target DB>
```

6. Execute copy.sh file.
7. After the successful execution of copy.sh, log on to the Source machine, move to GG installation home, and access GG client using the command: ./ggsci
8. Execute the execute_src_cmds.oby file using the command:

```
obey <path of start_source.tar.gz file in source>/start_source/execute_src_cmds.oby
```

9. Log on to the Target machine, move to GG installation home, and access GG client using the command: `./ggsci`
10. Execute the execute_trg_cmds.oby file using the command:

```
obey <path of start_target.tar.gz file in target>/start_target/execute_trg_cmds.oby
```

Note: ***You can use the above-mentioned consolidated oby file only in case of installation.***

11. After executing the OBY files, check whether all replicats and extracts are running and if not, check for errors in ggserr.log and fix the issues. To do this, follow the steps below:
    - Log on to the Source machine, move to GG installation home, and access GG client using the command: `./ggsci`
    - Execute the command **info all** to check if all extracts are in RUNNING mode.
    - Log on to the Target machine, access GG client using the command: `./ggsci`
    - Execute the command info all to check if all replicats are in RUNNING mode.
    - If a model fails to import, identify the failed model (for e.g. I1BL) and perform the necessary corrective action.
    - Resume the process without cleaning the imported data by executing the following statement:
      `importData.sh MODEL=ALL CLEANSERVICE=I1BL`

Note: If more than one models fail, update the above command to give the failed model names separated by comma (,).

6.3.8 createReplicationModel.sh

Purpose: This shell script creates the replication model in ODI.

Success Criterion: Log on to ODI and verify the existence of replication model, REP_VIEWS.

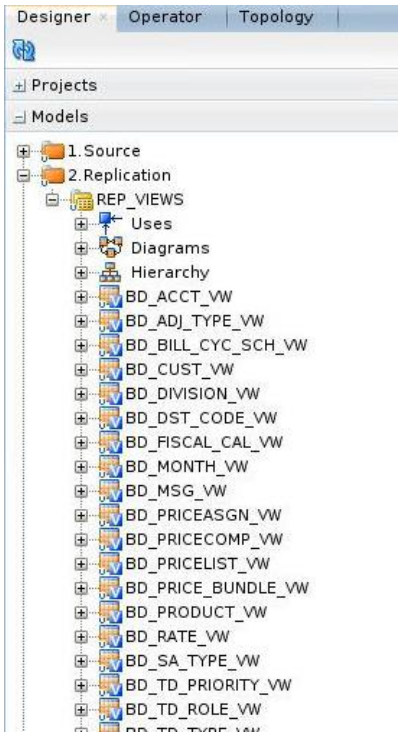

Figure 40: Check REP_VIEWS in ODI

Errors: In case of errors, check the log to identify the issue. Rectify the issue and re-run the script.

6.4 (Optional) ETL Installation if ODI is in Execution Mode

If you are installing ORMBA on an environment where ODI is in Execution mode, skip ETL component installation during media pack installation and follow the procedure below only after installing the mandatory service packs for Insurance users.

6.4.1 Importing ODI Scenarios

Prior to proceeding with ETL component installation in an environment running in Execution mode, you need to import ODI scenarios exported from the environment running in Development mode. To do this, follow the procedure below in the environment where ODI is in Execution mode:

Note: If you have not exported ODI scenarios from the environment where ODI is in Development mode, you can do this by following instructions available in section 6.5.8.

1. Open ODI Studio and navigate to Operator tab > Load Plans and Scenarios.
2. Select Import Scenario option.
3. In the Import Scenario (XML File) pop up window, select **Synonym Mode INSERT_UPDATE** in Import Type field and enter the path to the folder where you have exported scenarios from (i.e., the environment running in Development mode) in the File import directory field.
4. Click OK. This imports the ODI scenarios into the environment.

6.4.2 Updating ORMBA.PROPERTIES File

Update ormba.properties file in the path: `<TEMPDIR>/ORMBA-V2.8.0.0.0.Insurance-ETL/bin` with details of the environment running in EXECUTION mode and validate the file using

runPropertyValidator.sh script in the same path. For detailed instructions on editing and validating ormba.properties file, refer to sections 6.2 and 6.2.1.

6.4.3 Installing the ETL Component

Installing ETL component on an environment where ODI is in Execution mode, involves execution of following shell scripts:

1. addInstance.sh
2. configureInstance.sh
3. configureGG.sh
4. checkConfiguration.sh
5. executeJRNSourceStartScenarios.sh

Note: This script is used to generate source start scripts (i.e. extract creation scripts) for all models. You can use either of the following commands: `executeJRNSourceStartScenarios.sh MODEL=ALL` OR `executeJRNSourceStartScenarios.sh MODEL=<MODEL_NAMES>`. Once you generate the source start scripts, you need to do the following:

1. Pack these scripts using the `pack_GGScripts.sh START_SRC` command.
2. Copy and upload these scripts to the source database machine using the copy.sh script.
3. Execute the `execute_src_cmds.oby` file.

For more information, refer to the Packaging and Execution of GG Scripts section.

6. `executeImportDataProd.sh`

Note: This script is used to perform initial load of data for all or specified model tables. You can use either of the following commands: `executeImportDataProd.sh MODEL=ALL` OR `executeImportDataProd.sh MODEL=<MODEL_NAMES>`.

7. `executeJRNTargetStartScenarios.sh`

Note: This script is used to generate target start scripts (i.e. replicat creation scripts) for all models. You can use either of the following commands: `executeJRNTargetStartScenarios.sh MODEL=ALL` OR `executeJRNTargetStartScenarios.sh MODEL=<MODEL_NAMES>`. Once you generate the target start scripts, you need to do the following:

1. Pack these scripts using the `pack_GGScripts.sh START_TRG` command.
2. Copy and upload these scripts to the target database machine using the `copy.sh` script.
3. Execute the `execute_trg_cmds.oby` file.

For more information, refer to the Packaging and Execution of GG Scripts section.

8. (Optional) `executeJRNStopScenarios.sh`

Note:

This script is used to stop a model. To stop a model that require a clean-up, you can use the following command: `executeJRNStopScenarios.sh MODEL=<MODEL_NAME>`.

Instead of the `CLEAN` command, you can use the `CLEANSERVICE` command to generate GG scripts to stop a model. E.g.: `generateJRNStopScenarios.sh CLEANSERVICE= I1BL, I1CM1`

6.4.4 Post Installation Tasks

Perform the following tasks after ETL Component installation:

1. Follow sections 6.3.7.1 and 6.3.7.2 to enable archive log and execute GG scripts.
2. Perform post installation steps detailed in section 6.5.
3. Execute the scenario BM_RUN_ALL_version_001 in the path: `Operator > Load Plans and Scenarios` to execute the ETL jobs.

6.5 Post Installation Tasks

After ETL installation, follow the tasks below:

6.5.1 Verifying ETL Component Installation

1. Change to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/`
2. Connect to the database using any SQL client with MDADM credentials.
3. Execute the following command : `set serverout on`
4. Execute the following command: `@checkReplication.sql`
5. If the verification is successful, the SQL console displays success messages. In case of errors, check the ETL installation log to identify the model that failed. You can fix the issues and re-run the script to verify.

Note: Proceed with the installation ONLY if the post installation check is successful. However, if you are installing in an environment where ODI is in Execution mode, you can ignore a mismatch in table count that you may see.

6.5.2 Post Installation Scripts

After ETL installation, follow the procedure below:

1. Connect to DWADM schema using SQL *Plus.
2. Open the postInstallationDWADM.sql file in <TEMPDIR>/ORMBA-V2.8.0.0.0-Database folder.
3. Edit the below statement to include the release path.
   ```
   define RELEASE_PATH=<TEMPDIR>/ORMBA-V2.8.0.0.0-Database
   ```
4. Execute postInstallationDWADM.sql.
5. Exit from DWADM schema.
6. Connect to MDADM schema using SQL *Plus.
7. Open the postInstallationScript.sql file in <TEMPDIR>/ORMBA-V2.8.0.0.0-Database folder.
8. Edit the below statements to include the release path and ODI Repository Name.
   ```
   define RELEASE_PATH=<TEMPDIR>/ORMBA-V2.8.0.0.0-Database
   define ODI_REPO='<Master Repository Name>'
   ```
9. Execute the following command : `set serverout on`
10. Execute the following command: `@postInstallationScript.sql`
11. Execute the script `postInstallationMODELADM.sql` from the folder: `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MODELADM`
12. Exit from SQL *Plus.

6.5.3 Checking Invalid Objects in ORMBA Schema

