Oracle® Financial Services Asset Liability Management Application Pack

Installation and Configuration Guide

Release 8.0.7.0.0

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OFS ALM Installation and Configuration Guide, Release 8.0.7.0.0

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A Configuring Web Server

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Document Control

This section provides the revision details of the document.

Version Number	Revision Date	Changes Done
1.0	Created: November 2018	Captured installation and configuration steps for 8.0.7.0.0 Release.

This document includes the necessary instructions to install the OFS ALM Application Pack 8.0.7.0.0 and perform the required post installation configurations. The latest copy of this guide can be accessed from OHC Documentation Library.

Preface

This section provides supporting information for the Oracle Financial Services Asset Liability Management Application Pack (OFS ALM) Pack Installation and Configuration Guide and includes the following topics:

Summary

You can find the latest copy of this document in OHC Documentation library which includes all the recent additions/revisions (if any) done till date.

Before you begin the installation, ensure that you have access to the Oracle Support Services Portal with the required login credentials to quickly notify us of any issues at any stage. You can obtain the login credentials by contacting Oracle Support Services.

Audience

Oracle Financial Services Asset Liability Management Application Pack Installation and Configuration Guide is intended for administrators, and implementation consultants who are responsible for installing and maintaining the application pack components.

Prerequisites for the Audience

The following are the prerequisites for administrators installing OFS Asset Liability Management Application Pack. This document assumes that you have experience in installing Enterprise components and basic knowledge about the following:

- OFS ALM pack components
- OFSAA Architecture
- UNIX Commands
- Database Concepts
- Web server/Web application server

Related Documents

For more information, see the following documents in the Oracle Financial Services Asset Liability Management Application Pack 8.x documentation library:

- ***Oracle Financial Services Asset Liability Management User Guide***
- ***Oracle Financial Services Asset Liability Management Analytics User Guide***

Conventions

The following text conventions are used in this document:

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

Abbreviations

The following table lists the abbreviations used in this document:

Abbreviation	Meaning
AIX	Advanced Interactive eXecutive
BDP	Big Data Processing
DBA	Database Administrator
DDL	Data Definition Language
DEFQ	Data Entry Forms and Queries
DML	Data Manipulation Language
EAR	Enterprise Archive
EJB	Enterprise JavaBean
ERM	Enterprise Resource Management
FTP	File Transfer Protocol
GUI	Graphical User Interface
HDFS	Hadoop Distributed File System
HTTPS	Hypertext Transfer Protocol Secure
J2C	J2EE Connector
J2EE	Java 2 Enterprise Edition
JDBC	Java Database Connectivity
JDK	Java Development Kit
JNDI	Java Naming and Directory Interface
JRE	Java Runtime Environment

Abbreviation	Meaning
JVM	Java Virtual Machine
LDAP	Lightweight Directory Access Protocol
LHS	Left Hand Side
MFA	Multi-Factor Authentication
MOS	My Oracle Support
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OLAP	On-Line Analytical Processing
OLH	Oracle Loader for Hadoop
ORAAH	Oracle R Advanced Analytics for Hadoop
OS	Operating System
RAM	Random Access Memory
RDBMS	Relational Database Management System
SFTP	Secure File Transfer Protocol
SID	System Identifier
SSL	Secure Sockets Layer
SSL	Secure Sockets Layer
TDE	Transparent Data Encryption
TNS	Transparent Network Substrate
URL	Uniform Resource Locator
VM	Virtual Machine
Web Archive	WAR
XML	Extensible Markup Language

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About OFSAA and OFSAA Application Packs

This chapter includes the following topics:

About Oracle Financial Services Analytical Applications (OFSAA)

In today's turbulent markets, financial institutions require a better understanding of their risk-return, while strengthening competitive advantage and enhancing long-term customer value. Oracle Financial Services Analytical Applications (OFSAA) enable financial institutions to measure and meet risk-adjusted performance objectives, cultivate a risk management culture through transparency, lower the costs of compliance and regulation, and improve insight into customer behavior.

