Oracle® Revenue Management and Billing Analytics

Version 2.2.0.0.0

Installation Guide

Revision 1.0

E53516-03
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ORACLE

Oracle Revenue Management and Billing Analytics Installation Guide

E53516-03

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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	Installation Overview	Details the media pack contents, supported platforms and installation planning of ORMBA
Section 3	Database Component Installation	Details the installation process of Database Component
Section 4	ETL Component Installation	Details the installation process of ETL Component
Section 5	Admin Tool Component Installation	Details the installation process of Admin Tool Component
Section 6	Dashboard Component Installation	Details the installation process of Dashboard Component
Section 7	Modeling Configuration	Details the configuration of Modeling Component

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
1.0	June 2016	All	Installation procedure for ORMBA version 2.2

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.
- **Oracle Revenue Management and Billing Dashboards**: It provides out-of-the-box reports based on Oracle Business Intelligence Enterprise Edition (OBIEE).

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:

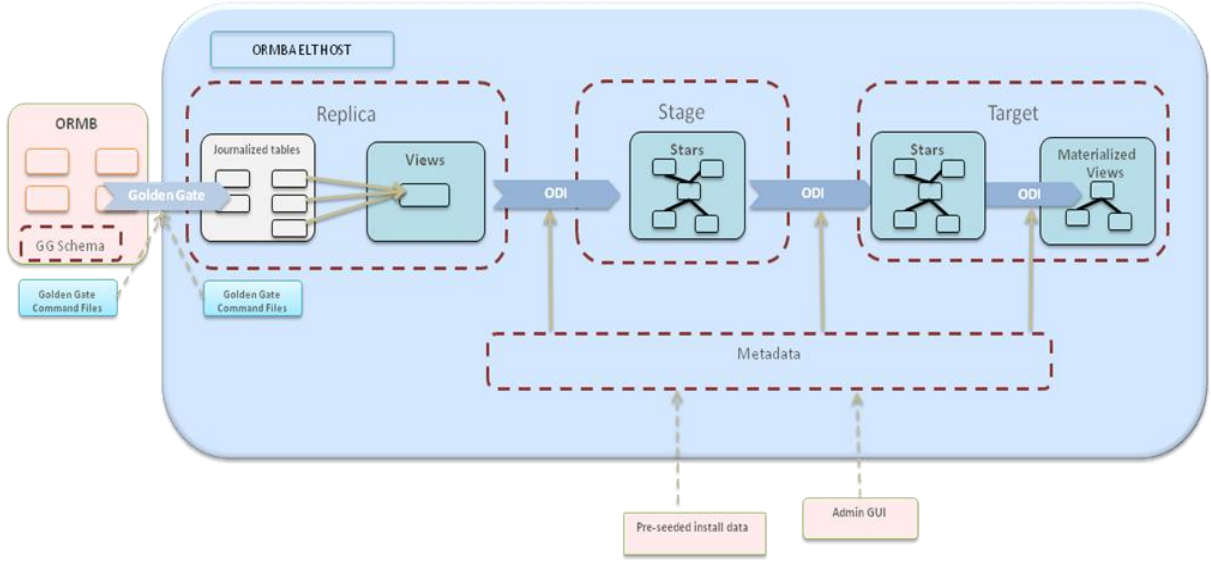


Figure 1: Logical Architecture

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

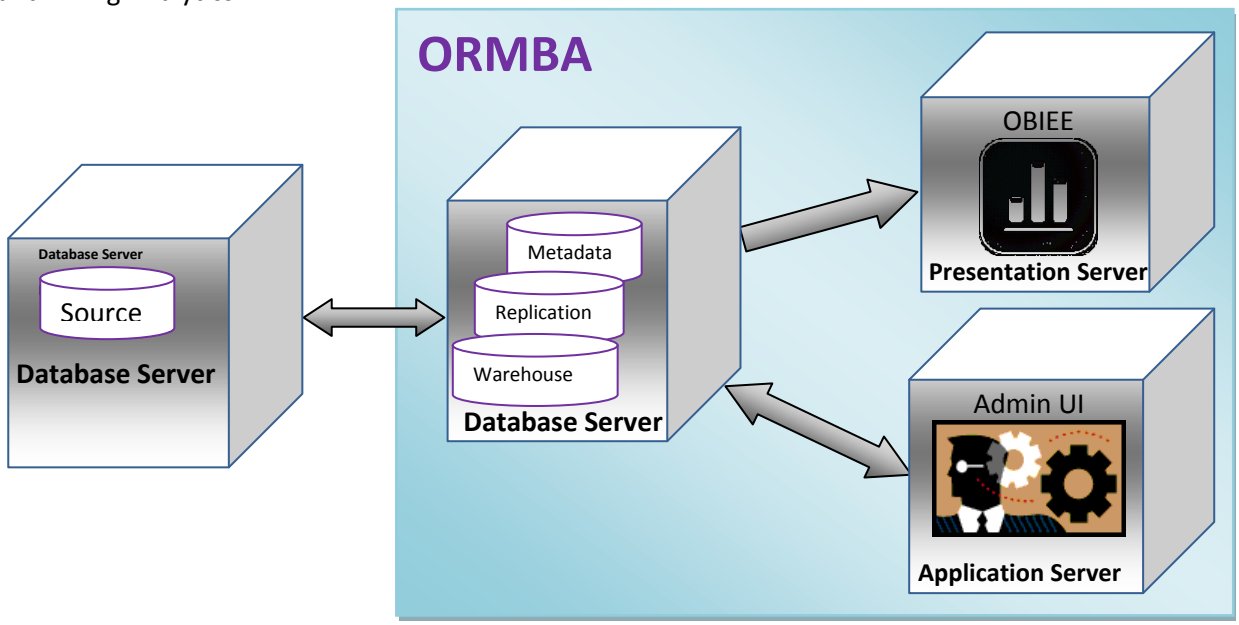


Figure 2: Physical Architecture

Note: We recommend a physical architecture as pointed out in the above image. However, it is not mandatory to have Admin UI on a separate server. Instead, you can have OBIEE and Admin UI on the same server.

2. Installation Overview

This section provides an overview of Oracle Revenue Management and Billing Analytics installation and includes the following topics:

- Supported Platforms
- ORMBA Media Pack
- Installation Planning

2.1 Supported Platforms

2.1.1 Source System Requirements

ORMBA currently supports the following versions of ORMB Source System:

- Oracle Revenue Management and Billing Version 2.5.0.1.0
- Oracle Revenue Management and Billing Version 2.4.0.0.0

The source system database is Oracle Database version **12.1.0.2.0**, installed in non-PDB mode (single-tenant).

2.1.2 Target System Requirements

Operating System: Oracle Linux 6.4 (64-bit) x86 -64

Database: Oracle Database Server Enterprise Edition 12.1.0.2.0 (with partitioning)

Note: Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0 is supported on Oracle Unbreakable Enterprise Kernel. Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0 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.

2.1.3 Software List

Software	Version
Oracle Fusion Middleware Infrastructure	12.1.3.0.0
Oracle Data Integrator	12.1.3.0.0
Oracle GoldenGate	12.1.2.1.0
Oracle GoldenGate Management Pack (Optional)	12.1.3.0.0
Java Development Kit	1.7.0_71
Oracle Business Intelligence Enterprise Edition	12.2.1.0.0

2.1.4 Administration UI

Administration UI runs on these browsers:

- Internet Explorer 10.x
- Firefox 38+
- Chrome 15+

2.1.5 Dashboards & Reports

ORMBA dashboards and reports run on these browsers:

- Firefox 46+
- Internet Explorer 11

2.1.6 Mobile Application

ORMBA mobile application runs on the following operating systems:

- Android Lollipop
- iOS 8.3+

2.2 ORMBA Media Pack

The Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0 media packs are available for both Banking and Insurance domains, and both contain the following packages:

- Oracle Revenue Management and Billing Analytics V2.2.0.0.0 Release Notes
- Oracle Revenue Management and Billing Analytics V2.2.0.0.0 Database Component
- Oracle Revenue Management and Billing Analytics V2.2.0.0.0 ETL Component
- Oracle Revenue Management and Billing Analytics V2.2.0.0.0 Dashboard Component
- Oracle Revenue Management and Billing Analytics V2.2.0.0.0 Web Component

2.2.1 Downloading the Media Pack

You can download the Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0 media pack from the Oracle Software Delivery Cloud.

Follow the procedure below to download the media pack:

1. Log on to Oracle Software Delivery Cloud. The Export Restrictions page appears.
2. Click **Accept**. The Search Software page appears.
3. Select **Oracle Financial Services Revenue Management and Billing Analytics** or **Oracle Insurance Revenue Management and Billing Analytics** option from the Product list.
4. Click the **Select Platform** button and select **Linux x86-64**. You can see the product is listed in the Selected Products section.
5. Click **Continue**. The available releases for the selected product are listed.
6. The check box corresponding to 2.2.0.0.0 version of the selected product for Linux x86-64 will be selected automatically.
7. Click **Continue**. The Oracle Standard Terms and Restrictions page appears.
8. Select the **I have reviewed and accept the terms of the Commercial License, Special Programs License, and/or Trial License** check box.
9. Click **Continue**. The contents of the media pack are listed.
10. To download each component, click the corresponding zip file. The File Download dialog box appears.
11. Click **Save**. The Save As dialog box appears.
12. Browse to the location where you want to download the package and then click **Save**.

Note: Save each component to the respective servers (as shown in the table below) depending on the physical architecture you are following, as part of installation.

Media Pack Component	Download to server:
ORMBA-V2.2.0.0.0-Database	Database server
ORMBA-V2.2.0.0.0-ETL	Database server
ORMBA-V2.2.0.0.0-Dashboards	Presentation server
ORMBA-V2.2.0.0.0-Web	Application server

13. Create a temporary directory named **TEMPDIR** on the server where you are going to install the component. After successful installation, you can delete the files placed in this directory.
14. Copy the downloaded component zip files to the respective **TEMPDIR** directories.
15. Unzip each component package within the TEMPDIR folder.

2.3 Installation Planning

This section lists the prerequisite software required for installing Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0 components. It also provides a checklist which helps you while installing Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0.

2.3.1 Prerequisite Software List

Before you install Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0, you need to download and install the following prerequisite software products. The following table lists the prerequisites for each component:

Component	Prerequisite	Version	Download
ORMBA Database	Oracle Database Enterprise Edition (with partitioning)	12.1.0.2.0	V46095-01_1of2.zip and V46095-01_2of2.zip from Oracle Software Delivery Cloud
ORMBA ETL	Java Development Kit	1.7 Update 71	jdk-7u71-linux-x64.tar.gz from Oracle Technology Network
	Oracle Database Enterprise Edition (with partitioning)	12.1.0.2.0	V46095-01_1of2.zip and V46095-01_2of2.zip from Oracle Software Delivery Cloud
	Oracle Fusion Middleware	12.1.3.0.0	Fusion Middleware
	Oracle Data Integrator	12.1.3.0.0	V44425-01.zip from Oracle Software Delivery Cloud
	Oracle GoldenGate	12.1.2.1.0	V46695-01.zip from Oracle Software Delivery Cloud
	(Optional) Oracle GoldenGate Management Pack	12.1.3.0.0	V44427-01.zip from Oracle Software Delivery Cloud

Component	Prerequisite	Version	Download
ORMBA Dashboard	Oracle Business Intelligence Enterprise Edition	12.2.1.0.0	File 1 and 2 for Linux x86-64-bit from Oracle Technology Network Patch 22140759 from My Oracle Support
	OBIEE Client		Setup_BI_Client_12.2.1.0.0_Windows.X64.zip from Oracle Technology Network
ORMBA Web	Oracle Fusion Middleware	12.1.3.0.0	Fusion Middleware

Note: You would need prior experience in installation processes for handling the installation of the above-mentioned prerequisite software.

2.3.2 Preparing for Installation

As part of preparing your system for ORMBA installation, perform the following tasks:

1. Download and install all software mentioned in the Prerequisite Software List section.
2. While installing Oracle Database, ensure that you create a pluggable database exclusively for ORMBA.

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

3. After installing each software component, verify if it is working as expected.
4. Download the ORMBA media pack as explained in section 2.2.1.
5. Enable 'Supplemental Logging', 'Force Logging Mode', and 'Archive Log Mode' on Source database.
6. Set the following database parameters on the Target pluggable database:
   - DEFERRED_SEGMENT_CREATION=**TRUE**
   - _PARTITION_LARGE_EXTENTS=**FALSE**
   - RECYCLEBIN=**OFF**

   Note: You need to set the parameter _PARTITION_LARGE_EXTENTS to FALSE only if you have space constraints.
7. Ensure that the primary key constraint is specified in all source system database tables.
8. Decide the date from which you want to import data from the source system. It is advisable to configure this as less than a year to avoid import of huge amount of data. You can configure this in step 2 of section 3.3 and while configuring ORMBA initial settings in section 5.4.
9. Set the environment variables as explained in section 2.3.2.1.
10. If you are using Network Link as the Data Transfer Mode (as explained in section 2.3.2.2), 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".
11. Verify database parameters and create database directory as explained in section 2.3.2.4.
12. Go through the pre-installation checklist mentioned in section 2.3.2.5.

2.3.2.1 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 – location where Oracle Fusion Middleware is installed
- ODI_SDK – <FMW_HOME>/odi/sdk

2.3.2.2 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 installation of ETL component, 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 4.4 of this document.

2.3.2.3 Deciding GoldenGate Execution Mode

You can execute GoldenGate in either ONLINE or OFFLINE mode. In ONLINE mode, the configuration scripts are automatically copied to source and target machines, whereas in OFFLINE mode, you need to do this manually.

- To run GoldenGate in ONLINE mode, you need to:
    - Install Oracle GoldenGate Management Pack in both source and target machines and the jAgent should be up and running.
    - Edit the ormba.properties file to include ormba.replication.gg.mode.online = **TRUE** as explained in section 4.4.
    - Execute the script **createGoldenGateTopology.sh** as explained in section 4.5.3.
- To run GoldenGate in OFFLINE mode, you need to:
    - Edit the ormba.properties file to include ormba.replication.gg.mode.online = **FALSE** as explained in section 4.4.
    - Skip the execution of **createGoldenGateTopology.sh** as explained in section 4.5.3.
    - After executing the importData.sh, check the GG script path and follow the manual instructions in readme.txt file available within each model folder, which involves manually copying the generated GoldenGate scripts to both source and target machines.

2.3.2.4 Verifying Database Parameters

You need to verify the following database parameters before going ahead with the installation:

- **ENABLE_GOLDENGATE_REPLICATION**

Check and see if the ENABLE_GOLDENGATE_REPLICATION parameter is set in both source and target databases. If not set, you can do it using the following statement:

ALTER SYSTEM SET ENABLE_GOLDENGATE_REPLICATION = TRUE SCOPE=BOTH;

- **ORMBA_DIR**

Check and see if the ORMBA_DIR directory is available in the target database. If not, log on to the database as SYS user and create it using the following statement:

CREATE DIRECTORY ORMBA_DIR AS <PATH>;

Note: If the data transfer mode of initial load is FTP, you need to create ORMBA_DIR in your source database also. If the target database is multi-tenant, you need to create ORMBA_DIR in the pluggable database.

2.3.2.5 Pre-Installation Checklist

Prior to ORMBA installation, we strongly recommend you to go through the following checklist and ensure that you are installation-ready. If any of the checks fail, please fix this before proceeding with the installation.

Check	Yes	No
1. Have you installed Oracle database 12.1.0.2.0 with a pluggable database exclusively for ORMBA?		
2. Are you able to connect to CDB and PDB in target database via SQL *Plus?		
3. Are you able to connect to source database via SQL *Plus?		
4. Have you installed Oracle Fusion Middleware framework on the target machine?		
5. (Optional) Have you installed Oracle Fusion Middleware framework on the source machine? **Note:** This check is applicable only if you plan to run GoldenGate in ONLINE mode.		
6. Have you installed ODI in the application server?		
7. Have you installed GoldenGate on both source and target database servers?		
8. Is GoldenGate Manager up and running on both source and target database servers?		
9. (Optional) Is JAgent configured correctly and is running on the target server? **Note:** This check is applicable only if you plan to run GoldenGate in		

Check	Yes	No
ONLINE mode.		
10. (Optional) Is JAgent up and running on the source server? **Note:** This check is applicable only if you plan to run GoldenGate in ONLINE mode.		
11. Have you downloaded RCU for OBIEE?		
12. Have you installed OBIEE in presentation server?		
13. Have you installed OBIEE Client in your local Windows machine?		
14. Have you configured environment variables?		
15. Have you created ORMBA_DIR directory?		
16. Have you downloaded the media pack from Oracle Software Delivery Cloud?		

3. Installing ORMBA Database Component

This section explains how to install the database component of Oracle Revenue Management and Billing Analytics Version 2.2.0.0.0. This section includes the following topics:

Note: Before proceeding with ORMBA installation, we strongly recommend you to ensure that all prerequisite software are installed successfully. You can refer the pre-installation checklist for verification.

3.1 Creating Repositories for FMW, ODI, and OGG Monitor

You need to create metadata schemas in target database server for Oracle Fusion Middleware, Oracle Data Integrator, and Oracle GoldenGate Monitor (optional) using the Repository Creation utility. Before you proceed with the steps, ensure that Oracle Fusion Middleware Infrastructure is successfully installed on the application server.