Follow the procedure below to verify invalid objects in MDADM, DWADM, RMB1REP, DWSTAGE, and ODI Repository.

1. Change to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/`
2. Connect to the database using any SQL client with MDADM credentials.
3. Execute the following command : `set serverout on;`
4. Open `CheckInvalidObjects.sql` file and edit the below statement to include the ODI Repository Name.

   ```
   define ODI_REPO='<Master Repository Name>'
   ```

5. Execute the following command: `@CheckInvalidObjects.sql`
6. To check for invalid objects in MODELADM schema, execute the `CheckModeladmInvalidObjects.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MODELADM` folder using the command: `@CheckModeladmInvalidObjects.sql`
7. If the verification is successful, the SQL console displays success messages. This indicates that the ORMBA installation until this point is successful.
8. In case of errors, check the user_objects table of each schema to identify the issue. You can fix the issues and re-run the script to verify.

Note: Proceed with the installation ONLY if the post installation check is successful.

6.5.4 ORMBA Admin Tool Settings

Log on to ORMBA Admin tool, navigate to the pages listed below, and verify whether the listed attributes are configured.

Note: Some of the attributes listed here are optional or implementation-specific.

Page	Attribute
Global Settings	• Corporate Currency, used in dashboards for cross divisional analysis • Date from which all ETL jobs will be configured to end the initial load
Target Entity Definition	• Check whether 'Characteristic Entity' is available for the entities that require Characteristic Map configuration. If not, update the appropriate Characteristic Entity for the target entity. • Update User Extension Procedure and User Extension Procedure (Post Job) against a target entity, if required.
Job Configuration	• Update User Extension Procedure and User Extension Procedure (Post Job) against a target entity, if required.

Page	Attribute
Source Instance	• Characteristic of Distribution ID to be used for type of charge (e.g.:- fee, tax etc) • Characteristic values corresponding to the bill charges • Characteristic values corresponding to the tax charges • Date from which all ETL jobs for the specific product instance will be configured to start the initial load • Identifier for parent child relationship in Customer Hierarchy • Date from which all ETL jobs for the specific product instance will be configured to end the initial load • Currency conversion algorithm (Change this if the source installation is using a different currency conversion algorithm)
Characteristic Map	For Banking: Create characteristic map definitions for: • Customer Segment and Relationship manager against BD_CUST entity • Rate components groups for simulation and Type to categorize rate components for simulation against BD_RATE entity For Insurance: Refer to the list below. Refer Admin UI Online Help for details on how to configure Characteristic Map Definitions.
Bill Amount Distribution	• Create Bill Amount Distribution definitions, if required. Refer the Admin UI Online Help for details on how to do this.
Indicative FX	• Define the indicative exchange rates from all possible currencies in source instance to corporate currency. Refer the Admin UI Online Help for details on how to do this. **Note:** Without this configuration, the ETL jobs will fail.

If the installation type is Insurance, ensure that you configure Characteristic Map, Source Instance, and Bill Amount Distribution in Admin UI, prior to loading data to warehouse.

In the Characteristic Map page, ensure that you configure the mapping fields against the following entities:

- BD_CUST:
  - Birth Date
  - Disability Status
  - Ethnicity
  - Gender
  - Marital Status
  - Student Status
  - Veteran Status

- BD_PER_MEMBERSHIP
    - APTC
    - Guardian ID
    - Subscriber Number
    - Member ID
- BD_POLICY
    - Auto Renew
    - Termination Threshold
    - Renewal Threshold
    - Invoice Frequency

Note: Do not configure characteristic fields for Broker (BD_BROKER), Dependent (BD_DEPENDENT), Subscriber (BD_SUBSCRIBER), or Policy Holder (BD_POLICY_HOLDER) individually; instead configure them in BD_CUST.

In the Source Instance page:

- Policy Role Code to identify Subscribers
- Policy Role Code to identify Brokers
- Relationship Type Codes to identify all non covered members of a policy
- Relationship Type Codes to identify children covered under a policy
- Relationship Type Codes to identify domestic partners covered under a policy
- Relationship Type Codes to identify legal spouse covered under a policy
- Relationship Type Codes to identify parents covered under a policy
- Relationship Type Code to identify subscriber from members of a policy
- Relationship Type Code to identify broker from members of a policy
- Policy Type Code to identify Policies taken via Exchanges
- Policy Type Code to identify Policies taken directly (Off-exchange Policies)
- Code to identify Policy Business Object
- Number of days to identify a pre-mature closure of a policy
- Distribution Codes to identify Deferred Revenue
- Policy status code to identify if policy is activated
- Policy status code to identify if policy is terminated
- Policy status code to identify if policy is cancelled
- Policy status code to identify if policy is reinstated
- Policy status code to identify if policy is renewed
- Gender code to identify male customer
- Gender code to identify female customer
- Customer Class code to identify Individual customer class
- Customer Class code to identify Group customer class
- Customer Class code to identify Third party customer class
- Code to identify if the customer is married
- Code to identify Overdue bill id
- Code to identify Overdue contact identifier

- Code to identify Contact policy identifier
- Code to identify Contact Out-Message identifier
- Code to identify if the customer is unmarried
- Contract type code to identify Overpayment contract type
- Code to identify Billing frequency of a contract
- Lookup field name for billing frequency description
- Account class code to identify On Exchange
- Account class code to identify Off Exchange
- Event type code to identify the terminate overdue customer
- Policy role code to identify policy holder
- Code to identify the insurance type
- Code to identify the individual insurance type
- Character type code to identify policy Id
- Contract type code to identify binder payment
- Code to identify the group insurance type
- Relationship Type Codes to identify Pay Instruction for a Discrepancy
- Relationship Type Codes to identify FT ID for a Pay Instruction

In the Bill Amount Distribution page:

- Premium Charge
- Admin and Other Charge

6.5.5 (Optional) Verifying Insurance Parameters

If the installation is for Insurance or Healthcare domain, follow the procedure below to ensure that all the parameter configurations are accurate.

Note: Follow this procedure prior to loading data into warehouse as detailed in section 6.5.7.

1. Change to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/`
2. Connect to the database using any SQL client with MDADM credentials.
3. Execute the command: set serverout on
4. Execute the command: `@checkMetadata.sql`. If the verification is successful, the SQL console displays success message.
5. In case of errors, the console lists the missing configurations. Configure values for the missing parameters in ORMBA Admin UI and re-run the script to verify.

6.5.6 (Optional) Importing ORMB Certificate to ORMBA

If you are using the Effective Pricing feature or the Apply Back feature, you need to export the certificate file from ORMB and import it to ORMBA. Follow the procedure below to do this:

1. Copy the certificate file to a location in the Application Server where you have deployed ORMBA Admin Tool and ODI. (Oracle FMW and Weblogic installed)
2. Connect to Application Server as a root user and navigate to `<JAVA_HOME>\jre\lib\security` and import the certificate to Java Trust Store file – cacerts using the command:


```
keytool -import -file "<path to exported ORMB certificate file>" -keystore "<path to Java cacerts file>" -storepass <keystore file password>
```

3. To disable the host verification in Weblogic server, navigate to WebLogic Admin console > Environment > Servers > AdminServer
4. Click Configuration tab, SSL tab, and click Lock & Edit button.
5. Expand Advanced section and change Hostname Verification from BEA Hostname Verifier to None.
6. Verify that the Trusted Certificate Authorities in the Weblogic server show 'from Demo Trust Keystore'.

6.5.7 Loading Data to Warehouse

Once ETL installation is complete, the data from source system is available in the replication layer. To move data from the replication layer to the data warehouse, you need to execute ETL jobs that are available in ODI. To execute the ETL jobs, execute the package BM_RUN_ALL_READY_JOBS available in the path: ORMB Business Intelligence > Configuration > Scheduler > Packages.

If you are using ODI in Execution mode, execute the scenario BM_RUN_ALL_READY_JOBS Version 001 in the path: Operator > Load Plans and Scenarios.

Note: You can use an external scheduler or ODI scheduler for executing this package.

6.5.8 (Optional) Generating and Exporting ODI Scenarios

If you are planning to install ORMBA on an environment where ODI is installed in Execution mode, you need to first generate the ODI scenarios from the environment where ODI is in Development mode. To do this, follow the procedure in the environment where ODI is in Development mode:

1. Navigate to path: <TEMPDIR>/ORMBA-V2.8.0.0.0.Insurance-ETL/bin and edit the file ormba_prod.properties with the values of the environment in EXECUTION mode, where <TEMPDIR> is the location where you have downloaded the service pack.
2. Execute the generateJRNSourceStartScenarios.sh script located in the <TEMPDIR>/ORMBA-V2.8.0.0.0.Insurance-ETL/bin directory using the following command:

   ```
   generateJRNSourceStartScenarios.sh MODEL=ALL
   ```

3. Execute the generateScenariosImportData.sh script located in the <TEMPDIR>/ORMBA-V2.8.0.0.0.Insurance-ETL/bin directory using the following command:

   ```
   generateScenariosImportData.sh MODEL=ALL
   ```

4. Execute the generateJRNTargetStartScenarios.sh script located in the <TEMPDIR>/ORMBA-V2.8.0.0.0.Insurance-ETL/bin directory using the following command:

   ```
   generateJRNTargetStartScenarios.sh MODEL=ALL
   ```

5. To generate JRN stop scripts, execute generateJRNStopScenarios.sh script found in the path: <TEMPDIR>/ORMBA-V2.8.0.0.0.Insurance-ETL/bin using the execution command: generateJRNStopScenarios.sh CLEAN=I1BL,I1CM1 where I1BL and I1CM1 are models that require clean up.

Note: Instead of CLEAN command, you can use CLEANSERVICE to generate GG scripts for stopping a model. E.g.: `generateJRNStopScenarios.sh CLEANSERVICE= I1BL,I1CM1`

6. Export all ODI scenarios by following the procedure below:
    a. Open ODI Studio and navigate to `Designer tab > Projects > ORMB Business Intelligence`, right click and select Export All Scenarios option.
    b. In the Export Directory field, enter the path to the folder where you want to export scenarios and select **Packages** under Objects to Export option.
    c. Click OK and repeat the above procedure for RMBBI_Automation project.

7. ORMBA Dashboard Installation

This section describes how to install the dashboard component of Oracle Revenue Management and Billing Analytics. It includes the following topics:

Note: In this chapter, <TEMPDIR_DASH> refers to the folder in presentation server where you have extracted the folders within the respective dashboard component.

7.1 Updating DB Connection Properties in RPD

The RPD file available within the Dashboard component holds the metadata for OBIEE. As part of installation, you need to update the database connection details in this RPD file by following the procedure below:

1. Open the Oracle BI Administrator Tool from your local Windows machine.
2. In the OBI Administrator Tool, navigate to `<TEMPDIR_DASH>/RPD` folder and open the `ORMBAv2.8.0.0.0.rpd` file in offline mode.

3. When prompted, enter the Repository Password available in the `ReadMe.txt` file in the `RPD` folder. This opens the `RPD` as shown in the image below:

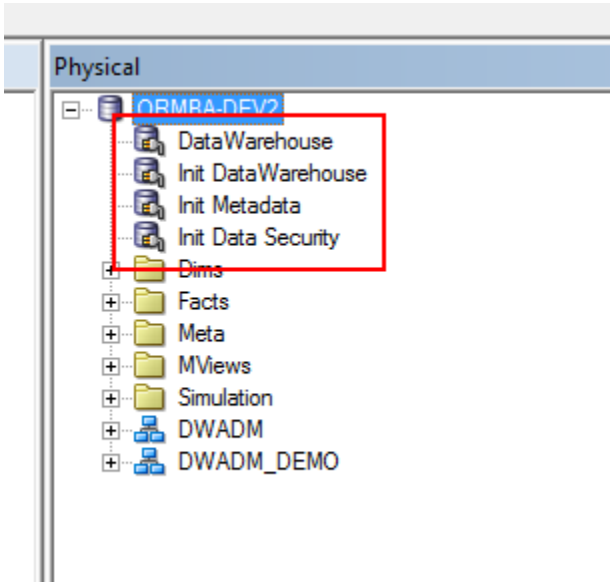

Figure 41: Oracle BI Administrator Tool

4. In the Physical pane, double-click the **DataWarehouse** connection pool under the ORMBA-DEV2 node. The Connection Pool – DataWarehouse window appears as shown below:

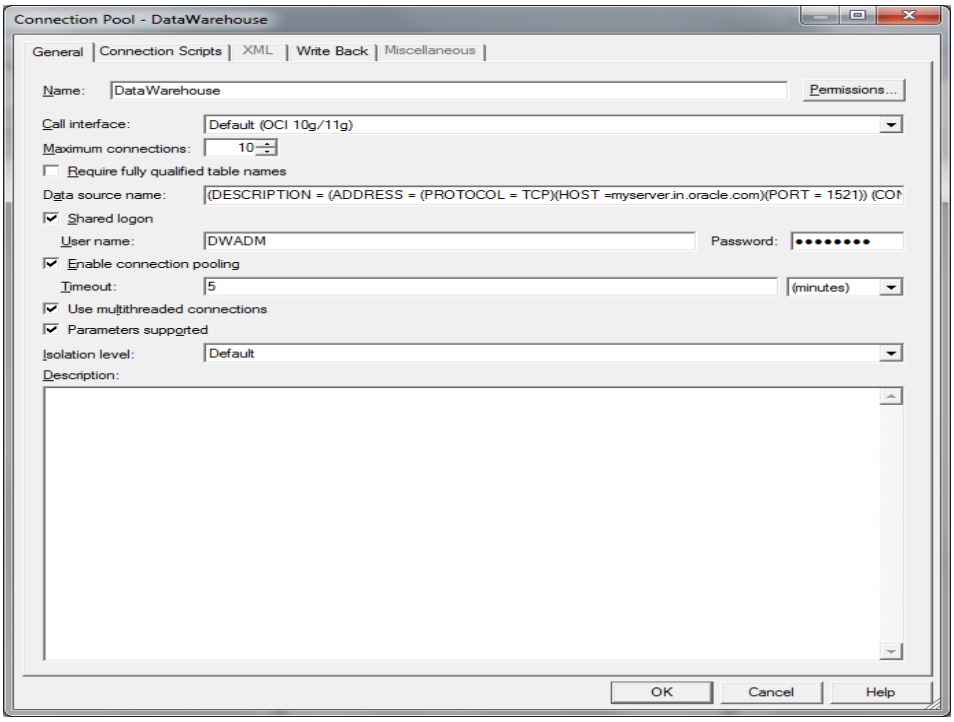

Figure 42: Connection Pool – DataWarehouse Window

5. Update the connection details to the DWADM schema.
6. Update the connection properties in the Data source name field. For example, `(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST =mum00abn.in.oracle.com)(PORT = 1521)) (CONNECT_DATA = (SERVICE_NAME =pdborcl)))`
7. Update the DWADM schema password in the Password field.

8. Repeat steps 4 and 5 to update the connection details to DWADM schema in Init Data Warehouse connection pool.
9. Repeat steps 4 and 5 to update the connection details to MDADM schema in Init Metadata and Init Data Security connection pools.
10. Save the changes made to the `ORMBAv2.8.0.0.0.rpd` file.
11. Use the updated `ORMBAv2.8.0.0.0.rpd` file to deploy on OBIEE server.

7.2 Configuring the Default Corporate Currency

To configure corporate currency as the default currency for Analyses, follow the procedure below. You need to do this whenever the corporate currency is changed.

1. Open the currencies.xml file from the `<BI_ORACLE_HOME>/bi/bifoundation/web/display` directory, where `<BI_ORACLE_HOME>` is the location of Oracle instance within the `OBIEE` installation folder in the presentation server.
2. Search for `int:wrhs` string (located towards the top of the file).
3. Change the symbol of the currency within the `int:wrhs` tag with the corporate currency details as shown in the image below.