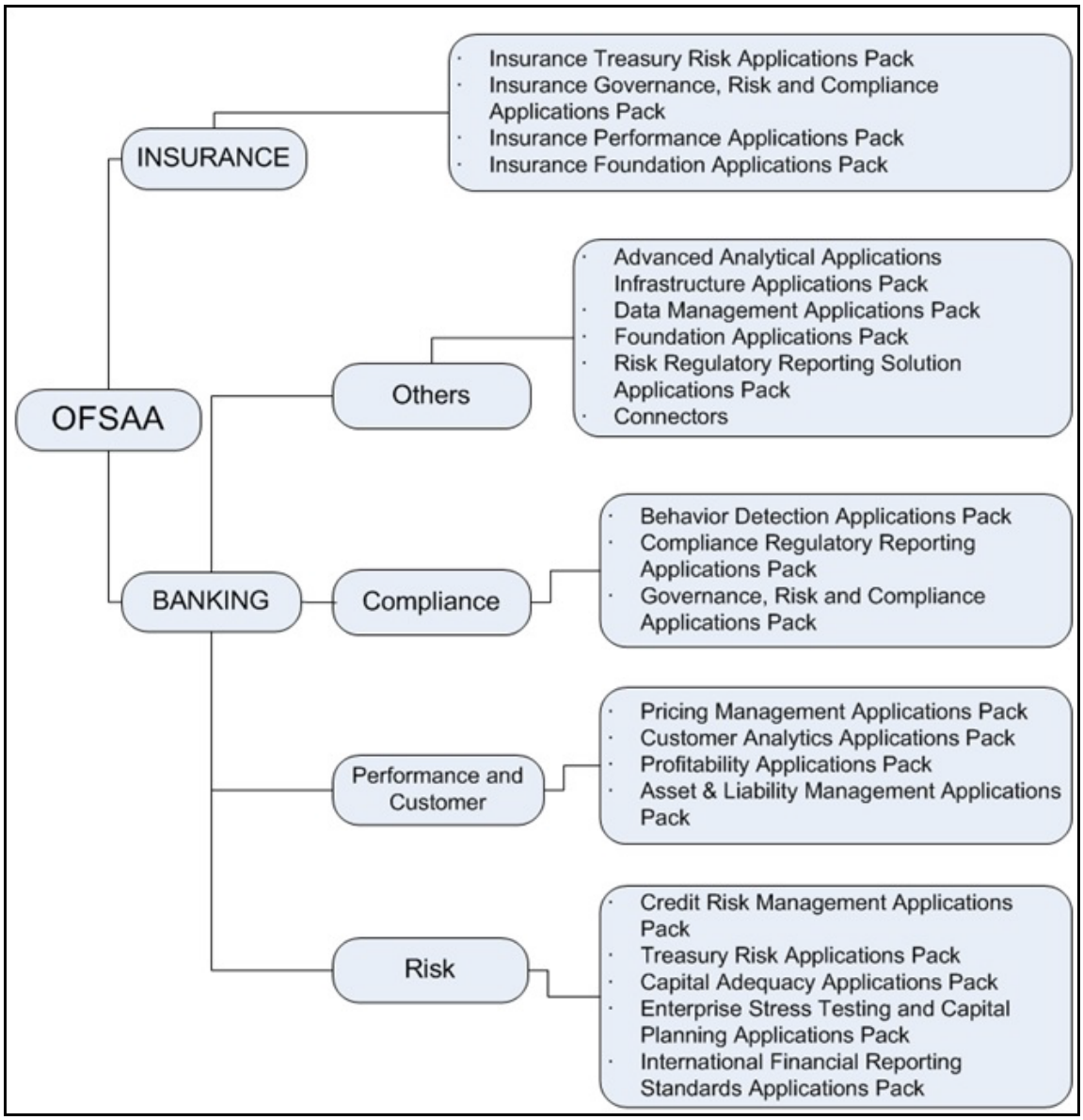
OFSAA uses industry-leading analytical methods, shared data model, and applications architecture to enable integrated risk management, performance management, customer insight, and compliance management. OFSAA actively incorporates risk into decision making, enables to achieve a consistent view of performance, promote a transparent risk management culture, and provide pervasive intelligence.

Oracle Financial Services Analytical Applications delivers a comprehensive, integrated suite of financial services analytical applications for both the banking and insurance domain.

About Oracle Financial Services Analytical Applications (OFSAA) Application Packs

The following figure depicts the various application packs that are available across the OFSAA Banking and Insurance domains:

Figure 1–1 OFSAA Application Packs



About Oracle Financial Services Advanced Analytical Applications Infrastructure (OFS ALM) Application Pack

OFS ALM 8.0.6.0.0 Pack includes the following applications:

- Oracle Financial Services Analytical Applications Infrastructure: Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) powers the Oracle Financial Services Analytical Applications family of products to perform the processing, categorizing, selection, and manipulation of data and information needed to analyze, understand and report on specific performance, risk, compliance and customer insight issues by providing a strong foundation for the entire family of Oracle Financial Services Analytical Applications across the domains of Risk, Performance, Compliance and Customer Insight.
- Oracle Financial Services Asset Liability Management: Oracle Financial Services Asset Liability Management (OFS ALM) helps financial services institutions measure and monitor interest rate risk, liquidity risk, and foreign currency risk. This solution measures and models every loan, deposit, investment, and portfolio individually, using both deterministic and stochastic methods. Oracle Financial Services ALM is a next-generation solution fully integrated with Oracle's Financial Services Analytical Applications and shares a common account level relational data model.
- Oracle Financial Services Asset Liability Management Analytics: This application provides timely and actionable insight for managing interest rate and liquidity risk and provides transparency into critical issues.