To create repositories, 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 following command:

   ./rcu

   The Repository Creation Utility – Welcome page appears.
3. Click **Next**. The Create Repository page appears.
4. Perform the following in the Create Repository page:
   - Select the **Create Repository** option, if not already selected.
   - Select the **System Load and Product Load** option.
5. Click **Next**. The Database Connection Details page appears.
6. Enter the required details in the Database Connection Details page:

Field	Value
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

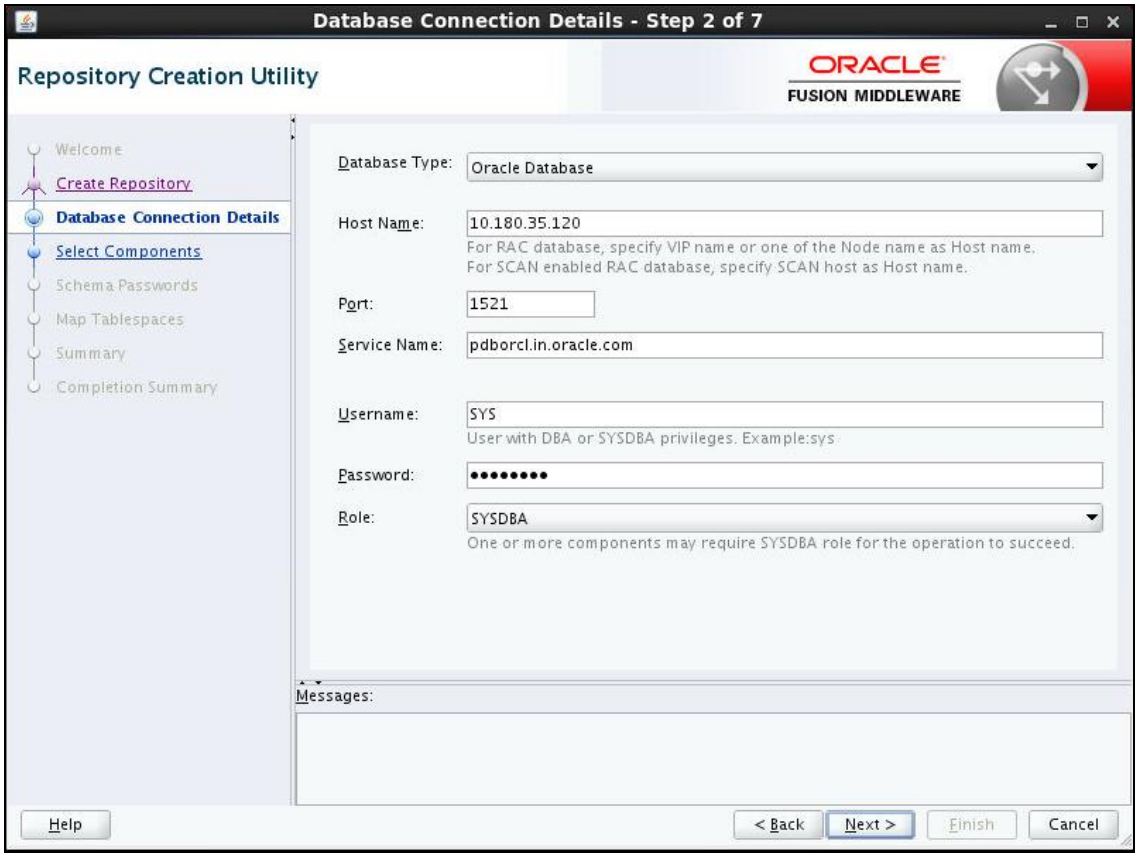


Figure 3: Database Connection Details Page

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

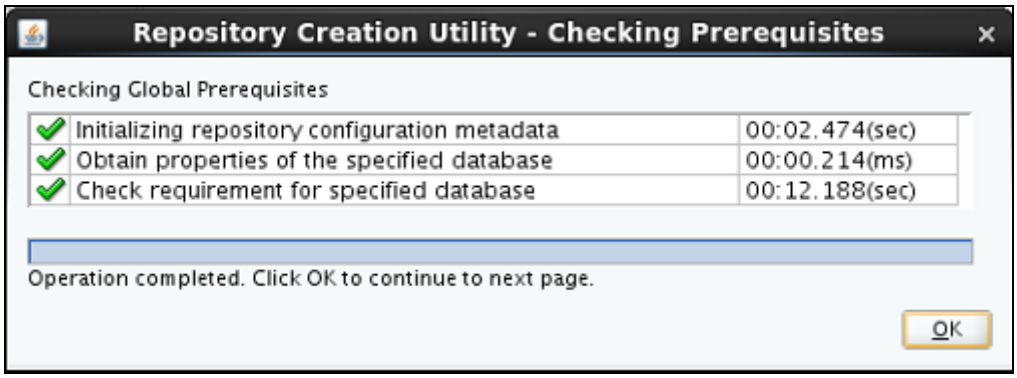


Figure 4: Checking Global Prerequisites

- 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.

8. 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.
- (Optional) Select **Oracle GoldenGate** option. This selects the **Monitor Server** option automatically. **Note:** Perform this step only if you are using Oracle GoldenGate in ONLINE mode.

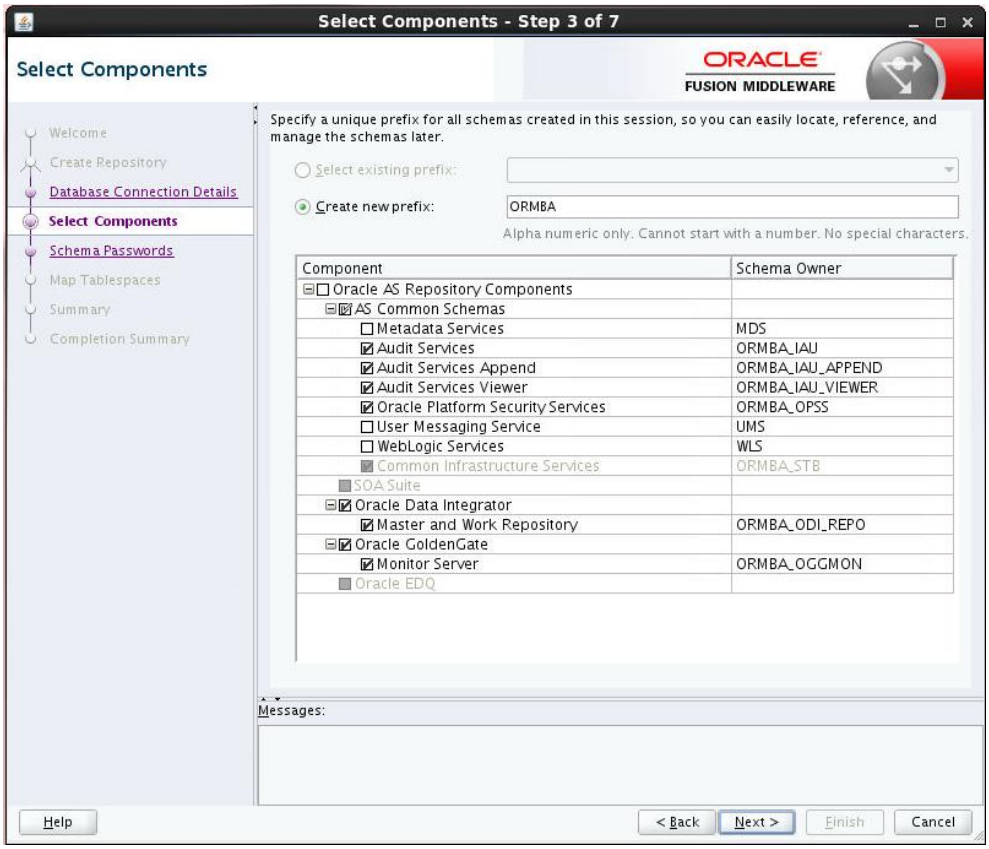


Figure 5: Select Components Page

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

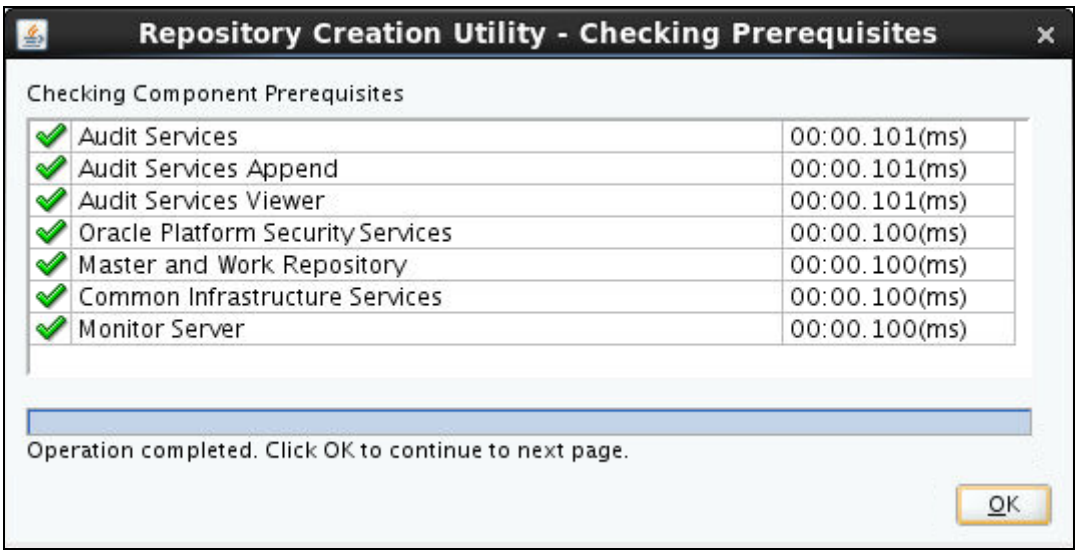


Figure 6: Checking Component Prerequisites

- 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.

11. 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**.
    - Enter required password in the **Password** and **Confirm Password** fields.

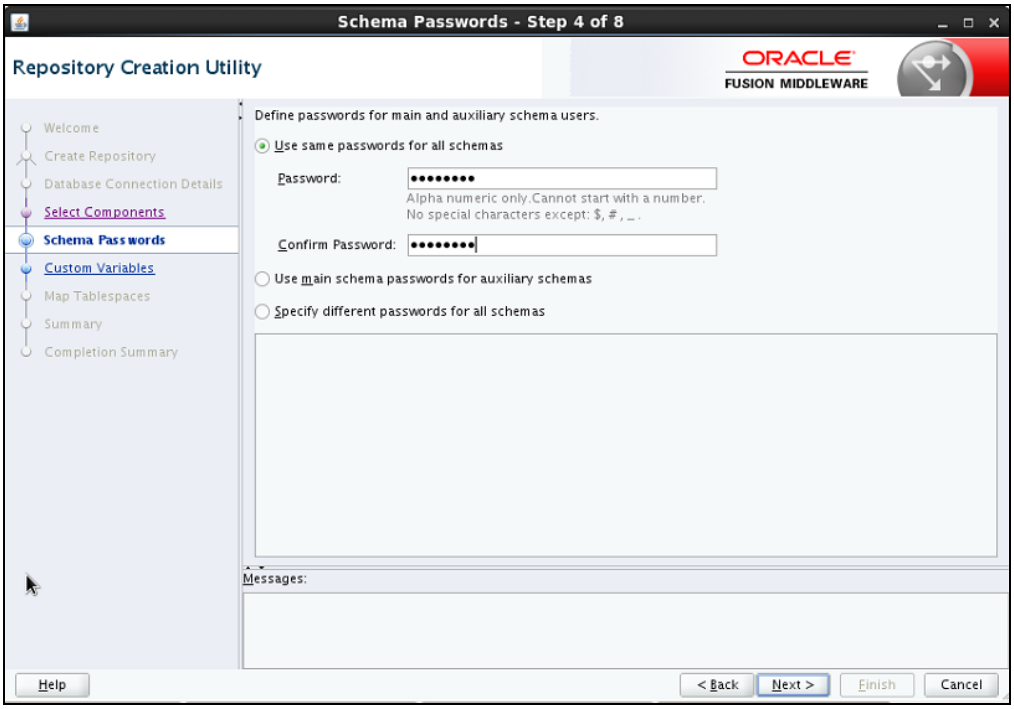


Figure 7: Schema Passwords Page

12. 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.
13. 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)

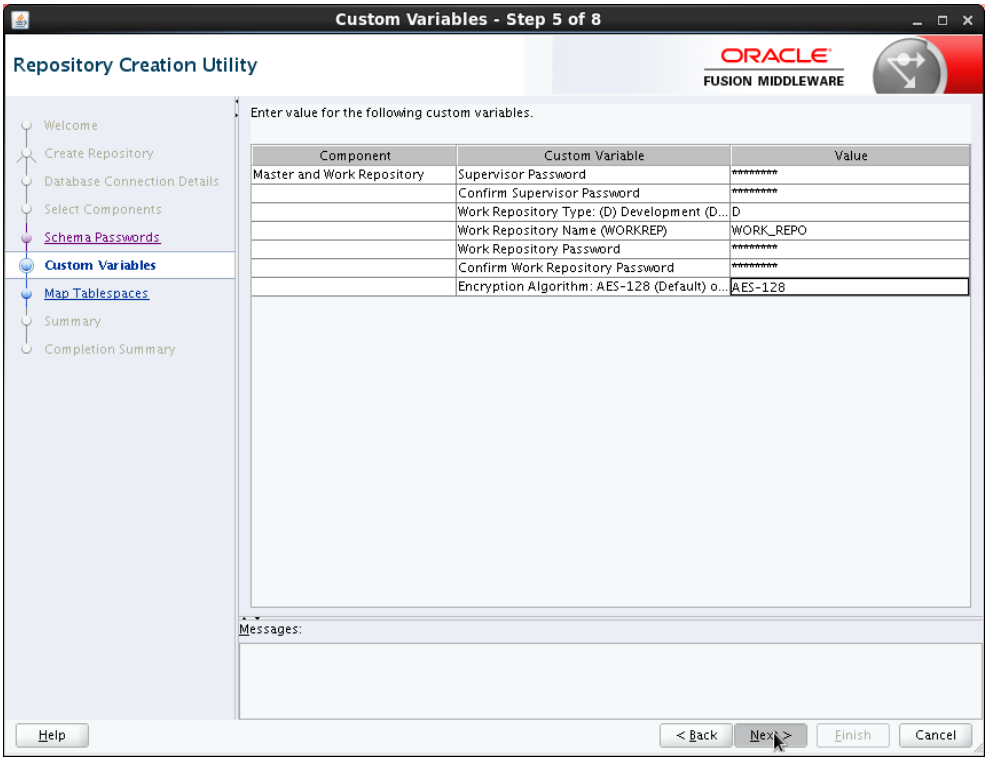


Figure 8: Custom Variables Page

14. 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.
15. Review the **Default Tablespace** and **Temp Tablespace** fields for each component and if needed, edit the values.

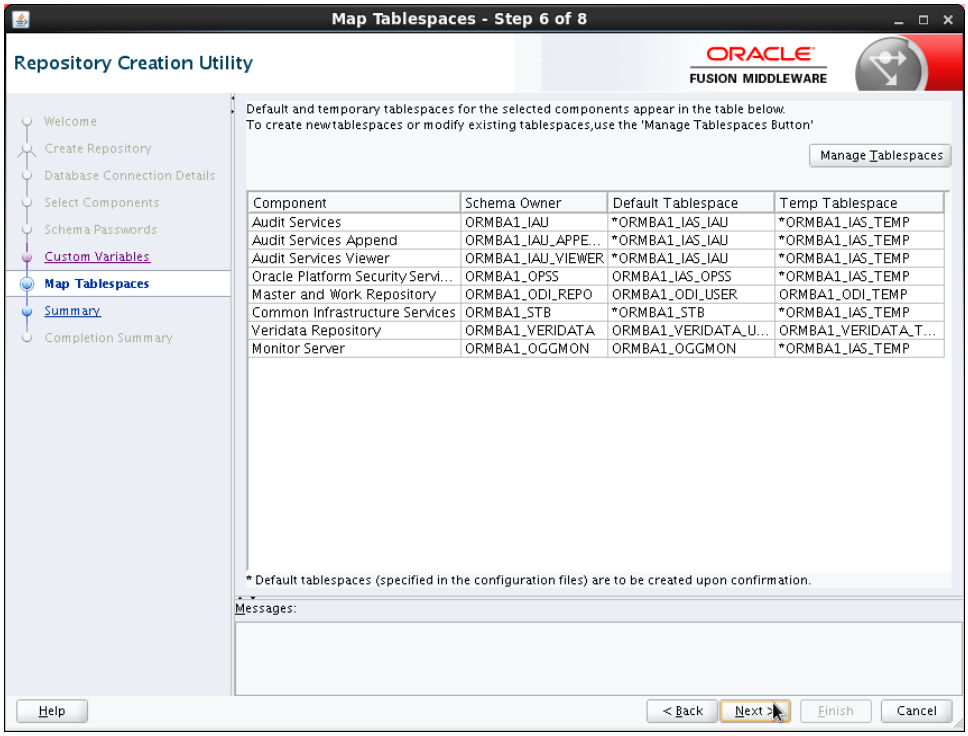


Figure 9: Map Tablespaces Page

16. Click **Next**. You will be asked to confirm the creation of tablespaces for the new schemas.
17. Click OK. The installer displays the progress of tablespace creation.