```
<!-- Bug 7149167: removed duplicates loc:mr-IN, loc:sa-IN to loc:hi-IN; loc:eu-ES, loc:ca-ES to loc:es-ES -->
<Currencies>
   <Currency tag="none" type="international" symbol="" displayMessage="kmsgCurrencyNone" format="$#" />

   <Currency tag="int:wrhs" type="international" placeholder="true" symbol="€" format="$#" digits="2" displayMessage="kmsgCurrencySiebelWarehouse">
      <negative tag="minus" format="-$#" />
   </Currency>

   <Currency tag="int:$" type="international" symbol="$" format="$#">
      <negative tag="minus" format="-$#" />
   </Currency>

   <Currency tag="loc:en-AU" type="local" symbol="$" locale="en-AU" format="$#" digits="2">
      <negative tag="minus" format="-$#" />
   </Currency>
   <Currency tag="loc:en-CA" type="local" symbol="$" locale="en-CA" format="$#" digits="2">
      <negative tag="parens" format="($#)" />
      <negative tag="minus" format="-$#" />
   </Currency>
   <Currency tag="loc:en-CB" type="local" symbol="$" locale="en-CB" format="$#" digits="2">
      <negative tag="minus" format="-$#" />
   </Currency>
   <Currency tag="loc:en-NZ" type="local" symbol="$" locale="en-NZ" format="$#" digits="2">
      <negative tag="minus" format="-$#" />
```

Figure 43: currencies.xml

4. Save the modified currencies.xml file.
5. In case of currencies other than USD, you may see the currency displayed as invalid symbols in printable reports exported as PDF files. To resolve this, follow instructions in support article 2097276.1 available at My Oracle Support.

7.3 (Optional) Configuring the Default Locale

It is possible to customize ORMBA Dashboards to display labels and UI elements in different languages for different locale. You can also configure a default locale for a source instance by following the procedure below.

1. Navigate to the path: `<OBIEE_HOME>/bi/bifoundation/web/display` and open the file `localemappings.xml`.
2. Edit the tag below to indicate the desired locale:
   `<when matches="*"><localeDefinition name="en-en"/></when>`

> **Note:** You can specify any definition from the file localedefinitions.xml in the directory: `<OBIEE_HOME>/bi/bifoundation/web/display`

3. Save the modified localemappings.xml file.
4. Restart OBIEE WebLogic Server.

Please note that the above procedure sets the default locale for all users in the source instance. To set a specific locale for a user, they can log on to ORMBA dashboards and select the preferred locale. Refer to section 7.11 for more details.

7.4 Importing Skins and Deploying in WebLogic

The Dashboard Component of media pack contains custom styles and skins for ORMBA dashboards. Perform the steps below to copy those custom styles and skins to respective OBIEE directory for custom files and deploy them in OBIEE WebLogic Server.

7.4.1 Deploying analyticsRes.war

1. Go to Enterprise Manager Console (`<hostname>:<port>/em`) in the presentation server and log on with administrator credentials.
2. Under Target Navigation, go to `Weblogic Domain > bi > bi_cluster`.
3. Click on the Deployments tile on the left pane.
4. Click on the lock icon and select Lock & Edit option to open a new session.
5. Under the Deployments section, select `Deployment > Deploy` option. This opens the application deployment wizard.

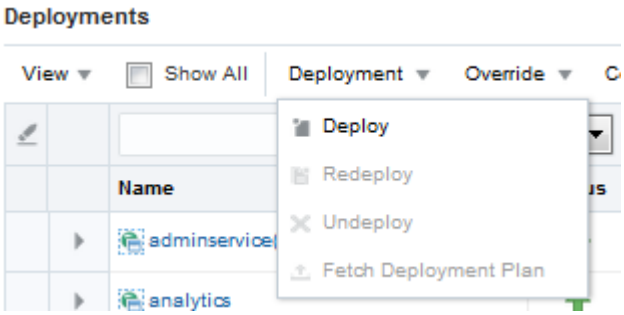

Figure 44: Deploy Option

6. Under the 'Archive or Exploded Directory' section, click Browse and select the `analyticsRes.war` file in the folder: `<TEMPDIR_DASH>/PRESENTATION_COMPONENT`.
7. Select the first option under Deployment Plan and Deployment Type sections as shown in the image below.

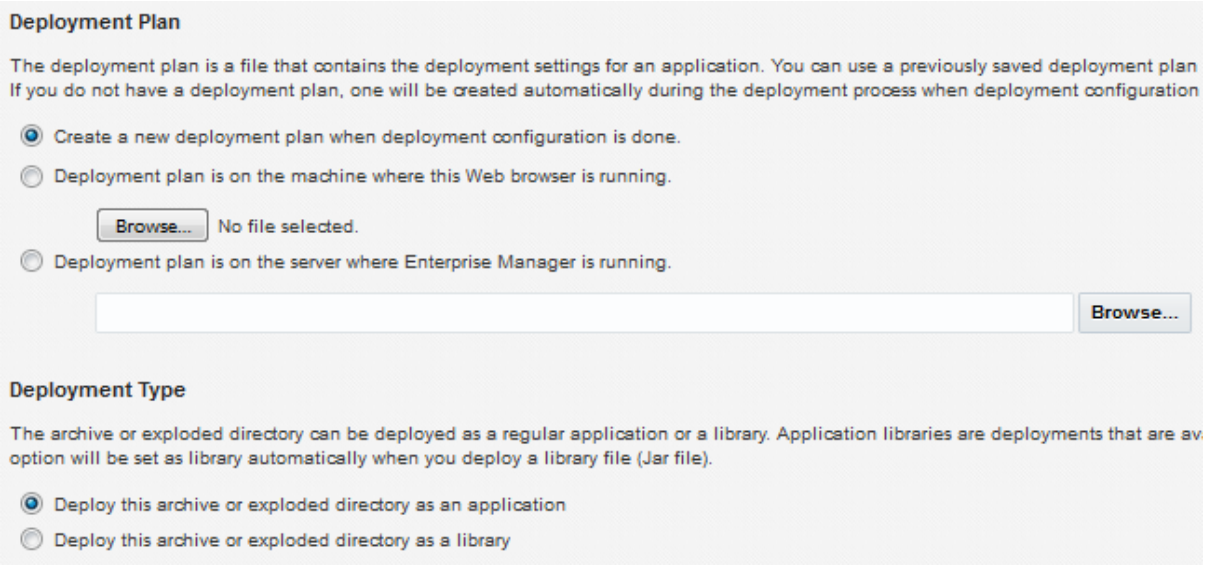

Figure 45: Deployment Plan and Deployment Type

8. Click Next.
9. Select bi_cluster and within it, select All configured Servers in this cluster option.
10. Click Next.
11. Click Next again and move to the last step of the wizard.
12. Click Deploy to deploy the application. If deployed successfully, you will see the Deployment Succeeded pop-up.
13. Click Close and close the pop-up window. This takes you to the deployments list page.
14. Click on the lock icon and select Activate Changes option so that the deployment changes are effective.
15. From the Deployments list, select `analyticsRes` and click `Control > Start > Servicing all requests` to start the application. The state of the application now changes to Active.

7.4.2 Deploying bicustom.ear

1. Navigate to <`TEMPDIR_DASH>/PRESENTATION_COMPONENT` folder and copy the file `bicustom.ear` to the following path:

   `<OBIEE_HOME>/user_projects/domains/bi/bidata/components/OBIPS`

Note: <OBIEE_HOME> is the path where FMW version 12.2.1.3.0 is installed.

2. Log on to Enterprise Manager and navigate to `Target Navigation > Weblogic Domain > bi > bi_cluster`.
3. Click on the Deployments tile.
4. Click on the lock icon and select Lock & Edit option to open a new session.
5. Under the Deployments section, select `Deployment > Deploy` option. This opens the application deployment wizard.
6. Under the 'Archive or Exploded Directory' section, select the Archive or exploded directory is on the server where Enterprise Manager is running option.
7. Enter the path:
   `<OBIEE_HOME>/user_projects/domains/bi/bidata/components/OBIPS`
   and click Browse.

8. Select bicustom.ear and click OK.
9. Click Next.
10. Select bi_cluster and within it, select All configured Servers in this cluster option.
11. Click Next.
12. Under Distribution section, select Install and start application (servicing all requests) option and under Other Options section, select:
    - Against Application Source Accessibility, select 'Make the application accessible from the source location that it will be deployed on. You must ensure that each target can reach the location.'
    - Against Deployment Plan Source Accessibility, select 'Make the deployment plan accessible from the source location that it will be deployed on. You must ensure that each target can reach the location.'
13. Click Next.
14. Click Deploy to deploy the application. If deployed successfully, you will see the Deployment Succeeded pop-up.
15. Click Close and close the pop-up window. This takes you to the deployments list page.
16. Click on the lock icon and select Activate Changes option to apply the changes to deployment settings done.

7.4.3 Updating Instance Configurations

You need to update the default skin or theme applicable for ORMBA Dashboards. To do this, follow the procedure below:

1. In the presentation server, move to the path:
   `<OBIEE_HOME>/user_projects/domains/bi/config/fmwconfig/biconfig/OBIPS`
2. Open the file instanceconfig.xml and find the <UI> tag.
3. Edit the `<DefaultSkin>` and `<DefaultStyle>` tags as shown:

```
<DefaultSkin>Theme1</DefaultSkin>
<DefaultStyle>Theme1</DefaultStyle>
```

4. Edit the `<Security>` tag to add the following:

```
<HttpOnlyCookies>false</HttpOnlyCookies>
<CookiePath>/</CookiePath>
   <ContentSecurityPolicy>
        <PolicyDirectives>
            <Directive>
                <Name>connect-src</Name>
                <Value>'self' http://servername:*</Value>
             </Directive>
         </PolicyDirectives>
   </ContentSecurityPolicy>
<EnableSavingContentWithHTML>true</EnableSavingContentWithHTML
>
```


Note: If you are using Simulation, replace servername in the <Value> tag with the name of the server where you have deployed simulation web services.

For e.g.: **<Value>'self' http://abcserver:*</Value>**

5. (Optional) If the installation is in French, edit the `<ServerInstance>` tag to add the following:

```
<Localization>
   <AllowedLanguages>fr</AllowedLanguages>
   <AllowedLocales>fr-fr</AllowedLocales>
</Localization>
```

6. (Optional) If you face the following issue in dashboards, "Exceeded configured maximum number of allowed output prompts, sections, rows, or columns", edit the `<Views>` tag to add the following:

```
<Charts>
   <MaxVisiblePages>:value:</MaxVisiblePages>
</Charts>
```

Note: Change **:value:** according to your requirement. For example, if pricelist count is 2500, then update the value to 2500.

7. Save the file.

7.5 Deploying the BAR File

1. In the presentation server, move to the path:
   `<OBIEE_HOME>/oracle_common/common/bin` in the terminal.
2. Run the shell `./wlst.sh`. This opens the WebLogic Server Administration Scripting Shell.

   Note: Check to see if you have 'Execute' privilege for wlst.sh and if not, provide the privileges.

3. Run the command below:

```
importServiceInstance('<OBIEE_HOME>/user_projects/domains/bi
','ssi','<TEMPDIR_DASH>/BAR/ssi.bar',false)
```

   Note: Replace the values for <OBIEE_HOME> and <TEMPDIR_DASH> in the above command.

4. Wait for a few minutes for the import to complete. Once done, the terminal returns to the shell with 'Successfully imported' message.
5. Enter **exit()** to quit the shell.
6. Restart OBIEE server using the stop and start shell scripts available at the path: `<OBIEE_HOME>/user_projects/domains/bi/bitools/bin`
   - Run `./stop.sh` to stop the server (if not already running), and
   - Run `./start.sh` to start the server again

7.6 Deploying the RPD File

For deploying RPD, follow the procedure below:

1. Open a terminal in the presentation server.
2. Move to the folder: `<OBIEE_HOME>/user_projects/domains/bi/bitools/bin`

3. Run the command below after replacing <adminUser> with the respective BI Administrator username:

```
sh datamodel.sh uploadrpd -I <TEMPDIR_DASH>/RPD/ORMBAv2.8.0.0.0.rpd -SI ssi -U <adminUser>
```

Note: The RPD file referred here is the one updated to change the data source, as explained in section 7.1.

4. When prompted, enter the RPD password and WebLogic Admin user's password.

Note: You can find the RPD password in the ReadMe.txt file within the RPD folder.

5. Wait for a few minutes and you will see the 'RPD upload completed successfully' message.

7.7 Importing ORMBA Home Page

1. Open a terminal in the presentation server.
2. Copy the file bieehome.htm from the folder `<TEMPDIR_DASH>/PRESENTATION_COMPONENT` to the folder: `<OBIEE_HOME>/bi/bifoundation/web/msgdb/pages/bieehome`
3. Restart OBIEE server using the stop and start shell scripts available at the path: `<OBIEE_HOME>/user_projects/domains/bi/bitools/bin`.
   - Run `./stop.sh` to stop the server (if not already running), and
   - Run `./start.sh` to start the server again.

7.8 Configuring Security

Dashboard security is implemented through Application Roles created using the Weblogic for ORMBA Dashboards. Each user is assigned an application role, based on which their access to dashboards is defined. It is also possible to configure permissions within the dashboards.

The application roles can be either pre-defined or custom.

You need to create the pre-defined roles in WebLogic. Once the roles are created, you need to create users and map them to the required application roles. To know more about this, see ORMBA Security Guide.

In addition to the pre-defined roles, you can also create custom roles. To know more about creating custom roles, follow the instructions in ORMBA Admin Guide.

7.9 Enabling ORMBA Login Page

By default, OBIEE invokes its SSO page as the login page. To enable ORMBA Login page, you have to disable OBIEE's SSO page by following the instructions in the article below:

https://docs.oracle.com/middleware/12213/biee/BIESC/GUID-FA0DFEC2-B39C-45DD-9870-0CEB04BDFC71.htm#BIESC506

7.10 Applying Licenses

ORMBA Dashboards are available as five software licenses and purchase of each license entitles access to a specific set of dashboards. On logging in to the dashboards, you should apply the license key(s) for the product(s) you purchased to ensure access to the respective dashboards.

For detailed instructions on how to apply the license key(s), follow the instructions in ORMBA Admin Guide.

7.11 (Optional) Selecting Locale

You can customize ORMBA Dashboards to display labels and UI elements in different languages for a selected user. To set the locale for a user in ORMBA, follow the procedure below:

1. Log on to ORMBA and click on My Account.
2. Under Preferences tab, select the preferred location in the Locale (location) field. By default, the field would display **Default – English – United States**.
3. When you change the locale, the language automatically changes in the User Interface Language field.
4. Click OK and log out.
5. Log back in to see ORMBA dashboards in the selected language.

> **Note:** For more information, refer to OBIEE documentation here:
>
> https://docs.oracle.com/middleware/1221/biee/BIESG/deploylocal.htm#BIESG2043

7.12 (Optional) Applying OPatch

While accessing ORMBA printable reports, if you encounter an error “ORA-01792: maximum number of columns in a table or view is 1000” and your database version is 12.1.0.2.0, download and install OPatch 19509982 in the database server.

8. ORMBA Modeling Configuration

If you have purchased license for Relationship Manager's Workbench or Product Manager's Workbench, you need to perform the following additional tasks:

- Configuring Data Source
- Deploying Modeling Service
- Setting Modeling Parameters
- Updating Weblogic Credential Map

8.1 Configuring Data Source

To configure the data source, follow the procedure below:

Note: Before proceeding with the procedure below, check if you have 'Execute' privileges for **configureDS.sh** script.

1. Open `datasource.properties` in the `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/config/datasource` folder.
2. Edit the `datasource.properties` file with the below parameters:

```
admin.url=<Weblogic console URL> Eg: t3://localhost:9500
admin.userName=<weblogic Admin user in application server>
admin.password=<weblogic Password>
datasource.name=<Any name for the new datasource> Eg: ORMBA_DWADM_Connection
datasource.target=<Weblogic server on which Modeling EAR is to be deployed> Eg: bi_server1
datasource.jndiname=ormba-DWADMDS
datasource.url=<Database url> Eg: jdbc:oracle:thin:@server:port/servicename
datasource.username=DWADM
datasource.password=Password for DWADM
```

Note: While mentioning the Weblogic console URL, provide the non-SSL port.

3. Execute configureDS.sh in your application server with `<WLS_HOME>/server/bin` as argument, where `<WLS_HOME>` is `<FMW_HOME>/wlserver`.
4. After successful execution of the script, edit the following attributes within the same datasource.properties file:

```
datasource.name=<Any name for the new datasource> Eg: ORMBA_MODELADM_Connection
datasource.jndiname=ormba-MODELADMDS
datasource.url=<Database url> Eg: jdbc:oracle:thin:@server:port/servicename
datasource.username=MODELADM
datasource.password=<Password for MODELADM>
```


5. Execute configureDS.sh in your application server with `<FMW_HOME>/wlserver/server/bin` as argument.
6. If you want to deploy Apply Back service, edit the following attributes within the same `datasource.properties` file:

```
datasource.name=<Any name for the new datasource> Eg: ORMBA_RMB1REP_Connection
datasource.jndiname=jdbc/ormba-RMB1REPDS
datasource.url=<Database url> Eg: jdbc:oracle:thin:@server:port/servicename
datasource.username=RMB1REP
datasource.password=<Password for RMB1REP>
```

7. Execute configureDS.sh in your application server with `<FMW_HOME>/wlserver/server/bin` as argument.

Note: By default, the Maximum Capacity of Connection Pool is set to **15** for the newly created datasource. You can update this property to a desired value in WebLogic Server Administration console, based on the number of users expected to access the system.

8.2 Deploying Modeling Service

For deploying the modeling service, follow the procedure below:

Note: Before proceeding with the procedure below, ensure that you have 'Execute' privileges for deploy.sh script.

1. Open the `deploy_configuration.properties` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/service` folder and edit the attributes as shown below:

```
domain.name=bi
admin.url=<Weblogic console URL> Eg: t3://localhost:9500
admin.userName=<weblogic UserName>
admin.password=<weblogic Password>
target.server=<Weblogic server or cluster on which Modeling EAR is to be deployed> Eg: bi_server1
file.location=.
file.name=ORMBA-Modelling.ear
application.name=ORMBA-Modelling
```

Note: While mentioning the Weblogic console URL, provide the non-SSL port.

2. Go to the folder `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/service` and execute the shell `deploy.sh` with `<FMW_HOME>/wlserver/server/bin` as argument.

Note: If you are installing ORMBA in French, follow the above procedure by navigating to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web/service-french` folder instead.

8.3 Setting Modeling Parameters

To enable Modeling (Simulation) feature, you must alter the default global settings in Admin Tool.

1. Log on to Admin tool as a user with either GlobalSettingRole or ORMBA_AdminRole role.
2. Navigate to the Global Settings page.
3. Edit the value of parameter 'End point of simulation webservice'. Webservice endpoint URL format is `https://<server>:<port>/ormbas/resources` where `<server>` is the server on which the modeling service was deployed and <port> is the SSL port. For more information, see Configuring Data Source.
4. If you are using ORMB pricing services for simulation, perform the following tasks:
   - Navigate to Global Settings page and edit the value of parameter 'Invoke external webservice for pricing' and change it to '**Y**'.
   - Navigate to the Source Instance page and edit the value of parameter 'ORMB webservice end point'. Webservice endpoint URL format is `https://<server>:<port>/ouaf` where `<server>` is the server on which ORMB application is deployed.

8.4 Updating Weblogic Credential Map

To update Weblogic Credential Map with ORMB login details, follow the procedure below:

1. Navigate to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Web` folder.
2. Open the credential_map.properties file and edit the following attributes:

   ```
   weblogic.admin.url=<Weblogic connection url> E.g. t3://localhost:9500
   weblogic.admin.userName=<Weblogic Admin Username> E.g. weblogic
   ormb.username=<ORMB Application Username> E.g. sysuser
   ```

3. Save the `credential_map.properties` file.
4. Execute the shell `create_credential_map.sh` with `<FMW_HOME>/wlserver/` as argument.

> **Note:** While executing the shell, you will see prompts like "Enter the Weblogic Admin Password" and "Enter the ORMB User Password", to which you can provide the Weblogic password and password for the ORMB User respectively.

9. (Optional) ORMBA Spatial Configuration

Configuring ORMBA Spatial Analysis includes the following tasks:

- Installing Spatial Metadata Schema
- Importing Spatial Metadata

9.1 Installing Spatial Metadata Schema

If you have opted for spatial view, you need to install one more Schema - **MAPADM**.

To install MAPADM schema, follow the procedure below:

1. Log on to the container database (CDB) in the target database server as SYS user using SQL*Plus.
2. Execute `CreateSpatialMetadata.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MAPADM/SCRIPTS` folder.
3. Create a local directory MAPDIR and copy the dump file '`MAPADM.dmp`' from `<TEMPDIR_DASH>/MAPADM` folder.
4. Open the `MAPADM_Grants.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MAPADM` and replace `<MAPDIR path>` with the `MAPDIR` path.
5. Log on to the target database server as SYS (pluggable) user using SQL *Plus.
6. Navigate to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MAPADM` folder and execute the `MAPADM_Grants.sql` file.
7. Navigate to `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MAPADM/SCRIPTS` folder and execute the `Import_MAPADM.sql` file.
8. Connect to the database using any SQL client (such as SQL*Plus) with MAPADM credentials.
9. Open the `InstallMAPADM.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MAPADM` and edit the release path in the following code snippet:

   ```
   define RELEASE_PATH=path upto <TEMPDIR>/ORMBA-V2.8.0.0.0-Database
   ```

10. Execute InstallMAPADM.sql.
11. In case of errors, log on as `MAPADM` user and clean up the schema using the cleanup script `CleanUpMAPADM.sql` file in `<TEMPDIR>/ORMBA-V2.8.0.0.0-Database/MAPADM` directory. After fixing the issue, re-run the `InstallMAPADM.sql` script.

9.2 Importing Spatial Metadata

To import spatial metadata, follow the procedure below:

1. Open the file mapViewerConfig.xml in `<TEMPDIR_DASH>/MAPVIEWER` and replace the below variables with appropriate values:

   ```
   <host> = name of the database server where MAPADM user resides
   <sid> = SID of the database server where MAPADM user resides
   ```