About Oracle Financial Services Analytical Applications Infrastructure (OFS AAI)

Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) powers the Oracle Financial Services Analytical Applications family of products to perform the processing, categorizing, selection, and manipulation of data and information required to analyze, understand and report on specific performance, risk, compliance and customer insight issues by providing a strong foundation for the entire family of Oracle Financial Services Analytical Applications across the domains of Risk, Performance, Compliance and Customer Insight.

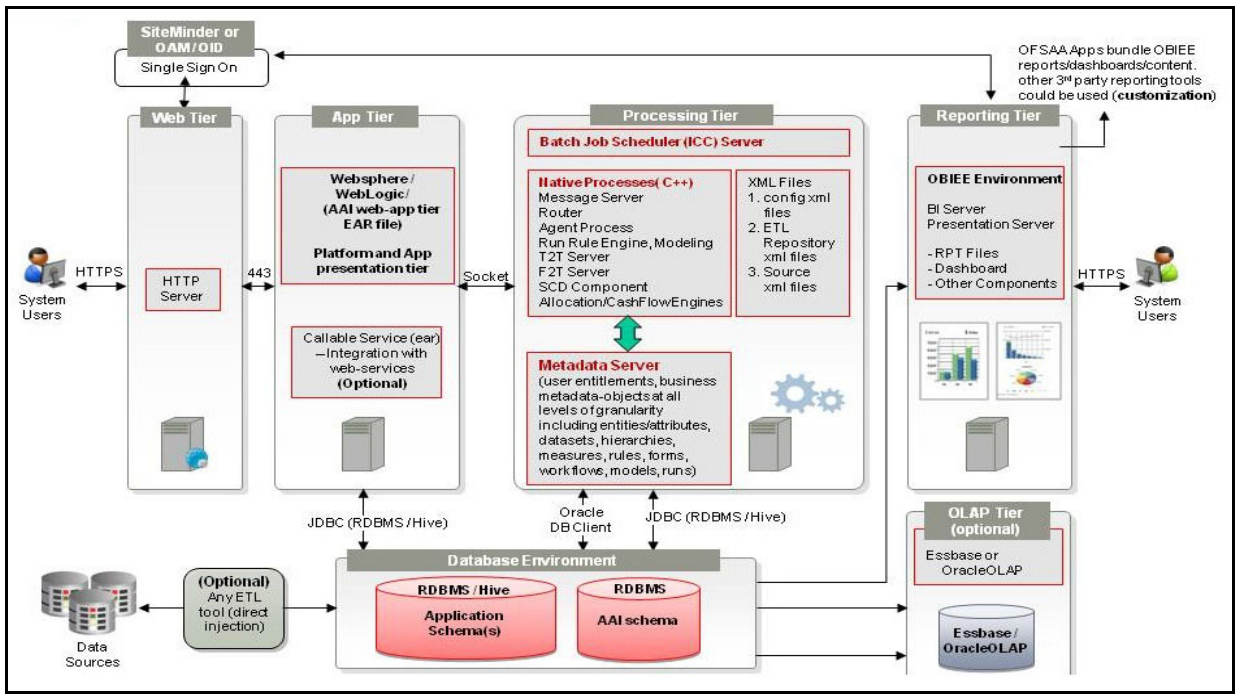
Components of OFSAAI

The OFSAA Infrastructure includes frameworks that operate on and with the Oracle Financial Services Analytical Applications Data Model and forms the array of components within the Infrastructure.

The OFSAA Infrastructure components/frameworks are installed as two layers; primarily the metadata server and Infrastructure services run on one layer, and the UI and presentation logic runs on the other. The UI and presentation layer is deployed on any of the supported J2EE Servers.

Figure 1-2 depicts the various frameworks and capabilities that make up the OFSAA Infrastructure.

Figure 1–2 Components of OFSAAI



OFSAA Infrastructure High Availability

The current release of the OFSAA Infrastructure supports only the **Single Instance** installation for the Infrastructure components. However, the High Availability (HA) for the Database Server and the Web Application Server clustering and deployment are supported in this release.

This release supports the Active-Passive model of implementation for OFSAAI components. For more information, see Oracle Financial Services Analytical Applications Configuration for High Availability- Best Practices Guide.

About Data Security Configurations

Data Security refers to the protection of data against unauthorized access and data theft. OFSAA ensures Data Security with the following features:

- Multi-Factor Authentication
- Transparent Data Encryption (TDE)
- Data Redaction
- Key Management
- HTTPS
- Logging

For more details on the features in the previous list, see the relevant topics in this guide and the Data Security and Data Privacy section in the ***Administration and Configuration Guide*** on OHC.