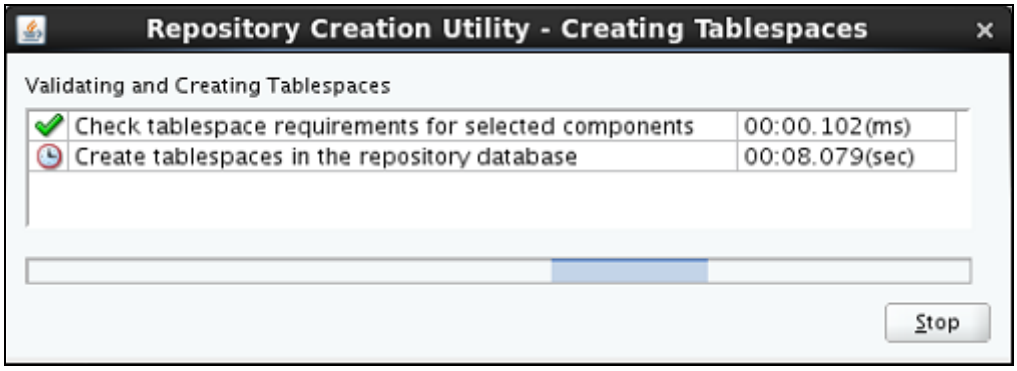


Figure 10: Validating and Creating Tablespaces

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

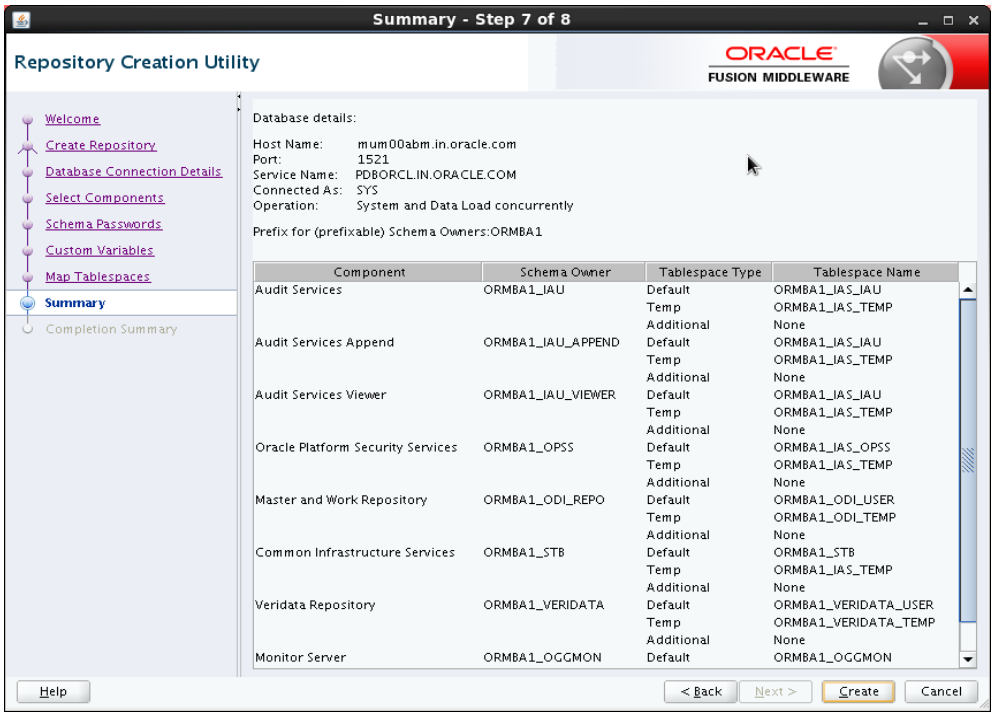


Figure 11: Summary Page

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

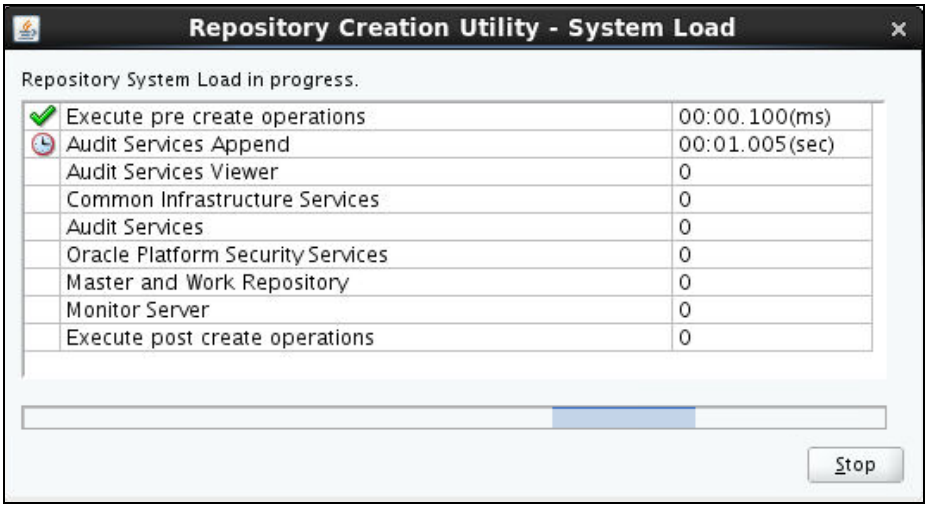


Figure 12: Repository System Load in progress

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

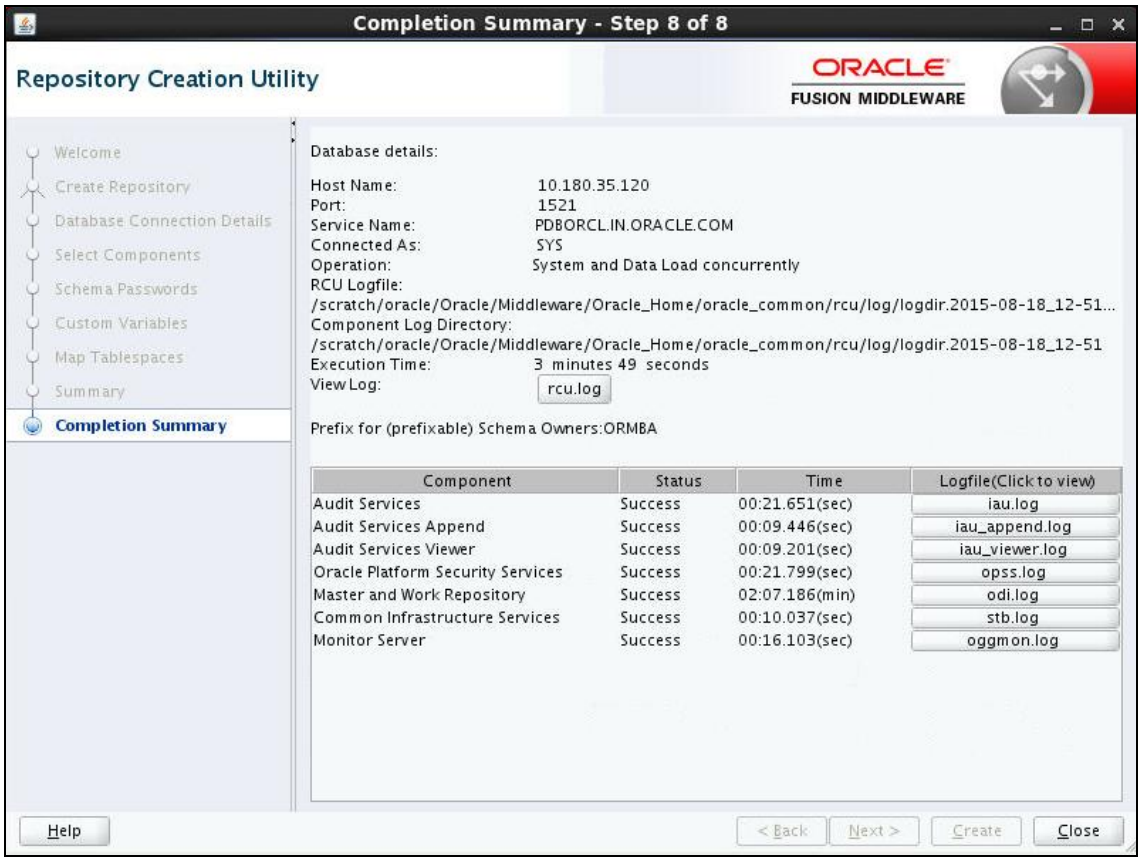


Figure 13: Completion Summary

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

3.2 Creating Database Users / Schemas

All the schemas will be created in a PDB with a CDB in the Target DB. To create the various users and schemas of ORMBA in 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:

Table space	Schema
DWADM_01	Data Warehouse Schema
MDADM_01	Metadata Schema
REP_01	Replication Schema
MAPADM_01	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 tablespace 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 in the table below:

Users	Table spaces
DWADM	DWADM_01
DWREAD	DWADM_01
MDADM	MDADM_01
DWSTAGE	DWADM_01
RMB1REP (Default Replication Schema)	REP_01
MODELADM (only if you opt for modeling)	MDADM_01
MAPADM	MAPADM_01

3.2.1 Providing Grants to ORMBA DB Users

1. Open the **UserGrants.sql** file in <TEMPDIR>/ORMBA-V2.2.0.0.0-Database directory, where <TEMPDIR> folder is the location where you have extracted the contents of the Oracle Revenue Management and Billing Analytics V2.2.0.0.0 Database Component package.
2. Edit the following code snippets in the **UserGrants.sql** file:

   define ODI_REPO=<Master Repository Name>

   where **<Master Repository Name>** is the value seen in step 8 of section 3.1 of the document. Eg: ORMBA_ODI_REPO
3. Log on to the pluggable database (PDB) in the target database server as **SYS** user using SQL *Plus.
4. Execute **UserGrants.sql** file in <TEMPDIR>/ORMBA-V2.2.0.0.0-Database folder.

3.3 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)
- Modeling schema (MODELADM - required only if you have opted for Simulation feature.) To do this, follow procedure in section 3.4.
- Map metadata schema (MAPADM - required only if you have opted for spatial view feature.) To do this, follow procedure in section 3.5.

Follow the procedure below to create the ORMBA schemas:

1. Change to the <TEMPDIR>/ORMBA-V2.2.0.0.0-Database/ directory.
2. Open the **InstallSchemas.sql** file to edit the values in following code snippets:

   define RELEASE_PATH=<TEMPDIR/ORMBA-V2.2.0.0.0-Database>

   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: ETL will extract source data based on the STARTDATE and ENDDATE values entered here. The default STARTDATE is 01/01/2011. You can change this depending on the number of years of data you want to import. You should have already decided this as part of installation planning in section 2.3.2.

3. Log on to the pluggable database (PDB) in the target database 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 3.6 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.

3.4 (Optional) Installing Modeling Schema

If you have opted for Simulation, you need to install one more Schema - **MODELADM**.

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-V2.2.0.0.0-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-V2.2.0.0.0-Database/MODELADM and edit the release path in the following code snippet:

   define RELEASE_PATH=path upto <TEMPDIR>/ORMBA-V2.2.0.0.0-Database
5. Execute **InstallMODELADM.sql**.
6. In case of any error, log on as **MODELADM** user and clean up the schema using the **CleanUpMODELADM.sql file** in **<**TEMPDIR>/ORMBA-V2.2.0.0.0-Database/MODELADM directory. After fixing the issue, you need to re-run the InstallMODELADM.sql script.

3.5 (Optional) Installing Spatial Metadata Schema

ORMBA v 2.2.0.0.0 introduces a new feature called spatial view. 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-V2.2.0.0.0-Database/MAPADM folder.
3. Create a local directory **MAPDIR** and copy the dump file 'MAPADM.dmp' from <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/MAPADM folder.
4. Open the **MAPADM_Grants.sql** file in <TEMPDIR>/ORMBA-V2.2.0.0.0-Database/MAPADM and replace <dumppath> with the MAPDIR path.
5. Log on to the target database server as SYS (pluggable) user using SQL *Plus.
6. Navigate to <TEMPDIR>/ORMBA-V2.2.0.0.0-Database/MAPADM folder and execute the **MAPADM_Grants.sql** file.

7. Navigate to <TEMPDIR>/ORMBA-V2.2.0.0.0-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-V2.2.0.0.0-Database/MAPADM and edit the release path in the following code snippet:

   define RELEASE_PATH=path upto <TEMPDIR>/ORMBA-V2.2.0.0.0-Database
10. Execute **InstallMAPADM.sql**.

3.6 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-V2.2.0.0.0-Database/ folder.
2. Connect to the database using any SQL client with **MDADM** credentials. If you are already connected, skip this step.
3. Execute the following command : **set serverout on;**
4. Open the **checkDBObjects.sql** file in <TEMPDIR>/ORMBA-V2.2.0.0.0-Database/ folder and edit the ODI Repository Name in the following statement:

   define ODI_REPO='<Master Repository Name>'
5. Execute the following command: **@ checkDBObjects.sql**
6. In case of success, the SQL console displays success messages. If there are errors, follow section Handling Errors.

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

3.6.1 Handling Errors

If an error occurs while installing the schemas, follow the procedure below:

1. Check the output of checkDBObjects.sql to find out the schemas that are not installed successfully.
2. Execute the cleanup script corresponding to the schema (which generated error). The cleanup scripts for each schema is listed below:

Schema	Cleanup Script	Install Script
DWADM	CleanupDWADM.sql	InstallDWADM.sql
MDADM	CleanupMDADM.sql	InstallMDADM.sql
RMB1REP	CleanupREP.sql	InstallREP.sql
MODELADM	CleanUpMODELADM.sql	InstallMODELADM.sql
MAPADM	CleanUpMAPADM.sql	InstallMAPADM.sql

3. Examine the spool file of the schema installation script to check which object creation failed and its cause.
4. Correct the error and execute the corresponding install script after defining the following attributes using SQL *Plus:

   define RELEASE_PATH=<TEMPDIR>/ORMBA-V2.2.0.0.0-Database

   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>
5. Follow the Post Installation Check procedure and verify again.

4. Installing ORMBA ETL Component

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

4.1 Creating WebLogic Domain

Before you create the WebLogic domain, ensure that Oracle Fusion Middleware Infrastructure and Oracle Data Integrator are installed on the application server.

You can create WebLogic domains for ODI Agent and Admin UI using the WebLogic Server Configuration Wizard. The Configuration Wizard simplifies the process of creating and extending a domain.

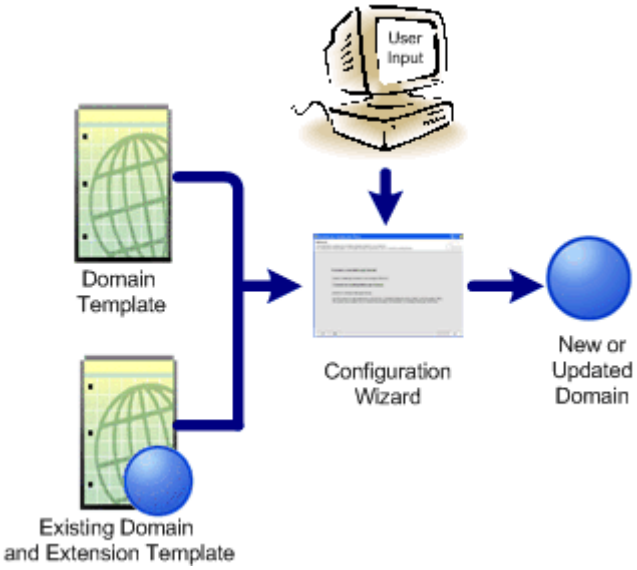


Figure 14: WebLogic Configuration Wizard

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. 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.

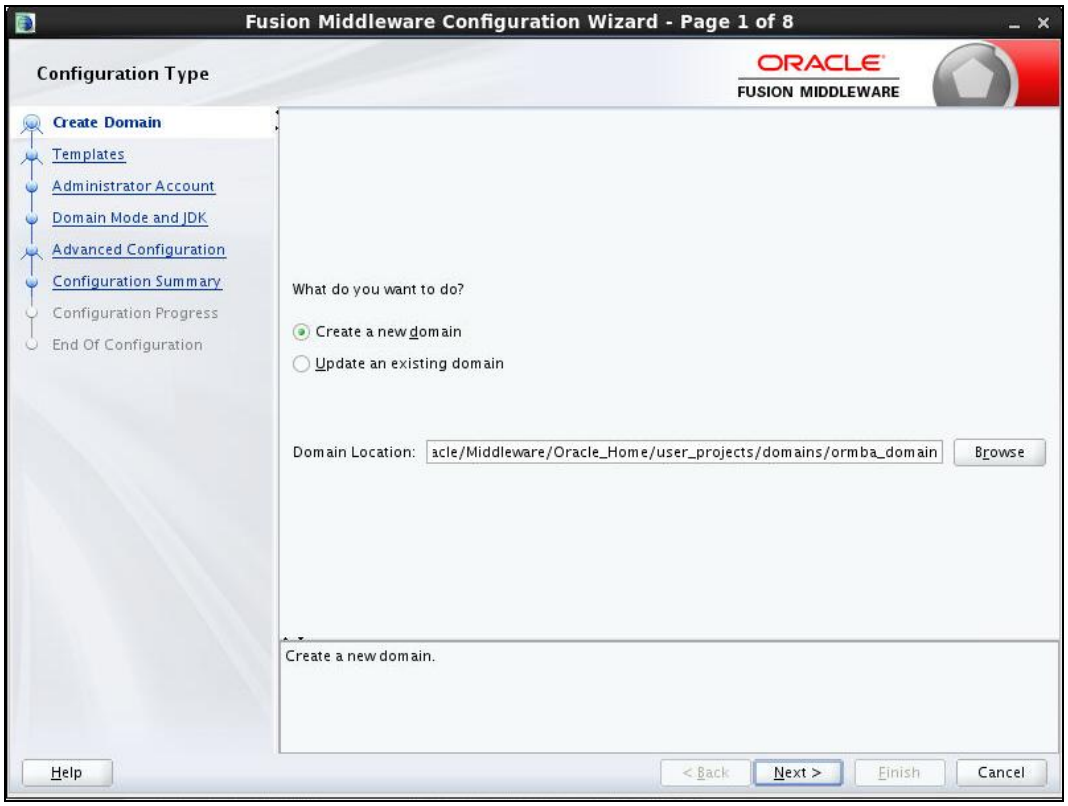


Figure 15: Create Domain Page

4. 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 Enterprise Manager Plugin for ODI -12.1.3.0 [em]
        - Oracle Data Integrator - Console - 12.1.3.0 [odi]
        - Oracle Data Integrator - Agent - 12.1.3.0 [odi]
        - Oracle Data Integrator – Standalone Collocated Agent – 12.1.3.0 [odi]

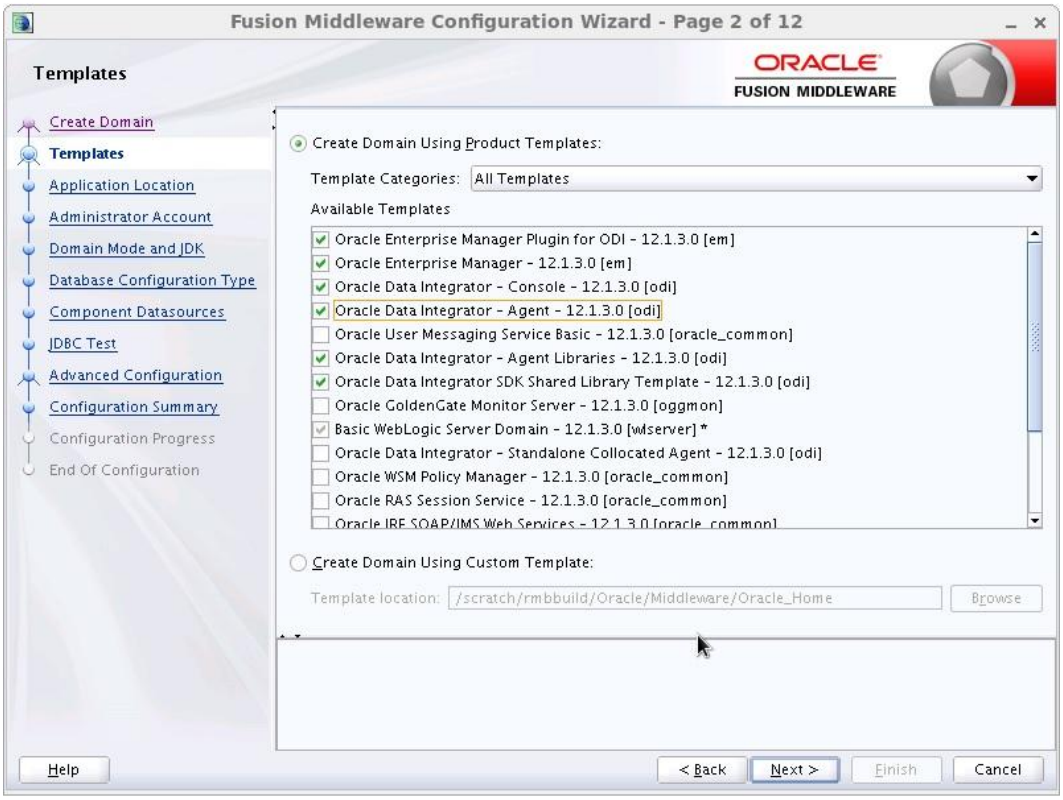


Figure 16: Templates Page

5. 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.
6. Enter **<FMW_HOME>/user_projects/applications/ormba_domain** in the **Application location** field.