```
<port> = port of the database server where MAPADM user resides
<password> = password of the MAPADM user prefixed with !
```

2. Copy the edited mapViewerConfig.xml file to the folder:

```
<OBIEE_HOME>/user_projects/domains/<domainname>/config/fmwconfig/mapviewer/conf
```

3. Log on to the OBIEE Mapviewer Console (`<hostname>:<port>/mapviewer`) using Administrator credentials.
4. Navigate to the Configuration menu and click Restart to refresh the map viewer configuration.
5. Log on to OBIEE Dashboard using Administrator credentials.
6. Navigate to `Administration > Manage Map Data` page and click on the Import Layers button ( ). This opens the Import Layers pop up window.

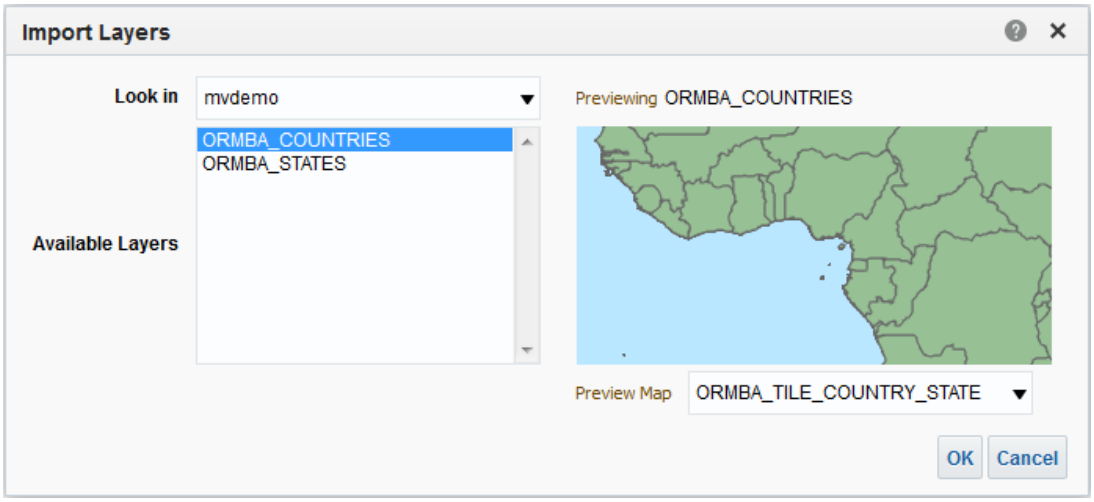

Figure 46: Import Layers

7. Select ORMBA_COUNTRIES and click OK. This takes you back to the Manage Map Data page.
8. Click on Import Layers button and select ORMBA_STATES. Click OK.
9. Select ORMBA_STATES layer, and click the Edit Layers button ( ) to open the Edit Layer popup window.

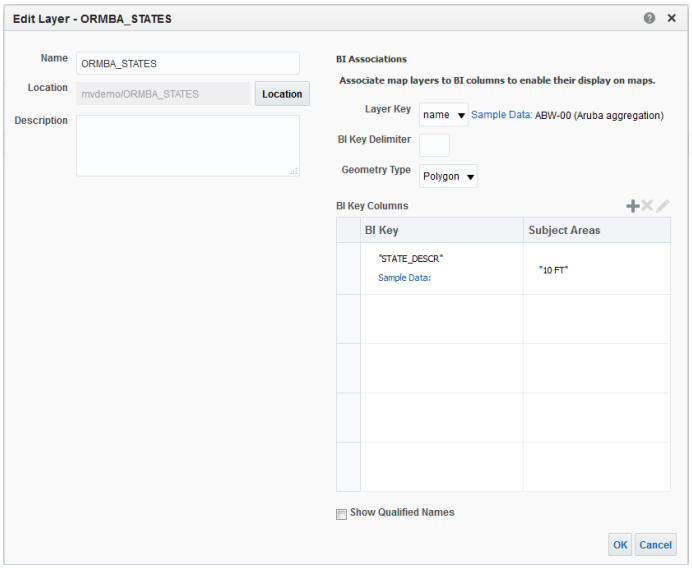

Figure 47: Edit Layer

10. Click on the Add button (+). This opens the Select Subject Area popup.
11. In the popup, select Financial Transactions. This opens the Select BI Key Columns popup.
12. Select Invoice `Customer > STATE_DESCR` on the left pane and click › button to move the item to the right pane.

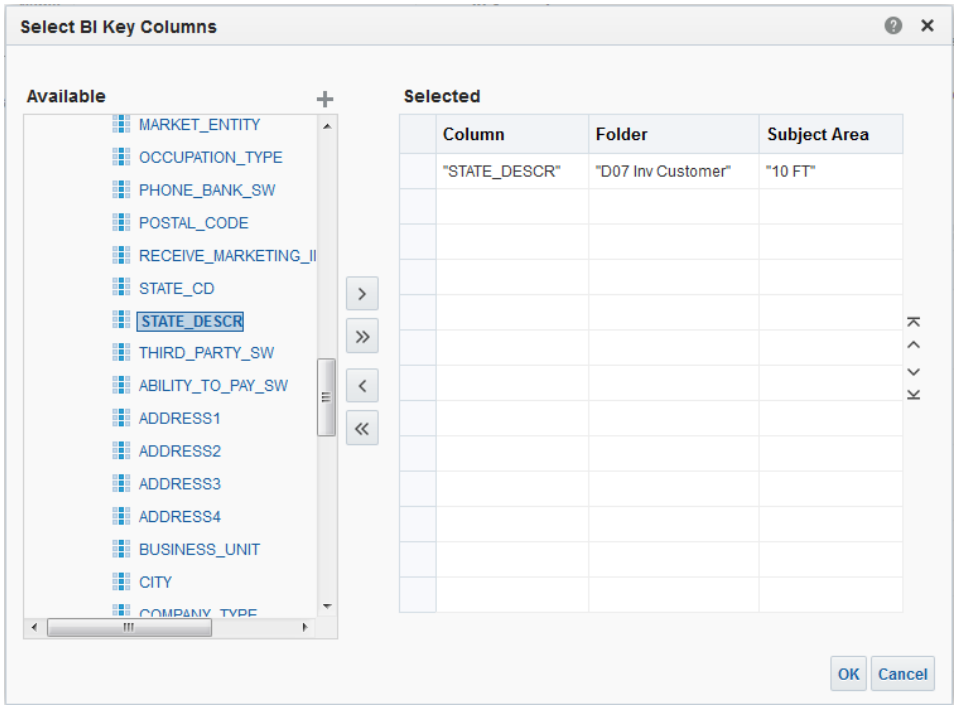

Figure 48: Select BI Key Columns