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Understanding OFS ALM Application Pack Installation

This chapter includes the following topics:

Installation Overview

This release (8.0.7.0.0) of the OFS ALM Application Pack bundles the upgrade patch set along with the base installer. Users/Administrators who wish to install a new OFS ALM Application Pack 8.0.7.0.0 instance or upgrade an existing OFS ALM Application Pack 8.0.x.x.x instance to 8.0.7.0.0 should download this installer. Figure 2–1 shows the order of procedures required to follow to install a new OFS ALM Pack 8.0.7.0.0 instance. To upgrade an existing OFS ALM Application Pack 8.0.x.x.x instance to 8.0.7.0.0 release, see Upgrading the OFS ALM Application Pack.

Figure 2–1 Installation Overview

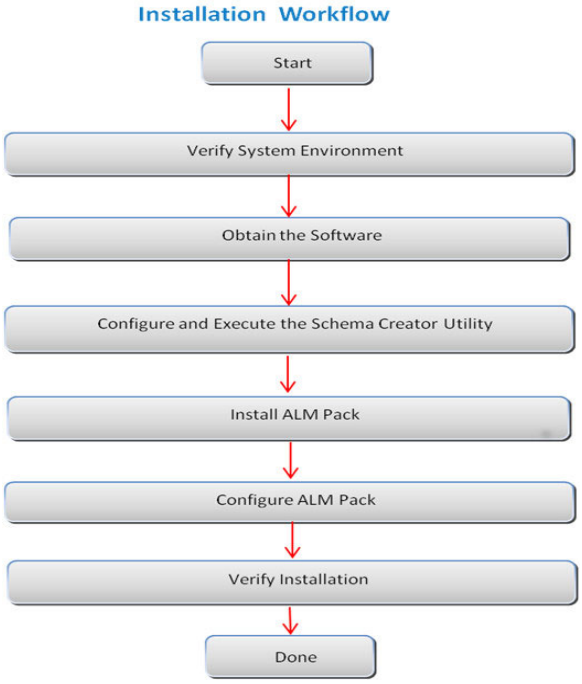


Table 2-1 provides additional information and links to the specific documentation for each task in the flowchart.

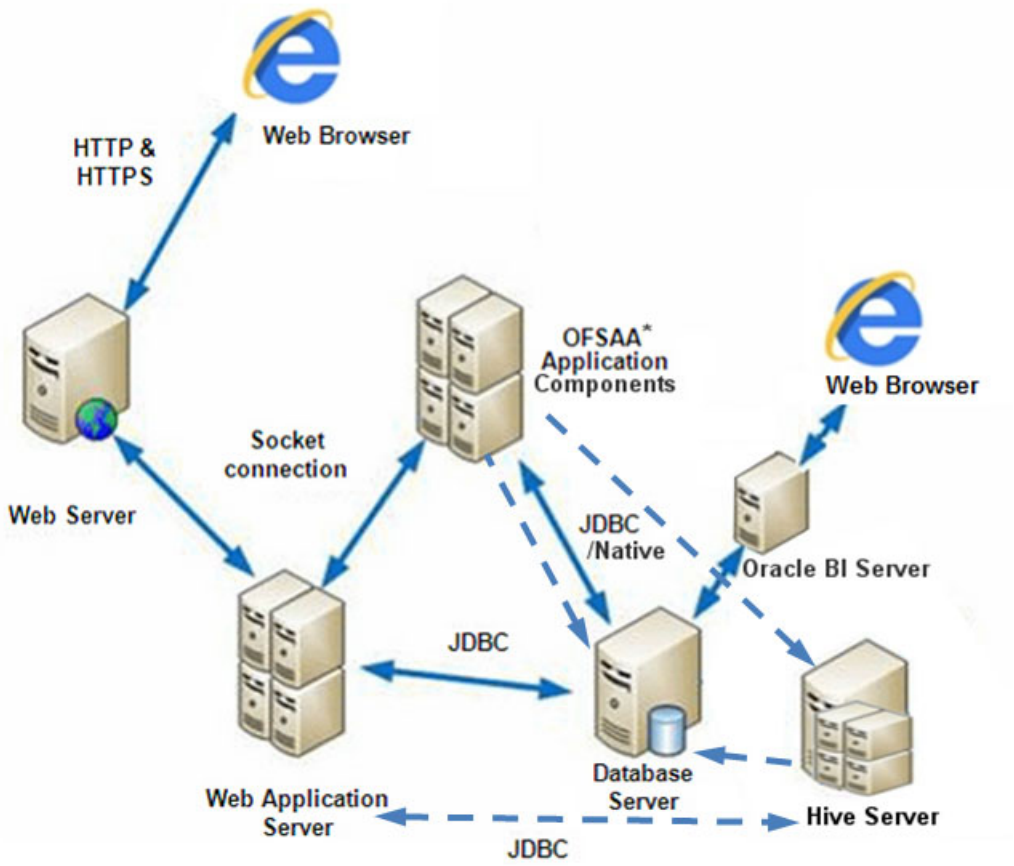
Table B–1 OFSAA Application Pack Installation Tasks and Descriptions