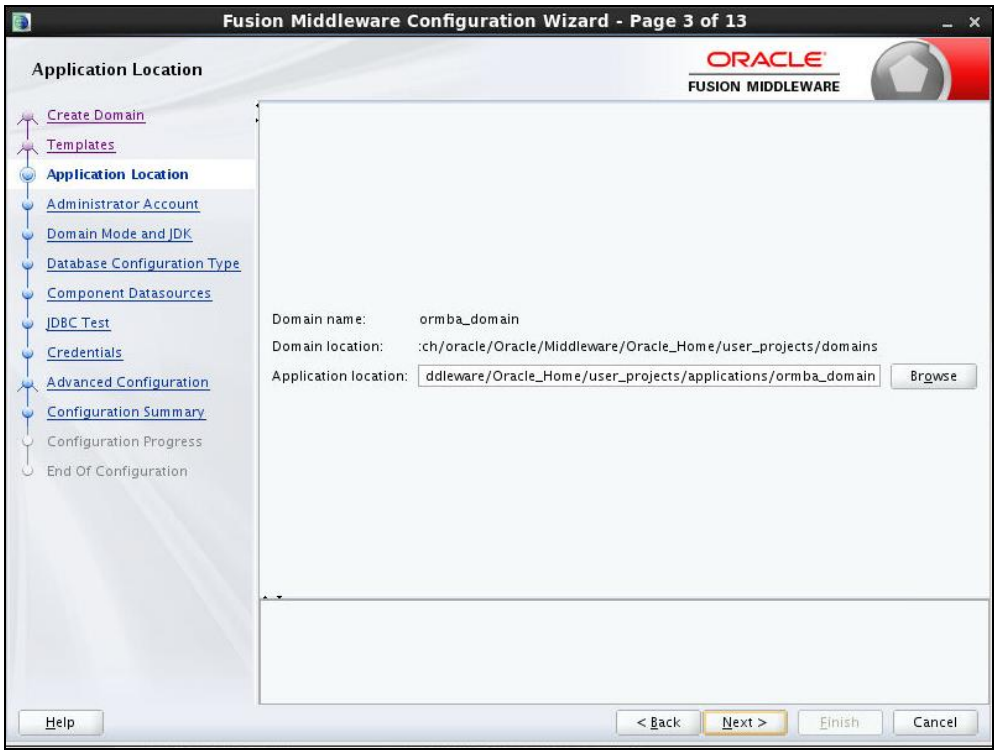


Figure 17: Application Location Page

7. 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.
8. Enter the login user name and password for the WebLogic Administrator account. Please note down the credentials, as this is required in section 4.1.1.

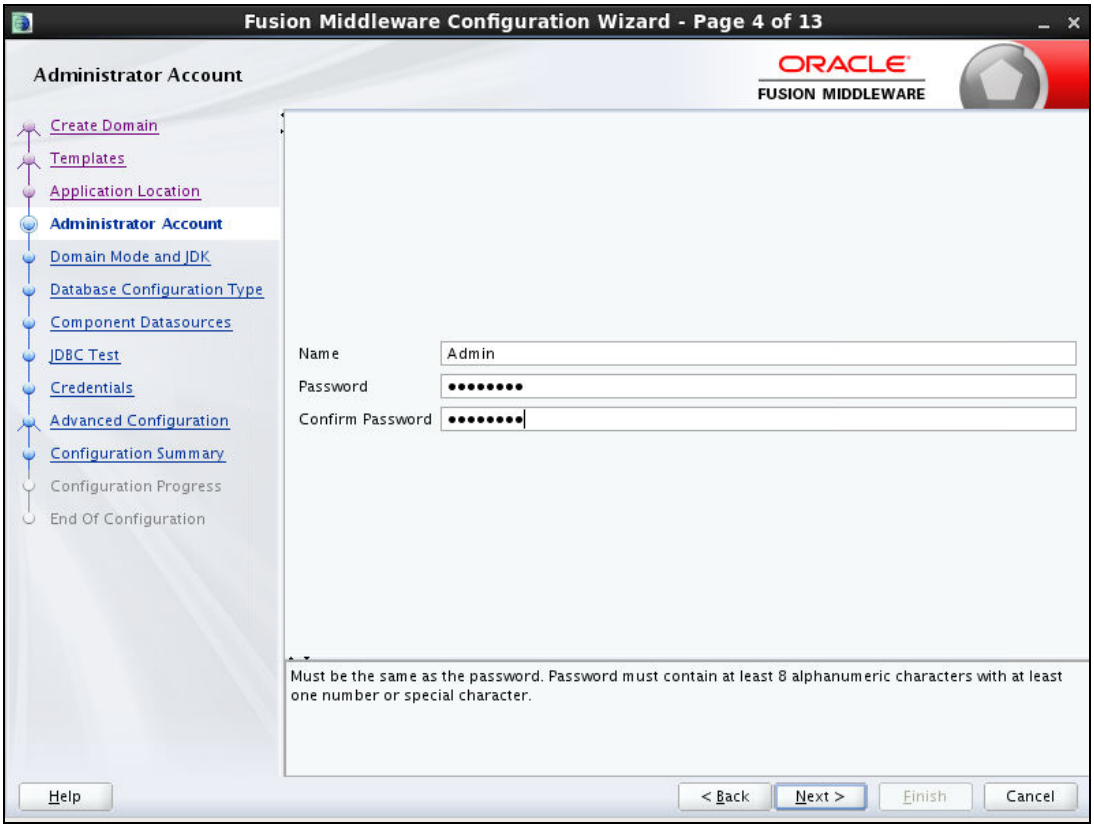


Figure 18: Administrator Account Page

9. 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.

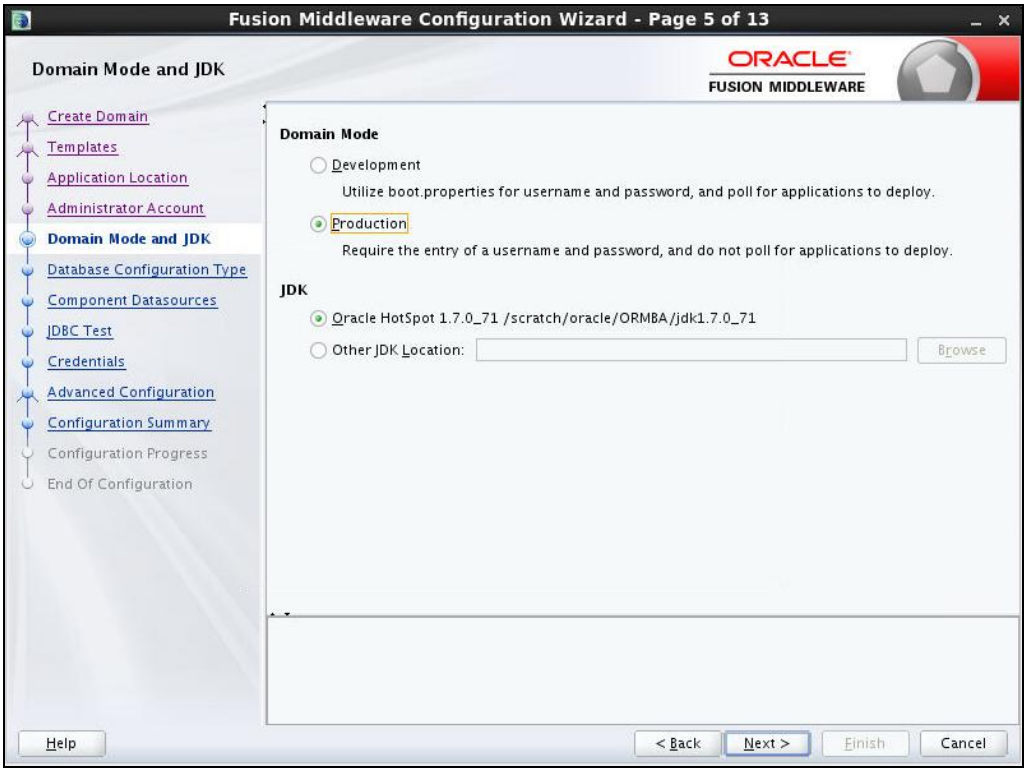


Figure 19: Domain Mode and JDK Page

10. 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**.
- Configure the fields with the connection information specified for the Service Table (STB) component in the Repository Creation Utility (RCU) as shown in the table below:

Field	Value
Driver	Oracle's Driver (Thin) for Service connections; Versions:9.0.1 and later
DBMS/Service	DBMS name/Service name of the target database
Host Name	Name of the Database server
Port	Port number on which DB listens
Schema Owner	ORMBA_STB
Schema Password	Password for ORMBA_STB user

- 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.

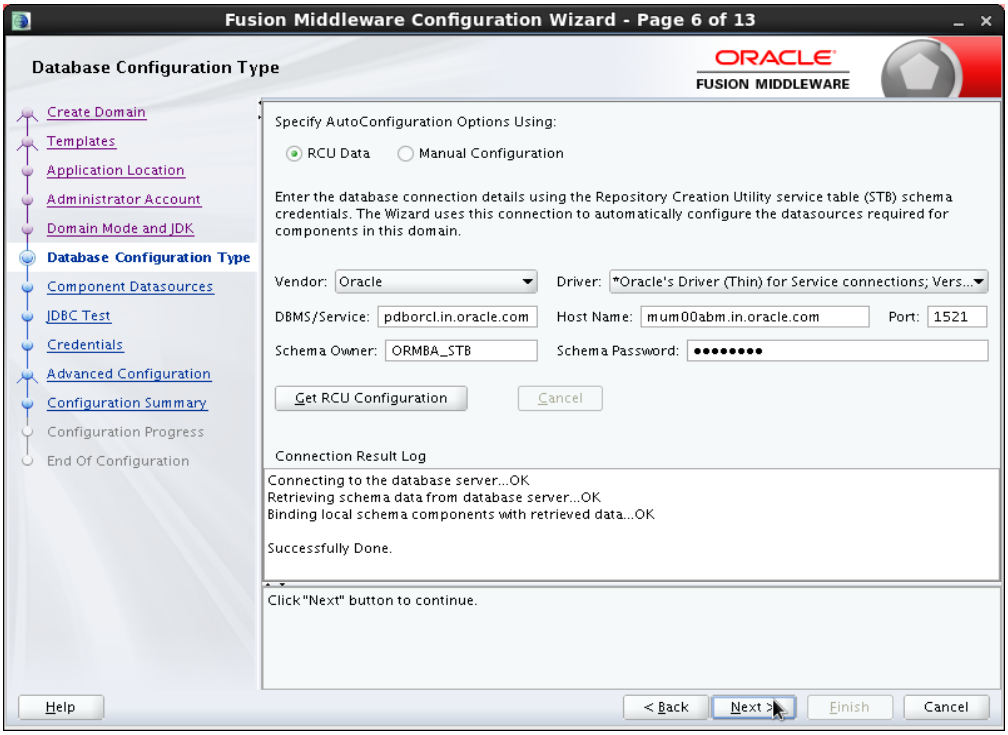


Figure 20: Database Configuration Type Page

Note: Clicking **Get RCU Configuration** retrieves the schema passwords that were specified when you created the schemas via RCU.

11. 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.

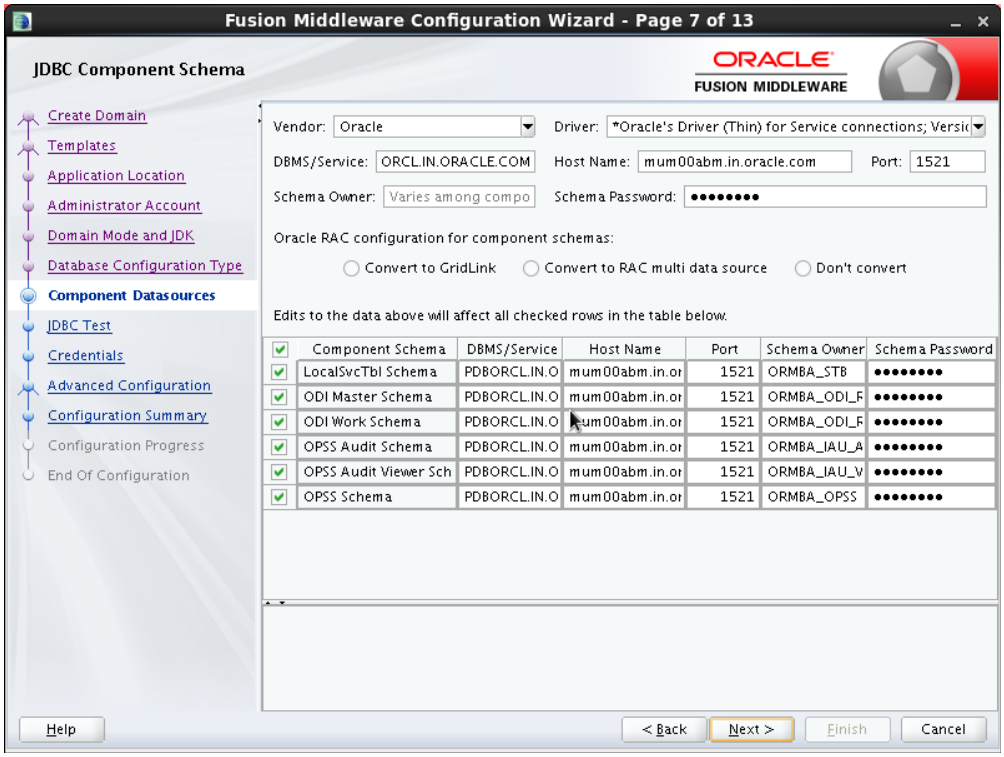


Figure 21: JDBC Component Schema Page

12. 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.

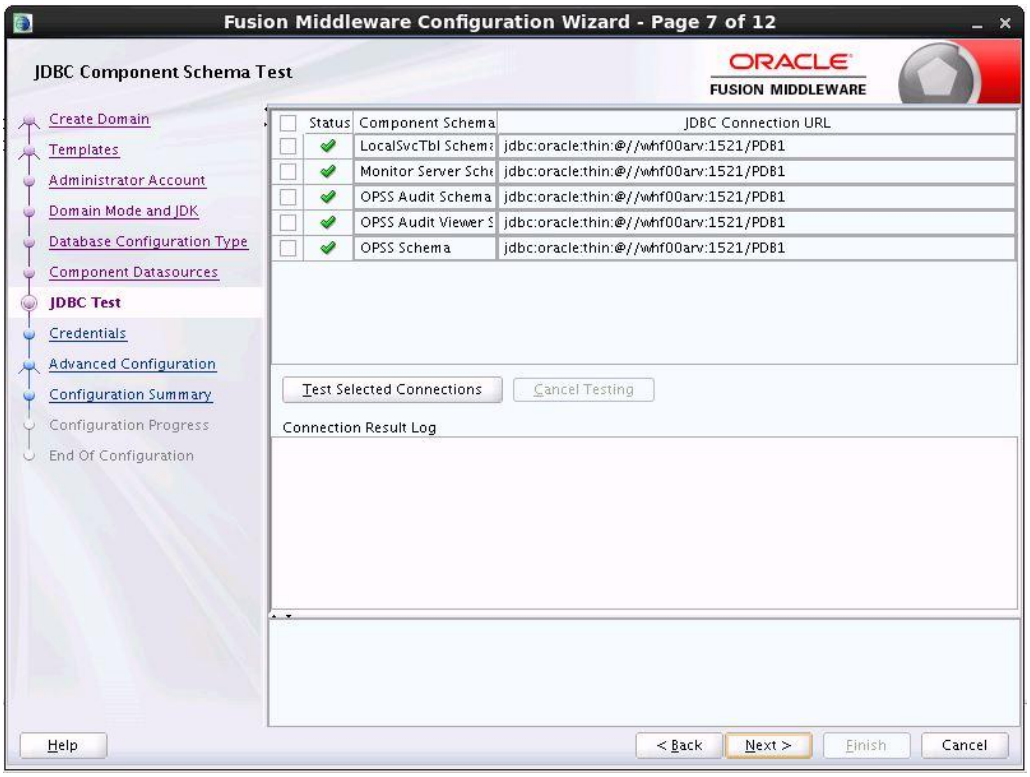


Figure 22: JDBC Component Schema Test Page

13. 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).

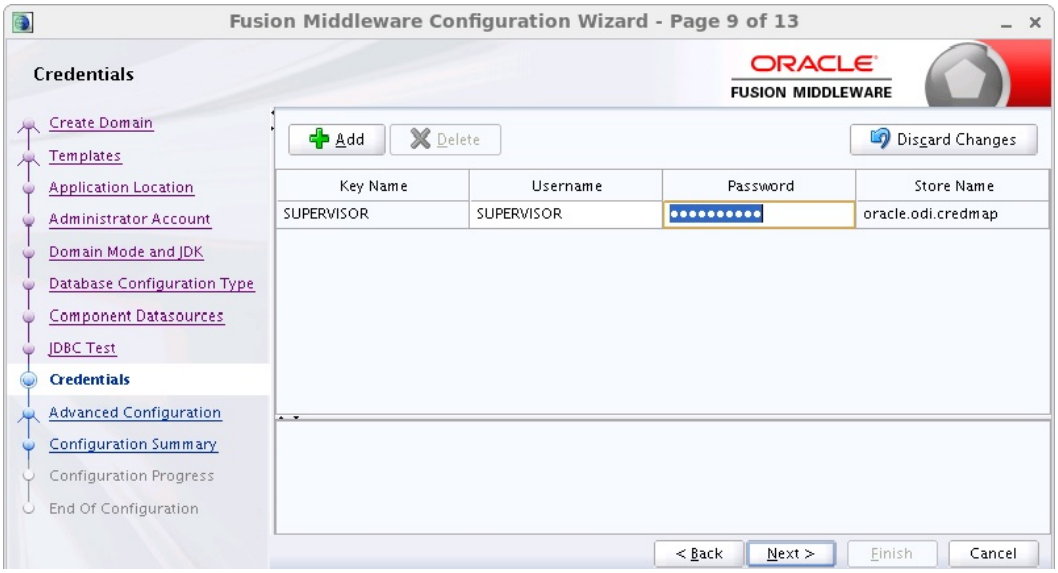


Figure 23: Credentials Page

14. Click **Next**. The Advanced Configuration page appears. Use this page to perform the advanced configurations against selected categories.
15. Select **Administration Server**, **Node Manager**, and **Managed Servers, Clusters and Coherence**. Based on the categories selected, the respective configuration screens are listed in the left pane of the Configuration Wizard.