13. Click OK. This takes you back to Edit Layer popup.
14. Click OK. This takes you back to the Manage Map Data page.

Repeat steps 9 to 14 for ORMBA_COUNTRIES layer also. While editing the ORMBA_COUNTRIES layer in step 12, in Financial Transactions subject area, select the column `Invoice Customer > GEO_CODE` and move it to the right pane.

15. Navigate to the Background Maps tab and click on the Import Background Maps button (). This opens the Import Background Maps popup.

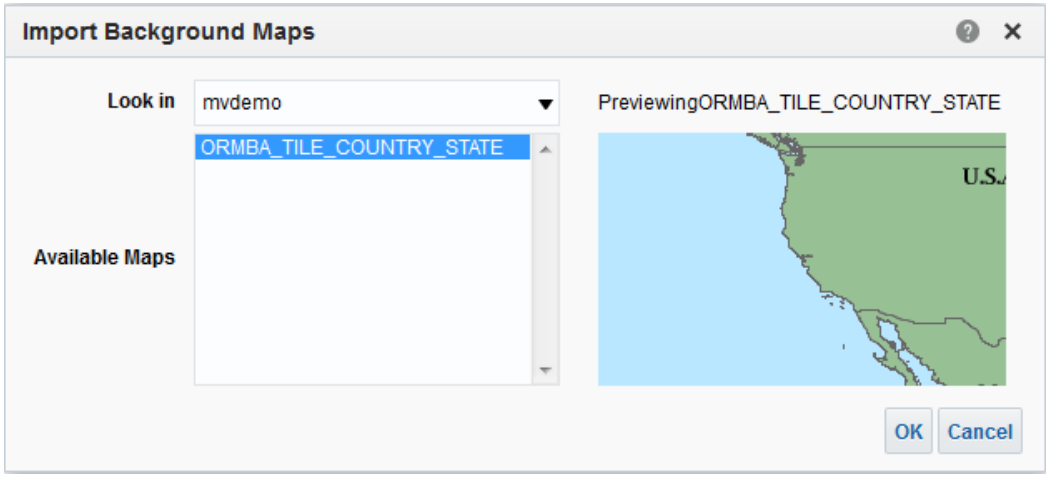

Figure 49: Import Background Maps

16. Click OK. This takes you back to Background Maps tab of Manage Map Data page.
17. Click the Edit Background Map button ( ). This opens the Edit Background Map popup.

18. Click the Add Layers button ( ) and select both ORMBA_COUNTRIES and ORMBA_STATES layers.
19. To define the zoom levels applicable for each layer, select the respective boxes. For example, the image below indicates that the zoom levels 0, 1, 2 are available for ORMBA_COUNTRIES layer, whereas zoom levels 3, 4, 5, 6, 7 are available for ORMBA_STATES layer.

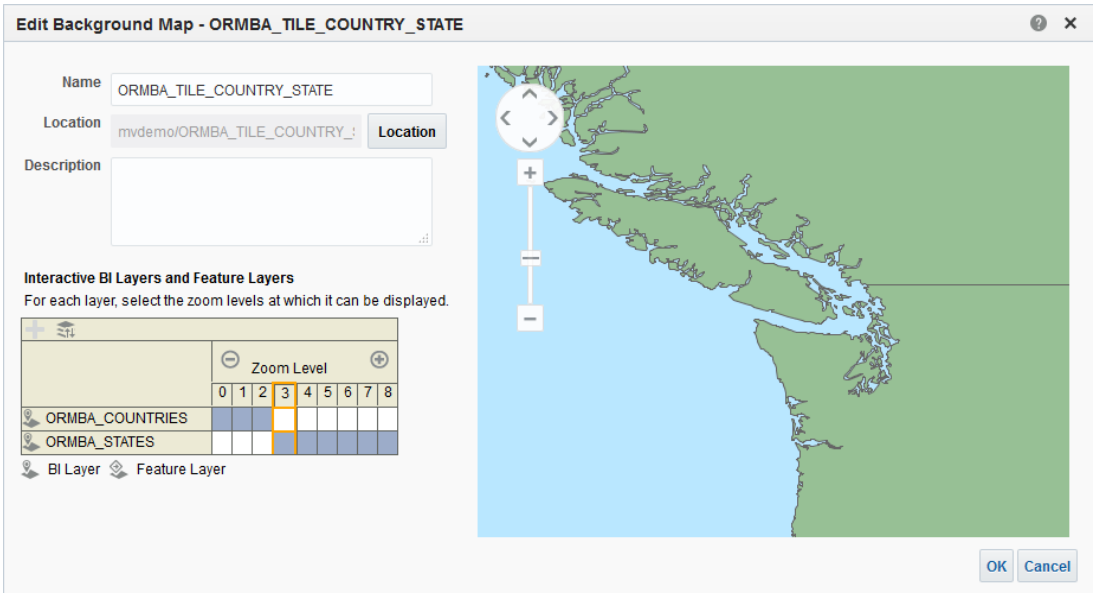

Figure 50: Edit Background Map

20. Click OK. This takes you back to the Manage Map Data page.
21. Navigate to the Images tab and click on the Import Images button ( ).
22. In the Import Images popup, select all available images and click OK.

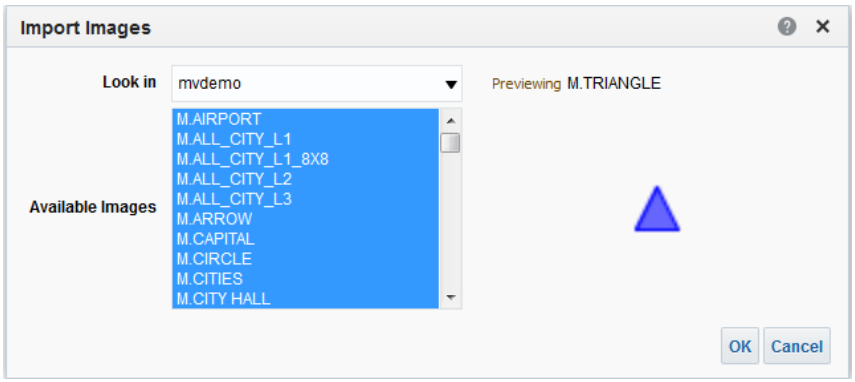

Figure 51: Import Images