Tasks	Details and Documentation
Verify Systems Environment	To verify that your system meets the minimum requirements for installing and hosting the OFS ALM Application Pack, see Verifying System Environment.
Obtain the software	To access and download the OFS ALM Application Pack, see Obtaining the software.
Configure and Execute the Schema Creator Utility	To create the database schemas, see Configuring and Executing the Schema Creator Utility.
Install OFS ALM Pack	To install the OFS ALM Application Pack, see Installing the OFS ALM Application Pack.
Configure OFS ALM Pack	To configure the OFS ALM Application Pack post-installation, see Post Installation Configurations.

Deployment Topology

Figure 2-2 shows the logical architecture implemented for the OFS ALM Application Pack.

Figure 2–2 Deployment Topology



Hardware and Software Requirements

This section describes the various Operating Systems, Database, Web Server, and Web Application Server versions, and other variant details on which this release of the OFS ALM Application Pack has been qualified.

Note: OFS ALM Application Pack installation can be performed on both Virtual and Physical servers.

Refer to the Technology Matrix for Hardware and Software requirements for this release.

Verifying System Environment

To verify your system environment meets the minimum requirements for the installation, a Pre-Install Check utility is available within the Install Kit archive file. This utility can also be obtained separately by contacting Oracle Support Services.

Though the system environment verification is an integral and automated part of the installation of this software product, Oracle strongly recommends running this utility prior to beginning the installation as part of your organization's "Installation Readiness Verification Process".

Note: For more details on download and usage of this utility, see ***Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide*** given in the Related Documents section.

Understanding the Installation Mode

The following modes of installation are available for the OFS ALM Applications Pack.

Note: ALM 8.0.7.0.0 does not support GUI mode of installation.

Installing in SILENT Mode

This mode mandates updating the installation configuration files with required details and performs installation in a **Silent** non-user interactive format.

Note: For more information on configuration required for SILENT mode installation, see Installing in SILENT Mode.

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Preparing for Installation

This chapter provides the necessary information to review before installing the OFS ALM Pack v8.0.7.0.0. This chapter includes the following topics:

- Installer and Installation Prerequisites
- Obtaining the software
- Performing Common Pre-Installation Tasks

Installer and Installation Prerequisites

Table 3-1 provides the list of prerequisites required before beginning the installation for the OFS ALM application. The Installer or Environment Check Utility notifies you if any requirements are not met.

Table B–2 Prerequisite Information

Category	Sub-Category	Expected Value
Environment Settings	Java Settings	• PATH in .profile file must be set to include the Java Runtime Environment absolute path. The path should include the Java version (7 or 8) based on the configuration. **Note:** • Ensure that the absolute path to `JRE/bin` is set at the beginning of the PATH variable. • For example, `PATH=/usr/java/jre1.7/bin:$ORACLE_HOME/bin:$PATH` Ensure that SYMBOLIC links to JAVA installation are not set in the PATH variable.
	Oracle Database Settings	Oracle Database Server • TNS_ADMIN must be set in `.profile` file pointing to appropriate `tnsnames.ora` file. • Enable Transparent Data Encryption (TDE) and/ or Data Redaction** • ** Note: For more information, see Appendix: Enabling TDE, Data Redaction, and the Corresponding Settings in OFSAA.
		OFSAA Processing Server • ORACLE_HOME must be set in .profile file pointing to appropriate Oracle Client installation. • PATH in .profile must be set to include appropriate $ORACLE_HOME/bin path. • Ensure that an entry (with SID or SERVICE NAME) is added in the tnsnames.ora file.
	Oracle Essbase Settings	• ARBORPATH, ESSBASEPATH, HYPERION_HOME to be set in the .profile pointing to an appropriate Oracle Essbase Client installation. **Note:** These settings are required only if you want to use Oracle Hyperion Essbase OLAP features.