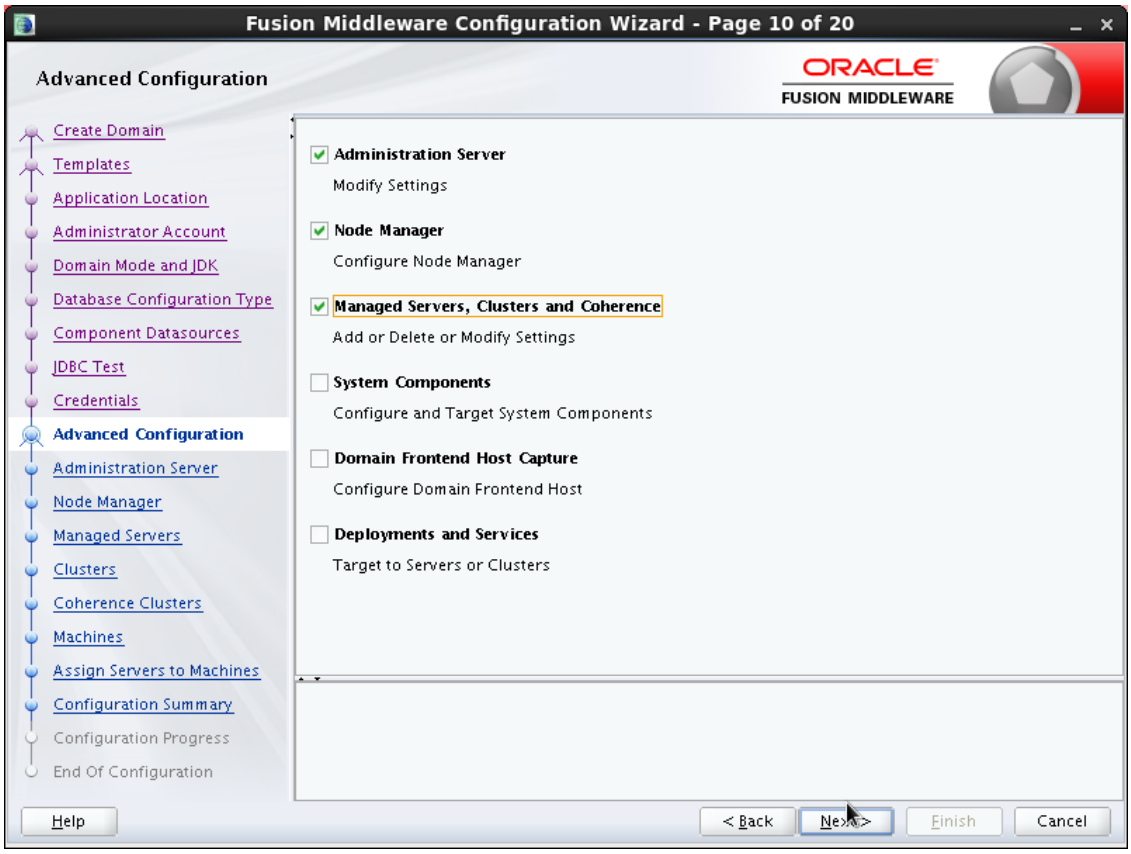


Figure 24: Advanced Configuration Page

16. 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 in the table below:

Field	Value
Server Name	AdminServer
Listen Address	All Local Addresses
Listen Port	The default value is **7001** for the Administration Server. The valid listen port range is from 1 to 65535.

Please note down the Listen Address and Listen Port values given here, as this will be required n section 4.1.3.

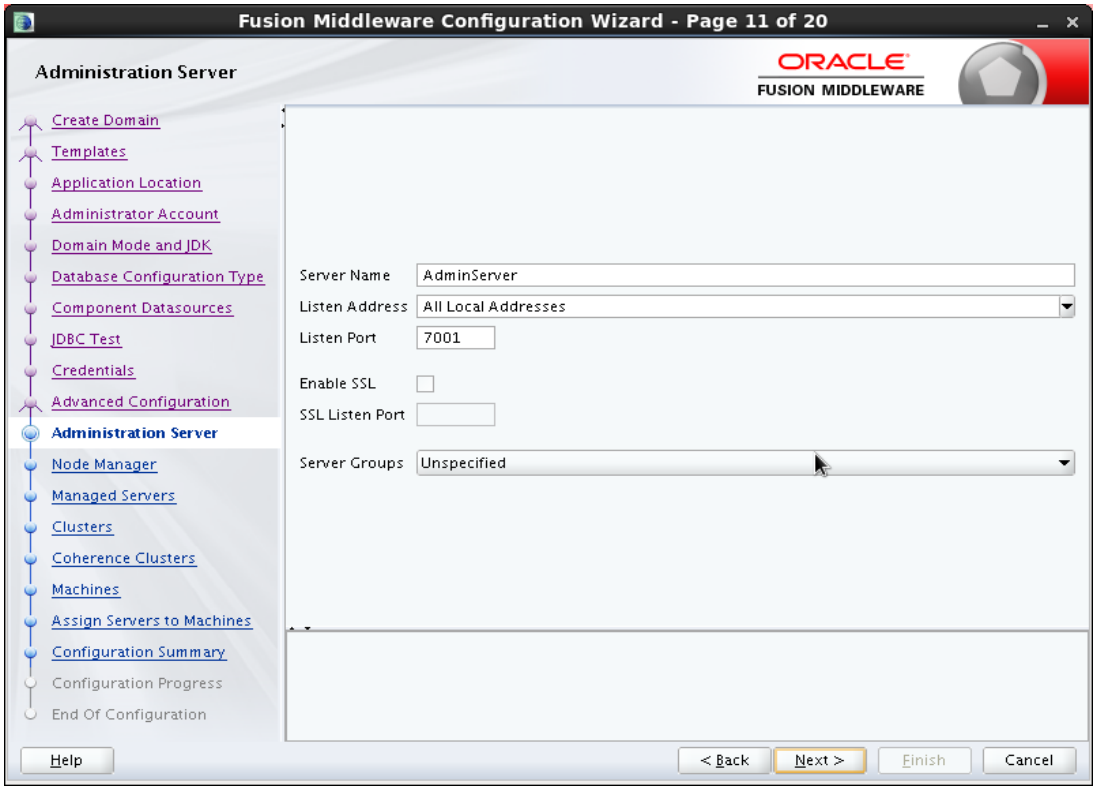


Figure 25: Administration Server Page

17. 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.

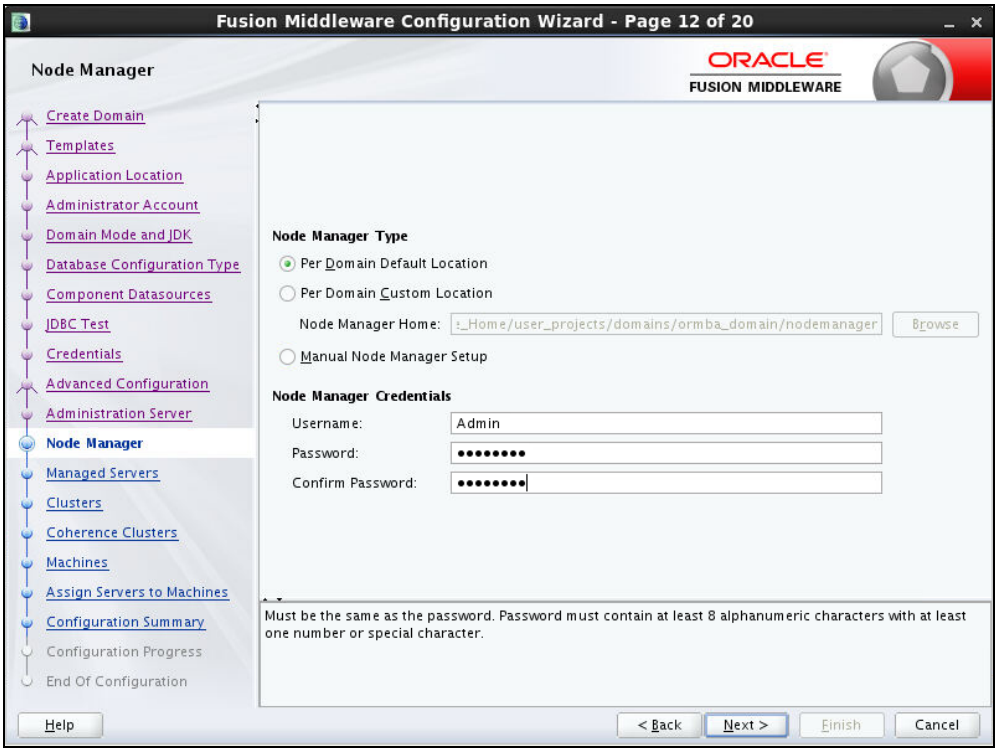


Figure 26: Node Manager Page

18. 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.

    Please note down the values of Listen Address and Listen Port configured here, as this will be required in section 4.1.4. You need to specify these as the values of parameters ormba.repository.agent.host and ormba.repository.agent.port in the ormba.properties file.

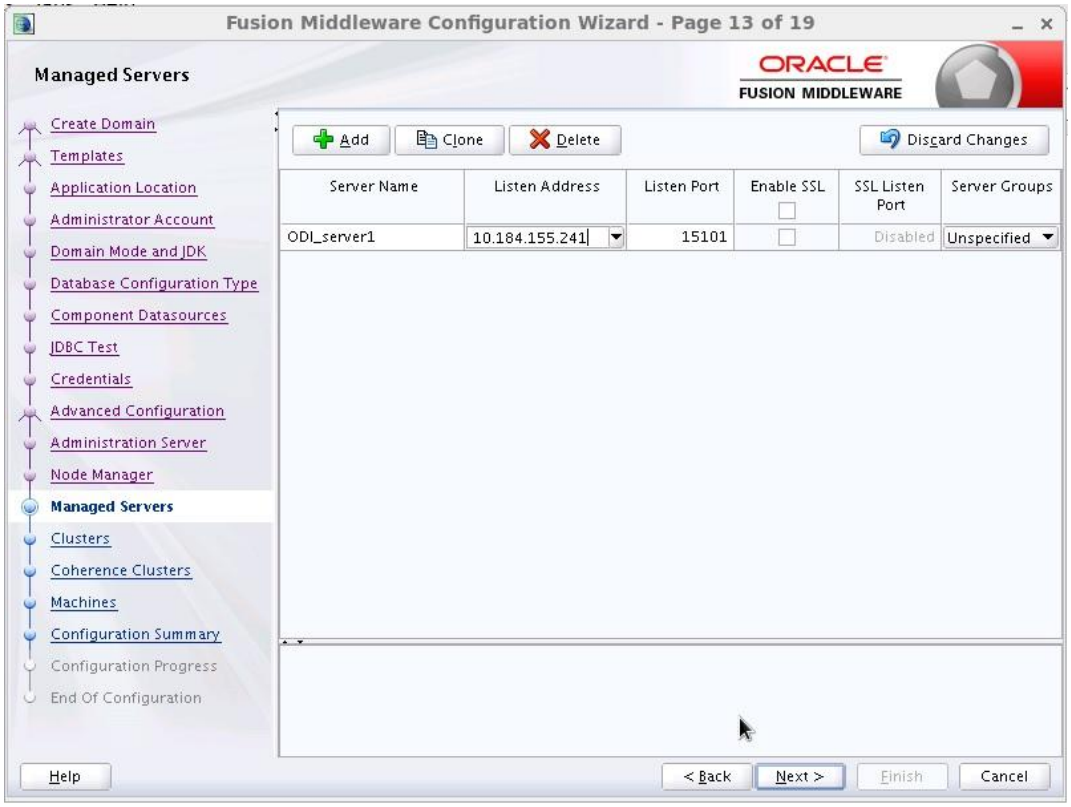


Figure 27: Managed Servers Page

19. 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**.

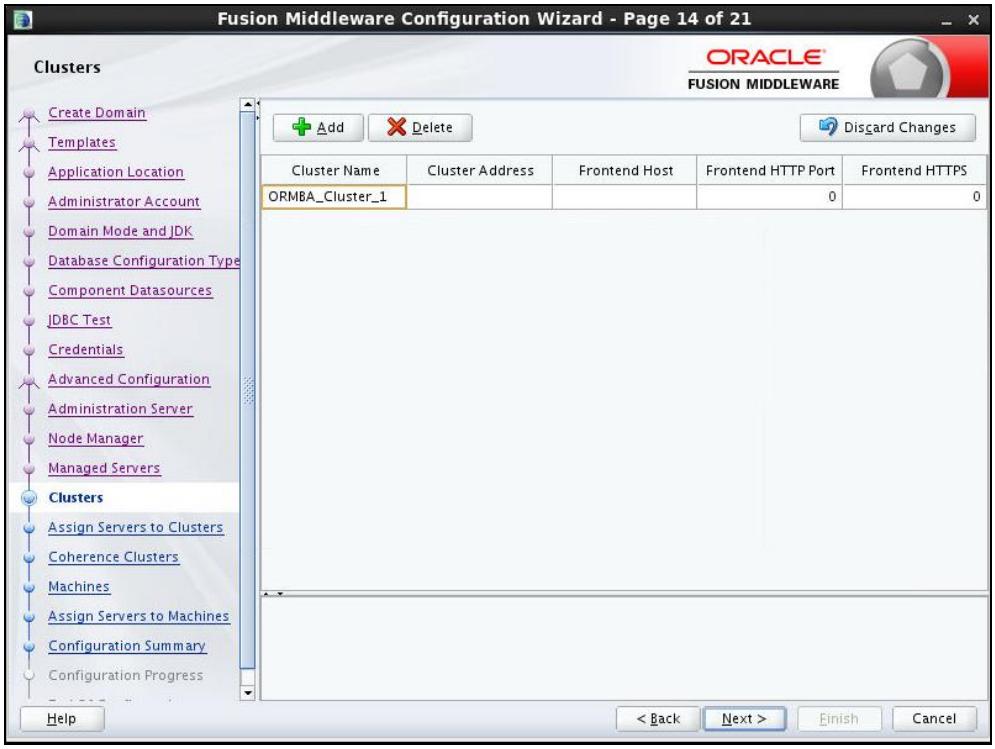


Figure 28: Clusters Page

20. 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.
21. Click **Next**. The Coherence Clusters page appears. The page lists the coherence cluster associated with the domain.
22. Click **Next**. The Machines page appears. The page displays the default machine configurations.
23. 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.
24. Click **Next**. The Configuration Summary page appears. The page displays the detailed configuration information of the domain being created.

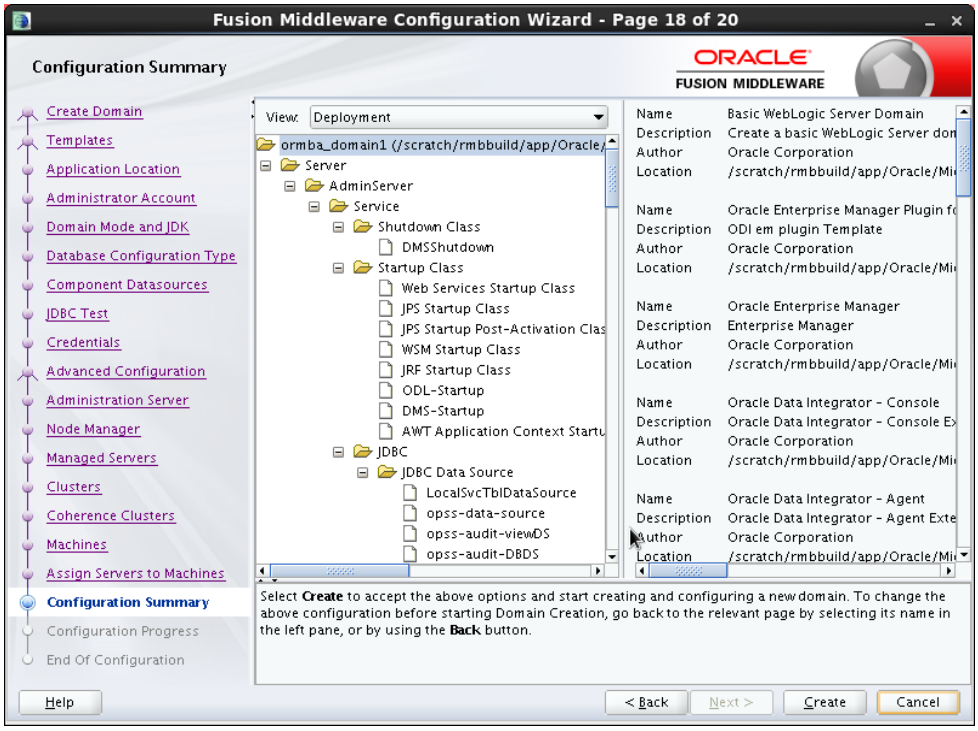


Figure 29: Configuration Summary Page

25. Verify the configuration details and click **Create** to initiate the domain creation. The Configuration Progress page appears showing the progress of domain creation.

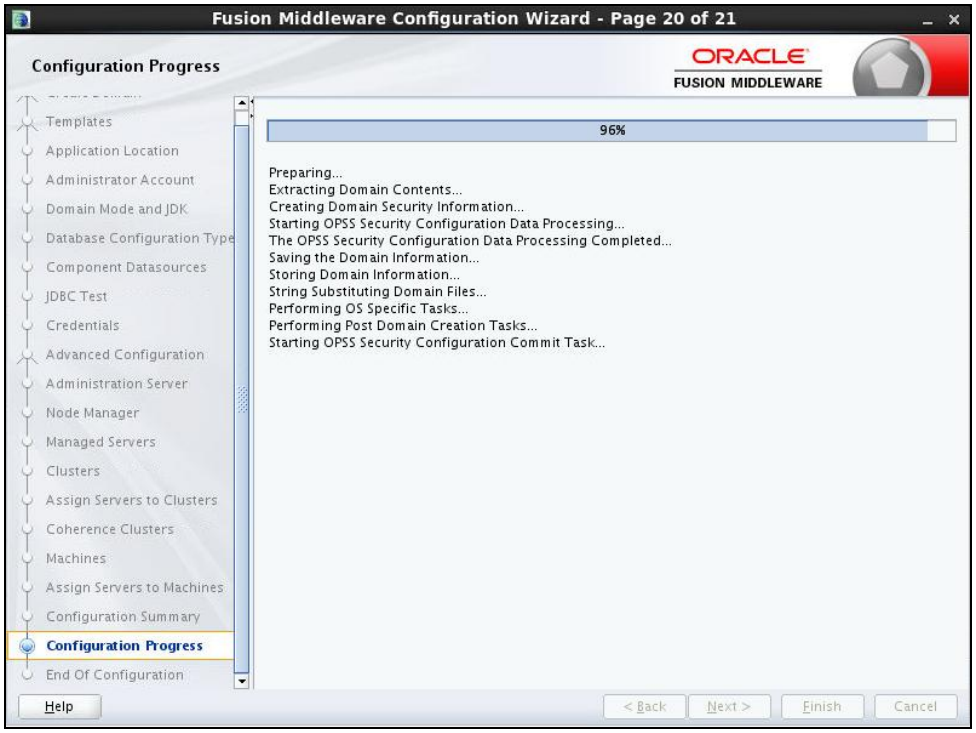


Figure 30: Configuration Progress Page

26. Once the domain creation is completed, the Configuration Success page appears. Note down the information displayed on this page.