Table B–2 (Cont.) Prerequisite Information

Category	Sub-Category	Expected Value
OS/ File System Settings	File Descriptor Settings	• Greater than 15000 **Note:** The value specified here is the minimum value to be set for the installation process to go forward. For other modules, this value may depend on the available resources and the number of processes executed in parallel.
	Total Number of Process Settings	• Greater than 4096 **Note:** The value specified here is the minimum value to be set for the installation process to go forward. For other modules, this value may depend on the available resources and the number of processes executed in parallel.
	Heap Size	Greater than or equal to 8310
	Port Settings	• Default port numbers to be enabled on the system are 6500, 6501, 6505, 6507, 6509, 6510, 6666, 9999, and 10101.
	`.profile` permissions	• User to have 755 permission on the .profile file.
	Installation Directory	• A directory where the product files will be installed. • Assign 755 permission to this directory. • This directory needs to be set as FIC_HOME.
	Temporary Directory	Default temporary directory where installation files are stored for a short period of time to support faster installation. • For installation on UNIX OS, your UNIX administrator must give you the required read-write permissions for the ***/tmp*** directory and disable the NOEXEC option • Configure adequate space on the ***/tmp*** directory. It is recommended that you allocate more than 10 GB of space. **Note:** If NOEXEC is enabled, the extraction of files by the installer into the ***/tmp*** directory is prevented and the binaries will not execute in the directory, which will fail the installation.
	Staging Area/ Metadata Repository	• A directory to hold the application metadata artifacts and additionally act as a staging area for flat files. • The directory should exist on the same system as the OFSAA Installation. This directory can be configured on a different mount or under a different user profile. However, the owner of the installation directory that is mentioned in the previous row, must have RWX permissions on this folder. • Assign 775 permission to this directory. Note: This directory is also referred to as the FTPSHARE folder.
	Download Directory	• A directory where the product installer files will be downloaded/ copied. • Set 755 permission on this directory.

Table B–2 (Cont.) Prerequisite Information

Category	Sub-Category	Expected Value
Database Settings	Database Instance Settings	• NLS_CHARACTERSET to be AL32UTF8 • NLS_LENGTH_SEMANTICS to be BYTE • OPEN CURSORS limit to be greater than 1000
Web Application Server	WebSphere/ WebLogic/ Tomcat	• Web Application Server should be installed and the profile /domain created. • You will be prompted to enter the WebSphere Profile path or WebLogic Domain path or Tomcat Deployment path during OFSAAI installation. Note: • See Appendix A for WebSphere Profile and WebLogic Domain creation. • For deployment on Oracle WebLogic Server 12.1.3+ (64 bit) with Java 8, download and install patch **18729264** from http://support.oracle.com/.
Web Server	Apache HTTP Server/ Oracle HTTP Server/ IBM HTTP Server	This is an optional requirement. HTTP Server Installation to be present. You are prompted to enter the Web Server IP/Hostname and Port details during installation. **Note:** See Appendix A for web server installation.
Operating System	Solaris 11	Upgrade to Oracle Solaris 11.3 with SRU09 or higher. See https://docs.oracle.com/cd/E53394_01/html/E54845/index.html to upgrade to SRU09 if you have a lower SRU version. Additionally, install the required runtime libraries. For more information, see Installing Only the Runtime Libraries on Oracle Solaris 11.
	Solaris 10	Install the required OS patches. For more information, see Installing the Required Oracle Solaris 10 Patches. Additionally, install the required runtime libraries. For more information, see Installing Only the Runtime Libraries on Oracle Solaris 10. **Note:** In an OFSAA instance where multiple OFSAA application packs have been installed/ deployed, it is mandatory to upgrade all OFSAA application packs to 8.0.7.0.0 release. You should start the upgrade of the OFS ALM Applications pack, only after confirming that all of the application packs in your OFSAA instance are available for upgrade to 8.0.7.0.0 version. For information on availability of the required OFSAA Application Packs, see 2246606.1.
Others	Oracle R/ Oracle R Enterprise	• This is an optional requirement. • see section Installing Oracle R distribution and Oracle R Enterprise (ORE) for more details.
AAI		Download the one-off patch for bug number 30273976 from http://support.oracle.com/.
		Download the one-off patch for bug number 30667083 from http://support.oracle.com/.

The following step is applicable only if the existing OFSAA setup version is 8.0.5.x.x and Configuration and Atomic Schema(s) were restored from exported dumps of other environments:

Log in to Configuration Schema and execute the following SQL statements:

```
alter table AAI_AOM_APP_COMP_ATTR_MAPPING drop constraint AOM_APP_COMP_
ATTR_PK drop index
/
alter table AAI_AOM_APP_COMP_ATTR_MAPPING add constraint AOM_APP_COMP_
ATTR_PK primary key (APP_COMP_ATTR_MAP_ID)
```

Note: Ensure that the tablespace(s) used for the database user(s) is set to AUTOEXTEND ON.

Obtaining the software

This release of OFS ALM Application pack v8.0.7.0.0 can be downloaded from http://support.oracle.com/ using patch 29009037.

If you are currently on Release 8.0.0.x.x or 8.0.1.x.x of the OFS ALM Pack, then you need to first upgrade to Release 8.0.2.x.x before upgrading to 8.0.7.0.0.

Performing Common Pre-Installation Tasks

The common pre-installation activities that you must carry out before installing the OFS ALM application pack are:

Identifying the Installation, Download and Metadata Repository Directories

To install OFSAA Application Pack, create the following directories:

- **OFSAA Download Directory (Optional)**: Create a download directory and copy the OFSAA Application Pack Installer File (archive). This is the directory where the downloaded installer/patches can be copied.
- **OFSAA Installation Directory (Mandatory)**: Create an installation directory where the product binaries will be installed. Set the variable FIC_HOME in the .profile file to point to the OFSAA Installation Directory.
- **OFSAA Staging/Metadata Directory (Mandatory)**: Create a Staging/Metadata Repository Directory to copy data files, save data extracts, and so on. Additionally, this directory also maintains the OFSAA metadata artifacts. This directory is also

referred to as "FTPSHARE". This directory must be created on the same host as the OFSAA Installation Directory mentioned in the previous point in this list.

Note:

- Assign 755 user permission to the installation directory.
- Assign 775 user permission to the staging directory.
- Ensure the OFSAA staging directory is not set to the same path as the OFSAA installation directory and is not a sub-folder inside the OFSAA installation directory.

Downloading and Copying the OFS ALM Applications Pack Installer

To download the OFS ALM Applications Pack Installer, follow these steps:

1. This release of OFS ALM Application pack v8.0.7.0.0 can be downloaded from http://support.oracle.com/ using patch 29009037.
2. Download the mandatory one-off patch 29965853 from http://support.oracle.com/.
3. Copy the downloaded installer archive to the Download Directory (in Binary Mode) on the setup identified for OFSAA installation.
4. Download the mandatory one-off patch 29843175 from http://support.oracle.com/.

If you are currently on Release 8.0.0.x.x or 8.0.1.x.x of the OFS ALM Pack, then you need to first upgrade to Release 8.0.2.x.x before upgrading to 8.0.7.0.0.

1. Log in to My Oracle Support, search for the **33663417** Mandatory Patch in the **Patches & Updates** Tab and download it.

Note: On the 10th of December 2021, Oracle released Security Alert CVE-2021-44228 in response to the disclosure of a new vulnerability affecting Apache Log4J prior to version 2.15. The application of the **33663417** Mandatory Patch fixes the issue.

For details, see the My Oracle Support Doc ID 2827801.1.

Extracting the Software

Note : You must be logged in to the UNIX operating system as a non-root user.

1. Download the unzip utility (OS specific) `unzip_<os>.Z` and copy it in Binary mode to the directory that is included in your PATH variable. If you already have the unzip utility to extract the contents of the downloaded archive, skip this step.
2. Uncompress the unzip installer file with the command:

```
uncompress unzip_<os>.Z
```

Note: If an error message "uncompress: not found [No such file or directory]" is displayed, contact your UNIX administrator.

3. Assign execute (751) permission to the file with the command:

   ```
   chmod 751 unzip_<OS>
   ```

   For example, `chmod 751 unzip_sparc`

4. Extract the contents of the OFS ALM Application Pack 8.0.0.0.0 installer archive file in the download directory with the following command:

   ```
   unzip OFS_ALM_PACK.zip
   ```

5. Navigate to the download directory and assign execute permission to the installer directory with the following command:

   ```
   chmod -R 750 OFS_ALM_PACK
   ```

6. Extract and apply the patch 29965853. See the Readme available with the patch for further instructions on installing the patch.

7. Extract and apply the patch 29843175. See the Readme available with the patch for further instructions on installing the patch.

Setting Up the Web Application Server

For setting up the environment based on your selected Web Application Server, see to Starting/ Stopping Infrastructure Services for more information.

For more information, see Oracle Financial Services Analytical Applications Infrastructure Security Guide.

Installing Oracle R distribution and Oracle R Enterprise (ORE)

This is an optional step and required only if you intend to use Oracle R scripting in the Oracle Financial Services Enterprise Modeling Application or if the OFSAA Application that you have licensed uses this feature. For information on applications that use this feature, see the Tech Matrix.

The following is the instruction to install ORD and ORE:

Install Oracle R Distribution and Oracle R Enterprise (Server Components) on the Oracle Database server. See Oracle® R Enterprise Installation and Administration Guide for Windows, Linux, Solaris, and AIX - Release 1.5 at Oracle R Enterprise Documentation Library and Release 1.5.1 at Oracle R Enterprise Documentation Library.

Table B–3

No.	Oracle R Enterprise	Oracle R Advanced Analytics for Hadoop	Open source R or Oracle R Distribution	Oracle Database Enterprise Edition
1	1.5.1	2.7.1	3.3.0	11.2.0.4, 12.1.0.1, 12.1.0.2, 12.2.0.1
2	1.5.0	2.5.1, 2.6.0, 2.7.0	3.2.0	11.2.0.4, 12.1.0.1, 12.1.0.2

Note: If you use ORE 1.5 or ORE 1.5.1, for Oracle Financial Services Enterprise Modeling, you must set the session time zone in 'R_ HOME/etc/Rprofile.site' file on the database server, where R_ HOME is the home directory of the R instance on which ORE server packages are installed. Alternatively, you can set session time zone in scripts registered within OFS EM by using the 'Sys.env(TZ=<time zone>)' R function.