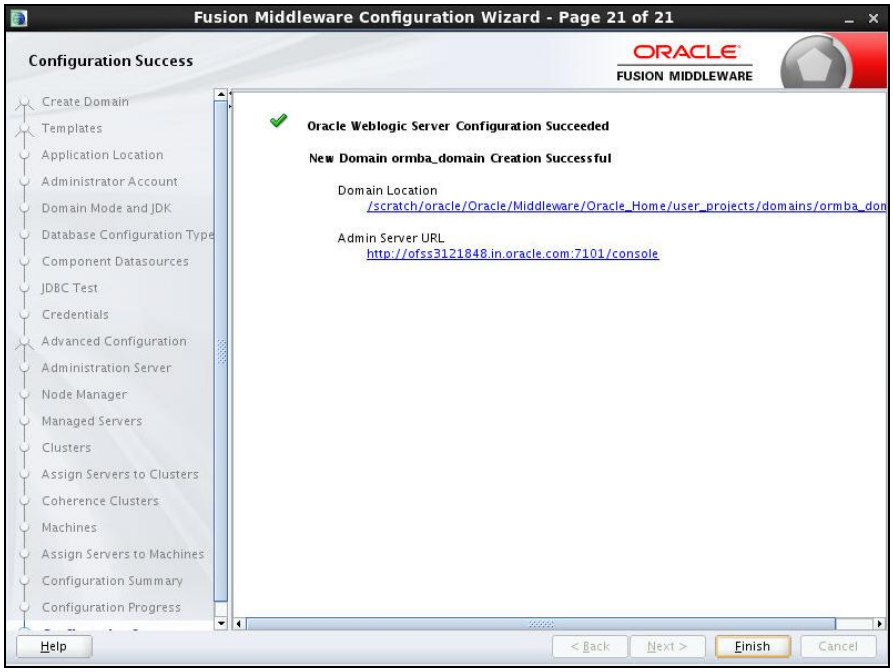


Figure 31: Configuration Success Page

27. Click **Finish** to close the Configuration Wizard.

4.1.1 (Optional) Creating domain for GG Monitor

If you are using Oracle Golden Gate in ONLINE mode, you need to create a separate domain for GG Monitor. To do this, follow the procedure detailed in section 4.1 with the exception in couple of steps listed below:

1. In the Templates page, select the following templates:
   - Oracle Enterprise Manager - 12.1.3.0 [em]
   - Oracle GoldenGate Monitor Server – 12.1.3.0 [oggmon]

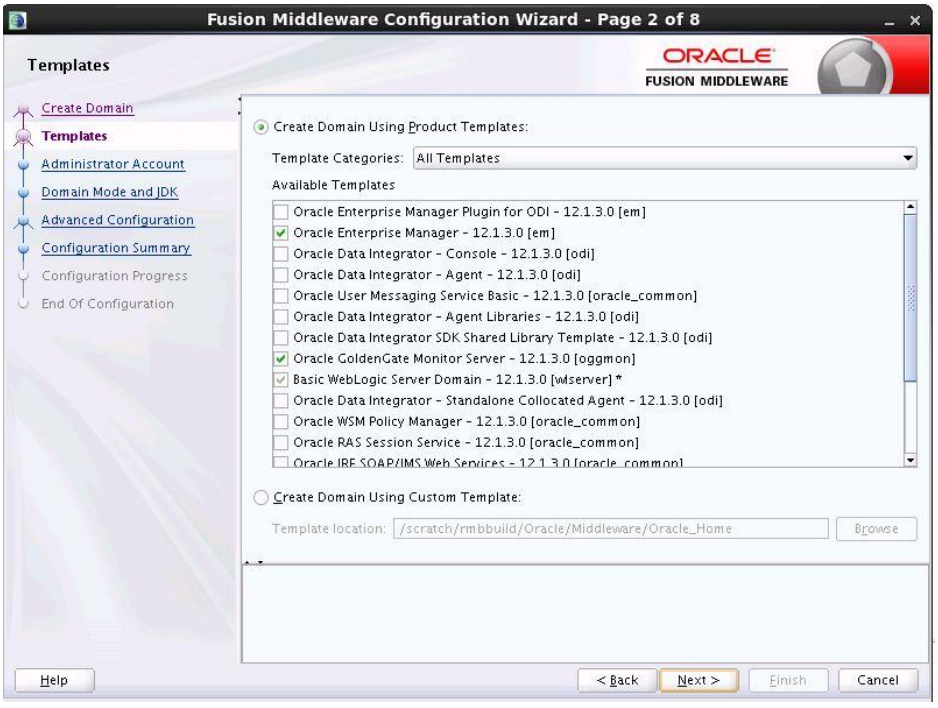


Figure 32: Templates Page

2. In the Credentials page, enter passwords for JMX, KEY, TRUST, and SMTP users.

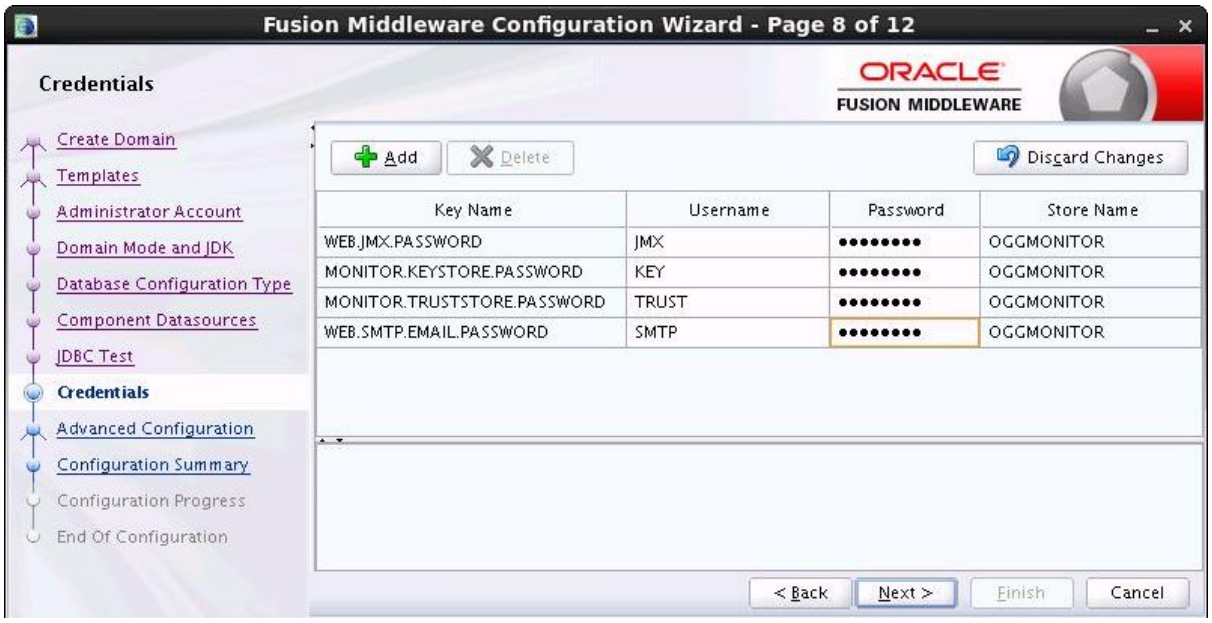


Figure 33: Credentials Page

4.1.2 Creating the boot.properties File

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

3. Change to the path:

   <FMW_HOME>/user_projects/domains/ormba_domain/servers/<Server_Name>/security

4. Create the **boot.properties** file with the following attributes:

   username=<weblogic username>

   password=<weblogic password>

   Note: Use the credentials given in step 8 of section 4.1 of this document.

5. 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.

4.1.3 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.
2. Execute the following command:

   nohup ./startWebLogic.sh > startWLS.log &

3. Check the **startWLS.log** file in the same path to see if it includes the message “The server started in RUNNING mode”.
4. 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 Creating WebLogic Domain procedure.
5. Log on using the Administrator Account username and password. The Home page appears.

4.1.4 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.
2. Execute the following command:

   nohup ./startManagedWebLogic.sh ODI_server1> startManagedWLS.log &
3. Check the **startManagedWLS.log** file in the same path to see if it includes the message "The server started in RUNNING mode".
4. 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 Creating WebLogic Domain procedure.
5. Log on using the administrator account's username and password. The Welcome page appears.
6. Check the **Servers** section to verify if the Administration Server and Managed Server (AdminServer and ODI_server1) are up and running.
7. To verify the ODI Console, log on to http://<administration server host>:<administration server port>/odiconsole/ with SUPERVISOR username and password.

4.1.5 (Optional) Starting Admin Server and Managed Server for GoldenGate Monitor

If you are using Oracle GoldenGate in ONLINE mode, you need to start the WebLogic Admin Server and Managed server for Oracle GoldenGate Monitor also. To do this, follow the procedures in section 4.1.3 and 4.1.4, but replace the name of Admin Server and Managed Server with the ones configured while creating domain for GG Monitor.

4.2 Setting up Oracle GoldenGate

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

This section explains following topics:

- Setting Up OGG on the Source Database Server
- Setting Up OGG on the Target Database Server

4.2.1 Setting Up OGG on the Source Database Server

1. Go to Oracle GoldenGate Home and connect to the source 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>;

   grant CONNECT to < golden gate user name>;

   grant RESOURCE to < golden gate user name>;

   grant ALTER ANY TABLE to < golden gate user name>;

   grant ALTER SYSTEM to < golden gate user name>;

   grant SELECT ANY TRANSACTION to < golden gate user name>;

EXEC DBMS_GOLDENGATE_AUTH.GRANT_ADMIN_PRIVILEGE (grantee=>'< golden gate user name>',privilege_type=>'capture',grant_select_privileges=>true, do_grants=>TRUE);

grant unlimited tablespace to < golden gate user name>;

grant select any dictionary to < golden gate user name>;

3. Go to Oracle GoldenGate Home and log on to GG client using the command:

   ./ggsci

4. Encrypt the password of the golden gate user using the command below:

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

5. Edit the ormba.properties file and update the below attributes:
   - ormba.source.container.journal.username : <golden gate user name>
   - ormba.source.container.journal.password : <Password of golden gate user>
   - ormba.source.container.journal.encryptpassword : <Encrypted password of golden gate user>

   To know more about updating ormba.properties file, see section 4.4.

6. Create a new user, say **RMB01SRC** and assign a table space that is not assigned to any other user.
7. Grant the following privileges to RMB01SRC user: CONNECT, RESOURCE, and DBA.
8. Execute the following commands:

   @marker_setup.sql

   @ddl_setup.sql

   @role_setup.sql

Note: If your source and target databases co-exist on a single database server, skip the execution of **ddl_setup.sql**.

9. You will be prompted to answer the question: “Enter Oracle GoldenGate schema name”. Enter **RMB01SRC** as the response. **Note:** You need to specify this schema name as value of parameter (ormba.source.ggowner.username) while editing the ormba.properties file in section 4.4.
10. Exit SQL*Plus.
11. If not already present, create the following directories under OGG_HOME:
    - diroby
    - dirdat
12. Within **dirdat** directory, create the following directories:
    - I1BL
    - I1CM1
    - I1CM2
    - I1CM3
    - I1FT
    - I1PR
    - I1PT
    - I1PY
    - I1TD
    - I1TXN
13. Log on to GG client using the command:

    ./ggsci

14. Execute the command **info all** to check if MANAGER and JAGENT are in the RUNNING mode:

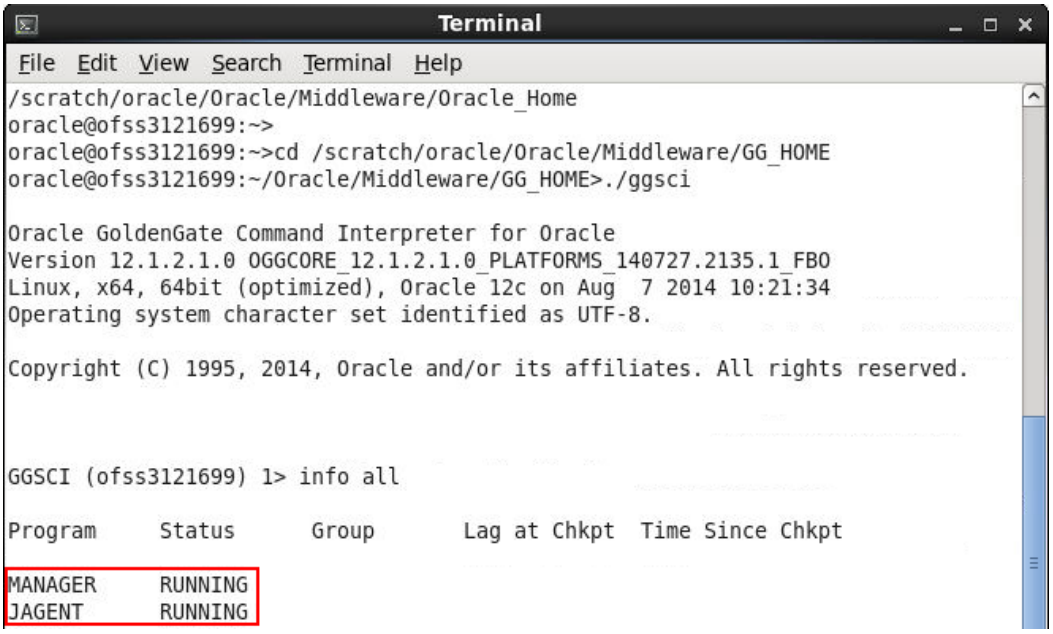


Figure 34: GG Console

Note: If GoldenGate is running in OFFLINE mode, you will not see JAGENT listed here.

15. Execute the following command to encrypt the password of RMB01SRC user.

    encrypt password <password of RMB01SRC user>, encryptkey DEFAULT

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

16. Note down the encrypted passwords of above commands and specify them as value of below parameters while updating the **ormba.properties** file in section 4.4.

    - **ormba.replication.gg.src.ggpass** = <encrypted password of RMB01SRC user>
    - **ormba.source.container.journal.encryptpassword** = <encrypted password of golden gate user in database>

4.2.2 Setting Up OGG on the Target Database Server

To setup Oracle GoldenGate on the Target Database Server:

1. Go to Oracle GoldenGate Home and if not already present, create the following directories:
    - diroby
    - dirdat
2. Within **dirdat** directory, create the following directories:
    - I1BL
    - I1CM1
    - I1CM2
    - I1CM3
    - I1FT
    - I1PR
    - I1PT
    - I1PY
    - I1TD

- I1TXN

3. Log on to the database as SYS user and execute the following command using SQL *Plus:

   GRANT READ, WRITE ON DIRECTORY ORMBA_DIR TO MDADM;

4. Log on to GG client using the command:

   ./ggsci

5. Execute the command **info all** to check if MANAGER and JAGENT are in the RUNNING mode:

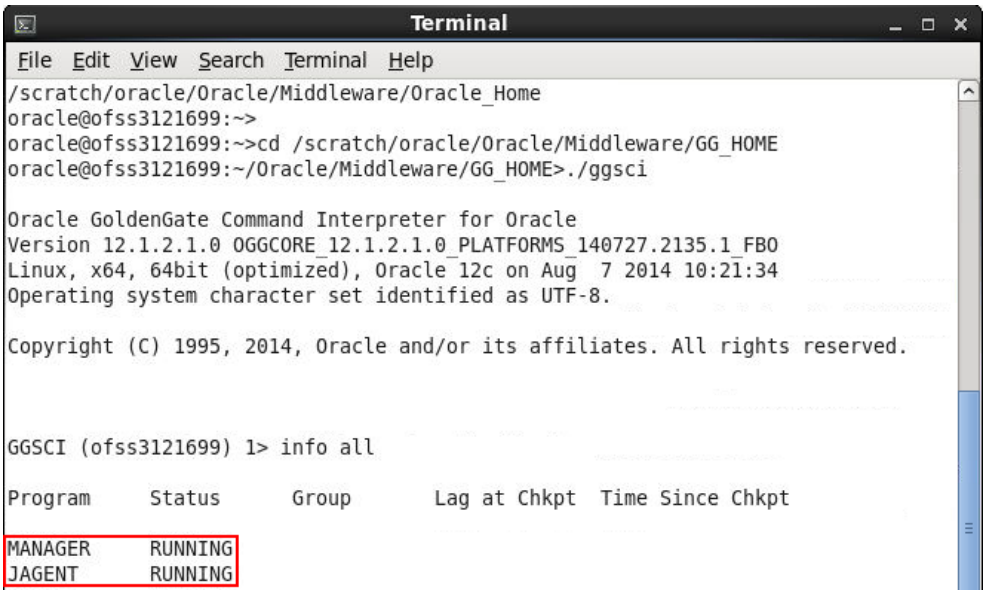


Figure 35: GG Console

Note: If GoldenGate is running in OFFLINE mode, you will not see JAGENT listed here.

6. Execute the following command to encrypt the password:

   encrypt password <password of MDADM user>, encryptkey DEFAULT

7. Note the result (encrypted password) of this command. You need to specify this password as value of **ormba.replication.gg.trg.ggpass** parameter while updating the **ormba.properties** file in section 4.4.

4.3 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.
2. Execute the following command:

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

3. Note the encrypted password and copy this as value of ormba.replication.gg.source.ospassword parameter in ormba.properties file in section 4.4.

4.4 Editing ORMBA.PROPERTIES File

1. Change to the <TEMPDIR>/ORMBA-V2.2.0.0.0-ETL/bin directory, where <TEMPDIR> folder is the location where you have extracted the contents of the media pack.
2. Open the **ormba.properties** file and edit the attributes as directed below:

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

ormba source configuration

ormba.source.connectstring = <Connect string to ORMB schema in the format: hostname: port/service name>

ormba.source.schema.name = <ORMB Schema Name>

ormba.source.container.connectstring = <Connect string to ORMB schema in the format: hostname: port/service name>

ormba.source.container.sid = <SID/service name of Source schema>

ormba.source.container.journal.username = <golden gate user> (Configured in step 3 of section 4.2.1)

ormba.source.container.journal.password = < Password of golden gate user>

ormba.source.container.journal.encryptpassword = <Encrypted password of golden gate user> (Configured in step 15 of section 4.2.1)

ormba.source.journal.username = RMB01SRC

ormba.source.journal.password = RMB01SRC

ormba.source.schema.drillbackURL = <Drill back URL to ORMB application>

ormba.source.schema.instancenumber = 1 <Change in case of multiple source instance >

Configuration for logging into the ODI repository

ormba.repository.URL = <URL to connect to ODI Repository in the format: jdbc:oracle:thin:@//hostname:port/servicename>

ormba.repository.driver = oracle.jdbc.OracleDriver

ormba.repository.odi.adminuser = SUPERVISOR (Configured in step 13 of section 4.1)

ormba.repository.odi.adminpassword = <SUPERVISOR user password> (Configured in step 13 of section 4.1)

The user and password of the ODI Master database schema

ormba.repository.master.database.user = <ODI Repository user name> (Configured in step 8 of section 3.1)

ormba.repository.master.database.password = <ODI Repository password> (Configured in step 11 of section 3.1)

#Work Repository Name

ormba.repository.workrepository = WORK_REPO

Configuration to connect to the METADATA schema

ormba.metadata.database.user = MDADM

ormba.metadata.database.password = <MDADM Password>

Configuration to connect to the TARGET DB schema

ormba.target.database.user =DWADM

ormba.target.database.password = <DWADM Password>

ormba.target.database.workschema=DWSTAGE

#ODI Agent details

ormba.repository.agent.logicalname =OracleDIAgent

ormba.repository.agent.host = <Host name of server where ODI is installed>

ormba.repository.agent.port = <ODI Listen Port> (Configured in step 18 of section 4.1)

ormba.repository.agent.physicalname=OracleDIAgent

#Replication configurations

ormba.replication.gg.mode.online =true <Indicates whether GG is set to run on ONLINE (parameter value = true) or OFFLINE mode (parameter value = false)>

ormba.replication.gg.src.mgr.port =<Source GG Manager Port>

ormba.replication.gg.src.mgr.port_max =<Source GG Manager Port Max Range>

ormba.replication.gg.src.host=<Host name of Source DB>

ormba.replication.gg.src.home =<GG_HOME of Source DB>

ormba.replication.gg.src.port =<Source DB Port>

ormba.replication.gg.src.ggpass =<Encrypted Password of RMB01SRC user in Source DB> (configured in step 15 of section 4.2.1)

ormba.replication.gg.src.rmi.port =<Port given while configuring JAgent>

ormba.replication.gg.src.jmxuser =oggmajmxusr

ormba.replication.gg.src.jmxpswd =<JAgent Password> (configured while starting JAgent.)

ormba.replication.db.src.sid =<SID of Source DB>

ormba.replication.db.src.home =<ORACLE_HOME of Source DB>

ormba.replication.gg.trg.mgr.port =<Target GG Manager Port>

ormba.replication.gg.trg.mgr.port_max =<Target GG Manager Port Max Range>

ormba.replication.gg.trg.host =<Host name of Target DB>

ormba.replication.gg.trg.home =<GG_HOME of Target DB>

ormba.replication.gg.trg.port =<Target DB Port>

ormba.replication.gg.trg.ggpass =<Encrypted Password of GG Schema in Target DB> (configured in step 7 of section 4.2.2>

ormba.replication.gg.trg.rmi.port = <Port given while configuring JAgent>

ormba.replication.gg.trg.jmxuser = oggmajmxusr

ormba.replication.gg.trg.jmxpswd = <JAgent Password> (configured while starting JAgent)

ormba.replication.db.trg.sid =<SID of Target DB>

ormba.replication.db.trg.home =<ORACLE_HOME of Target DB>

ormba.ggscript.location= <Path where GG scripts will be available after executing importData>

ormba.repository.connectionPool.initialPoolSize = 0

ormba.repository.connectionPool.maxPoolSize = 100000000

ormba.repository.connectionPool.minPoolSize = 100

ormba.repository.connectionPool.inactiveConnectionTimeout = 600

ormba.repository.connectionPool.statementCacheSize = 100

ormba.project.path=<TEMPDIR>/ORMBA-V2.2.0.0.0-ETL/ELTComps

#Initial Load Properties

ormba.replication.gg.source.osuser =<Source server OS user name> (Required only if ormba.repository.gg.use.data.dump.file.yn=Y)

ormba.replication.gg.source.ospassword =<Encrypted password of Source OS> (Required only if ormba.repository.gg.use.data.dump.file.yn=Y)

ormba.replication.gg.source.ftpHost =<Host name of Source server> (Required only if ormba.repository.gg.use.data.dump.file.yn=Y)

ormba.replication.gg.local.data.pump.dir = <Value of ORMBA_DIR directory in Target DB>

ormba.replication.gg.remote.data.pump.dir=<Value of ORMBA_DIR directory in Source DB>> (Required only if ormba.repository.gg.use.data.dump.file.yn=Y)

ormba.replication.gg.use.data.dump.file.yn = N (Indicates whether to perform initial load over Network Link (parameter value = N) or over FTP (parameter value = Y))

3. Save the file after updating the attributes.

4.4.1 Validating ORMBA.PROPERTIES File

You can validate the properties configured in ORMBA.PROPERTIES file using the procedure below:

1. Navigate to the location: **<TEMPDIR>/ORMBA-V2.2.0.0.0-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.

2. Execute the script **runPropertyValidator.sh** from the terminal. This validates the properties in the file.
3. 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.
4. 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.

4.5 Installing the ETL Component

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

1. importETLComps.sh
2. addInstance.sh
3. createGoldenGateTopology.sh
4. configureInstance.sh
5. configureGG.sh
6. checkConfiguration.sh
7. createSourceModel.sh
8. importData.sh
9. createReplicationModel.sh

You can find the above shell scripts in the location: **<TEMPDIR>/ORMBA-V2.2.0.0.0-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 each of the above shell scripts
→ the managed server (ODI_server1) is up and running

Execution of each of these scripts is explained in detail below.

4.5.1 importETLComps.sh

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

Prerequisite: Check if the **ormba.project.export.path** parameter in ormba.properties file is correctly configured, and the path (<TEMPDIR>/ORMBA-V2.2.0.0.0-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

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.

4.5.2 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 Criterion:

- 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 (If source database is 12c, this will be 4)
        - Logical – 8 (If source database is 12c, this will be 9)
    - Context – **RMB1**
    - ODI Logical and Physical Agent – **OracleDIAgent**
    - DB Link – **RMB1_LINK** 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.

Validate the public database link named **RMB<instance_num>_LINK**, which is 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.

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

4.5.3 createGoldenGateTopology.sh

Purpose: This shell script adds the Oracle GoldenGate topology to the ODI. Execute this script only if GoldenGate is set to run in ONLINE mode. If not, skip the execution of this script.

Prerequisites:

- Check if GoldenGate and JAgent are correctly configured, and both are up and running.
- Check if GoldenGate is set to run on ONLINE mode. To do this, open the ormba.properties file and see if the value of ormba.replication.gg.mode.online attribute is set to TRUE.

Success Criterion: Check if the following are created:

- Two new Data Servers are created under Oracle GoldenGate Topology.
    - Source
    - Staging
- Two logical schemas are generated in Logical Architecture →Technologies →Oracle GoldenGate.
    - CAPTURE
    - REPLICAT

Errors: If you update topology attributes, delete the topology from ODI Studio and re-run this shell script.

For example, if you have incorrectly specified the GoldenGate path in the Source GoldenGate topology, it results in an error while testing the topology. To rectify the issue, delete the **Source** data server under Oracle GoldenGate Technology in ODI studio, and re run the script after correcting the path in ormba.properties file.

4.5.4 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 the log for success message.

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.

4.5.5 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 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.

4.5.6 checkConfiguration.sh

Purpose: This shell script checks if the configureInstance.sh script has configured the instance correctly. It also adds missing table entries to the metadata table.

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.

4.5.7 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.

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

4.5.8 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.

Execution Command: importData.sh MODEL=ALL

Note: If GG is running in OFFLINE mode, after successful execution of this script, you need to check the GG script path (configured as value of ormba.ggscript.location attribute in ormba.properties file in section 4.4) and follow the instructions in the readme.txt file available within each model folder.

Success Criterion 1: 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 (,).

Success Criterion 2: Verify the GoldenGate extracts and replicats using the procedure below:

1. Log on to the Source machine, access GG client using the command:

   ./ggsci
2. Execute the command info all to check if all extracts are in RUNNING mode.
3. Log on to the Target machine, access GG client using the command:

   ./ggsci
4. Execute the command **info all** to check if all replicats are in RUNNING mode.
5. If a model fails to import, identify the failed model (for e.g. I1BL) and perform the necessary corrective action.
6. 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 (,).

4.5.9 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 and check if there are 35 views in the model, REP_VIEWS.

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

4.6 Post Installation Tasks

After ETL installation, follow the tasks below:

4.6.1 Verifying ETL Component Installation

1. Change to <TEMPDIR>/ORMBA-V2.2.0.0.0-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.

4.6.2 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-V2.2.0.0.0-Database folder.
3. Edit the below statement to include the release path.
   define RELEASE_PATH=<TEMPDIR>/ORMBA-V2.2.0.0.0-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-V2.2.0.0.0-Database folder.
8. Edit the below statements to include the release path and ODI Repository Name.
   define RELEASE_PATH=<TEMPDIR>/ORMBA-V2.2.0.0.0-Database
   define ODI_REPO= '<Master Repository Name>'
9. Execute the following command : **set serverout on**
10. Execute the following command: **@ postInstallationScript.sql**
11. Exit from SQL *Plus.

4.6.3 Checking Invalid Objects in ORMBA Schema

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

1. Change to <TEMPDIR>/ORMBA-V2.2.0.0.0-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. If the verification is successful, the SQL console displays success messages. This indicates that the ORMBA installation until this point is successful.
7. 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.

4.6.4 Loading Data to Warehouse

Once installation is complete, data is available in the replication layer. To move data from replication to warehouse, you need to execute ETL jobs that are available out-of-the-box. Refer ORMB Admin Guide to know more on how to execute the jobs.

5. Installing ORMBA Admin Tool Component

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 as explained in section 4.1, you can deploy the Admin Tool in the same, or else you can create a separate one.

Admin tool installation includes the following steps:

- Configuring DataSource
- Deploying Admin Tool
- Configuring Security
- Configuring ORMBA Initial Settings

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

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-V2.2.0.0.0-Web/config/datasource folder.
2. Edit the **datasource.properties** file with the below parameters:

   admin.url=<Weblogic console URL> Eg: t3://localhost: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: To know more about WebLogic attributes, refer to section Creating WebLogic Domain.
3. Execute **configureDS.sh** in the same folder with **<FMW_HOME>/wlserver/server/bin** as argument.
4. Check the log messages of configureDS.sh to see if the execution was successful.
5. Log on to the WebLogic Server Administration console and check if the configured datasource is available under ormba_domain > JDBC Data Sources > Data Sources in the Domain Structure pane.

5.2 Deploying Admin Tool

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. Open the **deploy_configuration.properties** file in <TEMPDIR>/ORMBA-V2.2.0.0.0-Web/admintool folder.
2. Edit the deploy_configuration.properties file as shown below:

   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: To know more about WebLogic attributes, refer to section Creating WebLogic Domain.
3. Go to <TEMPDIR>/ORMBA-V2.2.0.0.0-Web/admintool folder.
4. Execute **deploy.sh** in application server with <FMW_HOME>/wlserver/server/bin as argument.

5.2.1 Post Deployment Verification

To check if the Admin tool EAR file 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, http://<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 Configuring Security

To configure Admin Tool security, follow the procedure below:

1. Log on to Enterprise Manager.
2. Right-click on the **ormba_domain** node. A shortcut menu appears.
3. Select the **Application Roles** option from the Security sub-menu. The Application Roles page appears on the right pane.
4. Select the **ormba-admin** option from the Application Stripe list and click the **Search** button corresponding to the **Role Name** field.
5. Select the required role and then click **Edit**.
6. 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*.

5.4 Configuring ORMBA Initial Settings

Some of the initial configurations of ORMBA are created as part of installation. However, some other configurations need to be manually updated using ORMBA Admin Tool before you can start working with ORMBA.

The attributes that need to be updated and the page on which they are to be configured are listed in the table below:

Note: For more information on Admin Tool configurations, refer to *Oracle Revenue Management and Billing Analytics Functional Overview.*

Page	Attribute
Global Settings	• Language • Date from which all ETL jobs will be configured to start the initial load **Note**: Set this date based on the value configured for STARTDATE in step 2 of section 3.3. • Corporate Currency, used in dashboards for cross divisional analysis • Average value for a transaction in corporate currency - used in unrealized revenue computation • Enable modeling feature • Enable data level security in dashboards • Date from which all ETL jobs will be configured to end the initial load • End point of simulation webservice • End point of apply back webservice • Value of the high threshold bills
Target Entity Definition	• Check whether 'Characteristic Entity' is available for the entities that requires Characteristic Map configuration. If not, update the appropriate Characteristic Entity for the target entity. • Need to update User Extension Procedure and User Extension Procedure (Post Job) against a target entity, if required.
Job Configuration	• Need to 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 (eg:- 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 • Service Quantities to be Excluded from Modelling • Date from which all ETL jobs for the specific product instance will be configured to end the initial load • Currency conversion algorithm to be used. (Need to change if the source installation is using a different currency conversion algorithm)
Data Security	• Need to define security configurations. 'Enable data level security in dashboards' global setting is configured as 'Y'. Please refer the Functional Overview document for the details.
Characteristic Map	• Need to create characteristic map definitions for required target entities. Please refer the Functional Overview document for the details.
Bill Amount Distribution	• Need to create Bill Amount Distribution definitions if required. Please refer the Functional Overview document for the details.
Indicative FX	• Need to define the indicative exchange rates from all possible currencies in source instance to corporate currency. Please refer the Functional Overview document for the details. **Note:** Without this configuration, the ETL jobs will fail.

6. Installing ORMBA Dashboard Component

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

6.1 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>/ORMBA-V2.2.0.0.0-Dashboards/RPD folder and open the **ORMBAv2.2.0.0.0.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:

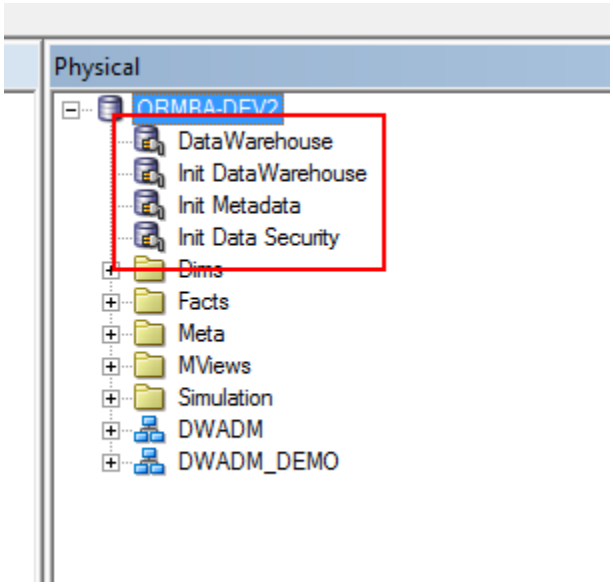


Figure 36: Oracle BI Administrator Tool

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:

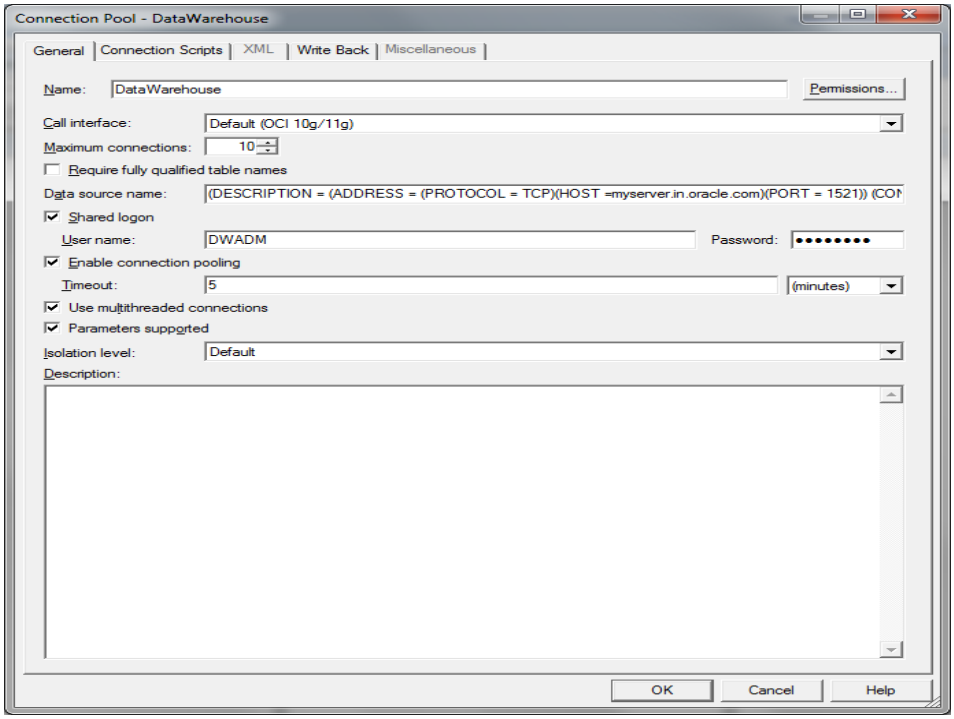


Figure 37: Connection Pool – DataWarehouse Window

5. Update the connection details to the DWADM schema.
    - 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)))
    - Update the DWADM schema password in the Password field.
6. Repeat steps 4 and 5 to update the connection details to DWADM schema in **Init Data Warehouse** connection pool.
7. Repeat steps 4 and 5 to update the connection details to MDADM schema in **Init Metadata** and **Init Data Security** connection pools.
8. Save the changes made to the **ORMBAv2.2.0.0.0.rpd** file.
9. Use the updated ORMBAv2.2.0.0.0.rpd file to deploy on OBIEE server.

6.2 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 and format of the currency within the **int:wrhs** tag with the corporate currency details as shown in the image below.

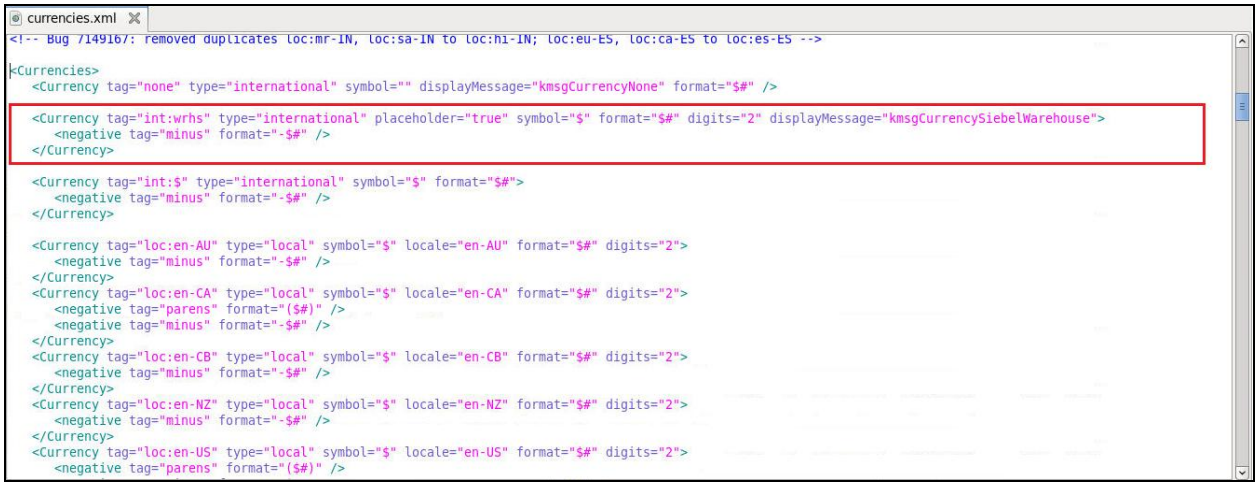


Figure 38: Connection Pool – DataWarehouse Window

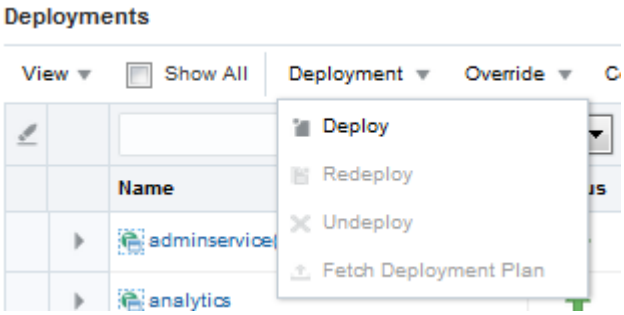
4. Save the modified **currencies.xml** file.

6.3 Importing Skins and Deploying in WebLogic

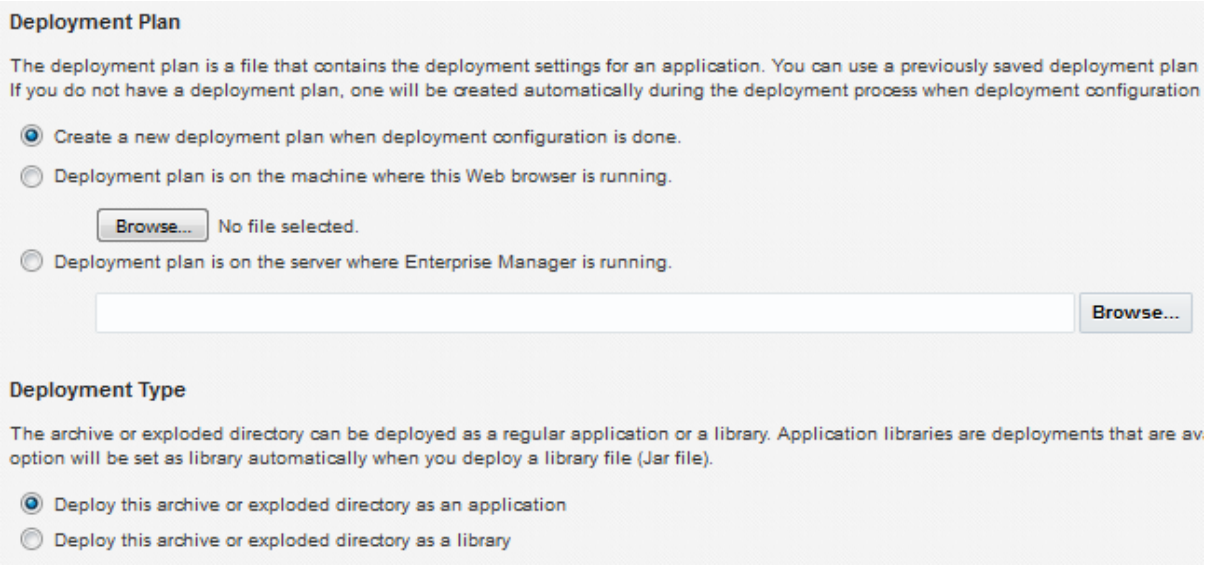
The Dashboard Component of media pack contains custom styles and skins for ORMBA dashboards. Perform the steps below to copy those custom styles and skins to respective OBIEE directory for custom files and deploy them in OBIEE WebLogic Server.

6.3.1 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.
5. Under the Deployments section, select Deployment > Deploy option. This opens the application deployment wizard.



6. Under the 'Archive or Exploded Directory' section, click Browse and select the analyticsRes.war file in the folder: <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/PRESENTATION_COMPONENT.
7. Select the first option under Deployment Plan and Deployment Type sections as shown in the image below.



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.
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.

6.3.2 Deploying bicustom.ear

1. Navigate to <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/PRESENTATION_COMPONENT folder and copy **bicustom.ear** to <OBIEE_HOME>/user_projects/domains/bi/bidata/components/OBIPS folder.
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.
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.

6.4 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>/ORMBA-V2.2.0.0.0-Dashboards/BAR/ssi.bar')

Note: Replace the values for <OBIEE_HOME> and <TEMPDIR> 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

6.5 Deploying the RPD File

For deploying RPD, follow the procedure below:

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

1. Open a terminal in the presentation server.
2. Move to the folder: <ORACLE_HOME>/user_projects/domains/bi/bitools/bin
3. Run the command below after replacing <adminUser> with the respective BI Administrator username:

   sh data-model-cmd.sh uploadrpd -I <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/RPD/ORMBAv2.2.0.0.0.rpd -SI ssi -U <adminUser>

   Note: The RPD file referred here is the one updated to change the data source, as explained in section 6.1.

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.

6.6 Importing ORMBA Home Page

1. Open a terminal in the presentation server.
2. Copy the file **bieehome.htm** from the folder <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/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

6.7 (Optional) Importing Spatial Metadata

To import spatial metadata, follow the procedure below:

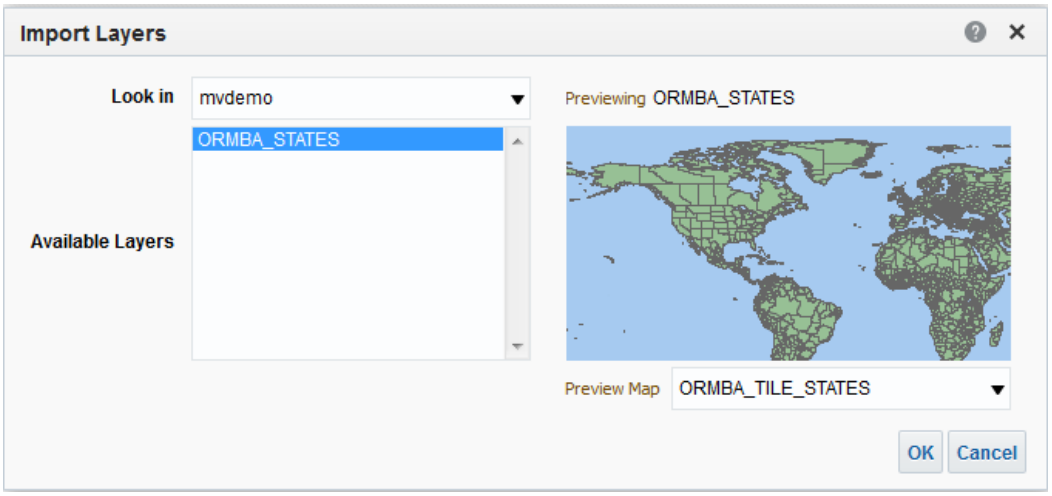
1. Open the file **mapViewerConfig.xml** in <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/MAPVIEWER and replace the below variables with appropriate values:

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

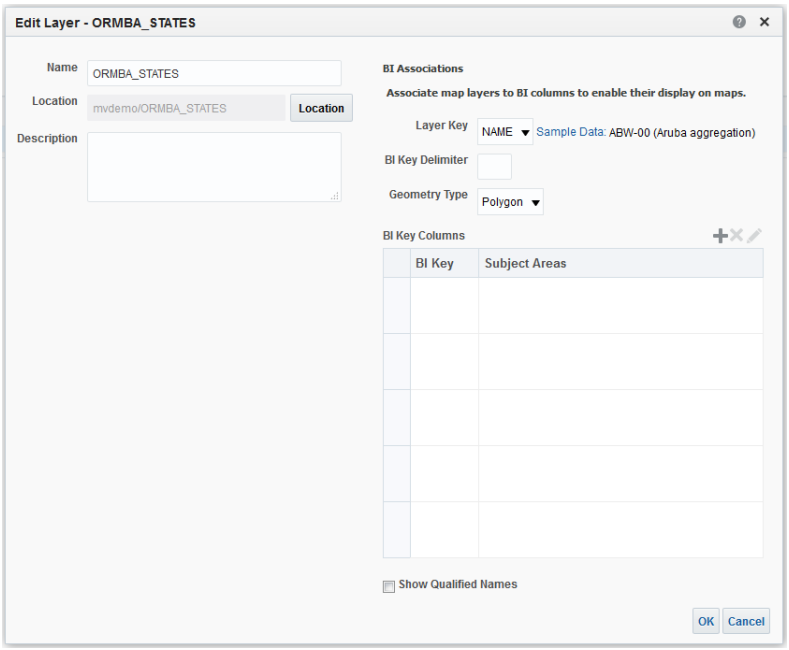
   <sid> = SID of the database server where MAPADM user resides

   <port> = port of the database server where MAPADM user resides

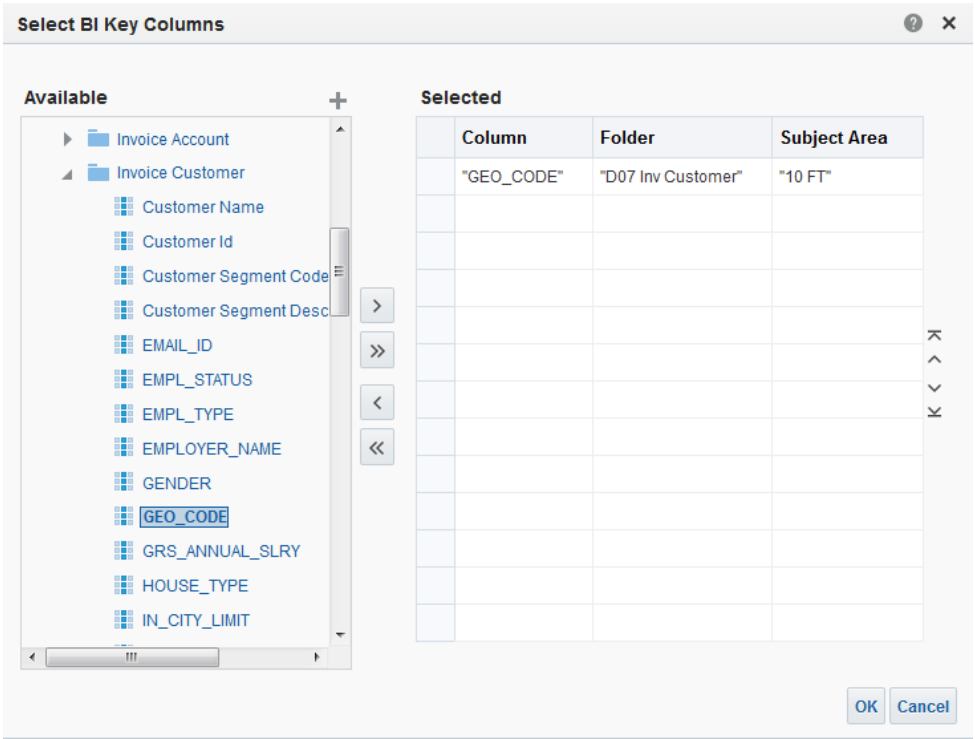
   <password> = password of the MAPADM user
2. Copy **mapViewerConfig.xml** from <TEMPDIR>/ORMBA-V2.2.0.0.0-Dashboards/MAPVIEWER to the folder: <OBIEE_HOME>/user_projects/domains/bi/config/fmwconfig/mapviewer/conf
3. Log on to the OBIEE Mapviewer Console (<hostname>:<port>/mapviewer) using Administrator 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.



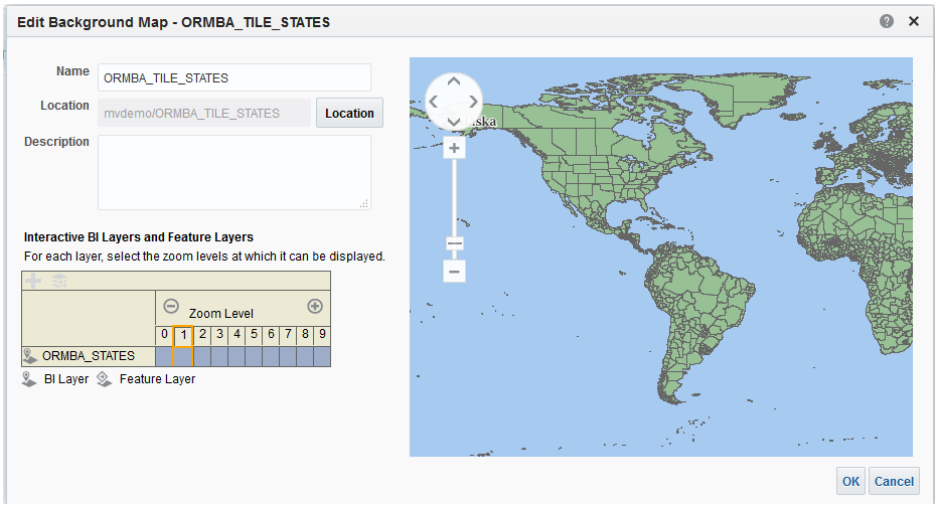
7. Click OK. This takes you back to the Manage Map Data page.
8. Click the Edit Layers button ( ) to open the Edit Layer popup window.



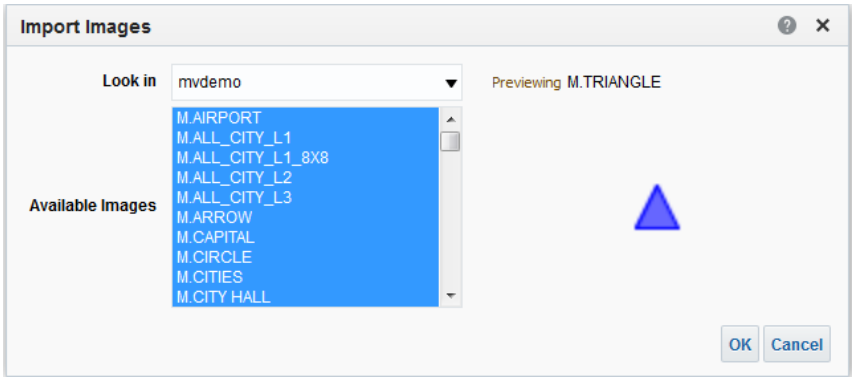
9. Click on the Add button (+). This opens the Select Subject Area popup.
10. In the popup, select Financial Transactions. This opens the Select BI Key Columns popup.
11. Select Invoice Customer > Geo Code on the left pane and click › button to move the item to the right pane.



12. Click OK. This takes you back to Edit Layer popup.
13. Click OK. This takes you back to the Manage Map Data page.
14. Navigate to the Background Maps tab and click on the Import Background Maps button ( ). This opens the Import Background Maps popup.
15. Click OK. This takes you back to Background Maps tab of Manage Map Data page.
16. Click the Edit Background Map button ( ). This opens the Edit Background Map popup.



17. The zoom level is automatically selected at **1**. Click OK. This takes you back to the Manage Map Data page.
18. Navigate to the Background Maps tab and click on the Import Images button ( ).
19. In the Import Images popup, select all available images and click OK.



7. (Optional) Configuring ORMBA Modeling

If you have opted for simulation, you need to perform the following tasks:

7.1 Configuring Data Source

For configuring the data source, follow the procedure below:

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

1. Open **datasource.properties** in the <TEMPDIR>/ORMBA-V2.2.0.0.0-Web/config/datasource folder.
2. Edit the datasource.properties with the below parameters:

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

   admin.userName=<weblogic Admin user in application server>

   admin.password=<weblogic Password>

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

   datasource.target=<Weblogic server on which Modeling EAR is to be deployed> Eg: ODI_server1

   datasource.jndiname=ormba-DWADMDS

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

   datasource.username=DWADM

   datasource.password=Password for DWADM
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**:

   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.

7.2 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-V2.2.0.0.0-Web/service folder and edit the attributes as shown below:

   domain.name=ormba_domain

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

   admin.userName=<weblogic UserName>

   admin.password=<weblogic Password>

   target.server=<Weblogic server or cluster on which Modeling EAR is to be deployed> Eg: ODI_server1

   file.location=.

   file.name=ORMBA-Modelling.ear

   application.name=ORMBA-Modelling

2. Go to the folder <TEMPDIR>/ORMBA-V2.2.0.0.0-Web/service and execute the shell **deploy.sh** with **<FMW_HOME>/wlserver/server/bin** as argument.

7.3 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 **GlobalConfigurationRole** or **ApplicationAdminRole** role.
2. Navigate to the Global Settings page.
3. Edit the values of following parameters.

Parameters	Value
Enable modeling feature	Y
End point of simulation webservice	Webservice endpoint URL (Eg: http://<server>:<port>/ormbas/resources where <server> is the server on which the modeling service was deployed) For more information, see Configuring Data Source.

7.4 Deploying Apply Back Service

1. Go to WebLogic Console (<hostname>:<port>/console) in the dnfnflfapplication server and log on with administrator credentials.
2. Under Target Navigation, navigate to WebLogic Domain > Deployments and click the Lock & Edit button under Change Center.
3. Click Install and enter the path: **<TEMPDIR>/ORMBA-V2.2.0.0.0-Web/service/applyback.war**
4. Click Upload.
5. Click Next and select the required clusters.
6. Click Next and give a name for the deployment.
7. Click Finish and click Activate Changes under Change Center.
8. Check whether the deployment is active and if not, click Start.