For the ALM application pack, this is an optional step and required only if you intend to use Term Structure Parameter Estimation functionality under Rate Management – Interest Rates, for computing term structure parameters. Both Funds Transfer Pricing and Asset Liability Management applications require term structure parameters for all monte carlo engine based calculations (OAS, VaR, and EaR).

The following are the prerequisites:

- Install R and Oracle R Enterprise Server on the Oracle Database server. Refer to https://docs.oracle.com/cd/E57012_01/doc.141/e57007.pdf
- ORE version supported - Oracle R Enterprise (Server) version 1.4.1

Configuration for Oracle R Enterprise

Grant the RQADMIN role to atomic schema.

You can grant the rqadmin role in SQL*Plus by logging in to the database with DBA privileges and provide the following privilege to Atomic Schema:

RQADMIN by executing the command:

```
GRANT RQADMIN TO <atomic_schema>;
```

4

Installing the OFS ALM Pack

This chapter provides instructions to install the OFS ALM pack for various modes of installation.

This chapter includes the following sections:

Overview of Schema Creator Utility

Creating database users/ schemas is one of the primary steps in the complete OFSAA installation. This release of OFSAA provides a utility to quickly get started with the OFSAA 8.0 installation by allowing easier and faster creation of database User(s)/ Schema(s), assign the necessary GRANT(s) and so on. Additionally, it also creates the required database objects in these schemas.

About Schema Creator utility

The schema creator utility should be configured and executed mandatorily every time prior to installation of any OFSAA Application Pack.

The following are the types of schemas that can be configured in the OFSAA:

- **CONFIG**: This schema holds the entities and other objects required for OFSAA setup configuration information.

  Note: There can be only one CONFIG schema per OFSAA instance.

- **ATOMIC**: This schema holds the data model entities. One ATOMIC schema is attached to one Information Domain.

  Note: For some application packs there can be multiple ATOMIC schemas per OFSAA Instance, but the ALM Application Pack supports only one atomic schema per OFSAA instance.

- **SANDBOX:** Denotes the schema that contains the data for all Sandbox executions. One SANDBOX schema is attached to one Sandbox Information Domain.

> **Note:** This Schema type is not applicable for OFS ALM Application Pack. There can be multiple SANDBOX schemas per OFSAA Instance and a Sandbox Information Domain can have only one SANDBOX schema.

- **ADDON**: Denotes any additional schema used by the OFSAA Applications.

> **Note:** This Schema type is not applicable for OFS ALM Application Pack.

Selecting Execution Modes in Schema Creator Utility

Schema creator utility supports the following modes of execution:

- **Online Mode**: In this mode, the utility connects to the database and executes the Data Definition Language (DDL)s for User, Objects, and Grants. If you have SYSDBA privileges, you can execute the Schema Creator Utility in Online mode and create Users, Objects, and Grants during the execution process.

> **Note:** To execute the utility in Online mode, you must connect as "<User> AS SYSDBA"

- **Offline Mode**: In this mode, the utility generates a SQL script with all the required DDLs for User, Objects and GRANTS. This script must be executed by the DBA on the appropriate database identified for OFSAA usage. If you do not have SYSDBA privileges, you can execute the Schema Creator Utility in Offline mode and generate the script file that contains the Schemas, Objects, and GRANTS information. Subsequently, a SYSDBA user must execute the script file manually.

Note:

1. Connect as any database user.
2. Reconfigure the `OFS_ALM_SCHEMA_IN.xml` file and execute the utility. For more information on reconfiguring these files, see Configuring <<APP Pack>>_SCHEMA_IN.xml File

   To execute the utility in Offline mode, you must connect as a user with the following GRANTS (alternatively, you can also connect as a user with SYSDBA privileges):

   - SELECT ON DBA_ROLES
   - SELECT ON DBA_USERS
   - SELECT ON DBA_DIRECTORIES
   - SELECT ON DBA_TABLESPACES
   - CREATE SESSION
3. If there are any errors during the SQL script execution, reconfigure the `OFS_ALM_SCHEMA_IN.xml` and execute the utility. This regenerates the scripts with corrected information.

   For more information, see Configuring <<APP Pack>>_ SCHEMA_IN.xml File
4. Do not modify the `<APP_Pack>_SCHEMA_OUT.XML` file generated after the execution of this utility.

Selecting Execution Options in Schema Creator Utility

Depending on the option selected to run the OFSAA Application Pack installer, you must select the appropriate schema creator utility execution option. To run the OFSAA Application Pack installer in Silent mode, it is mandatory to execute the schema creator utility with `-s` option.

Configuring and Executing the Schema Creator Utility

This section includes the following topics:

Prerequisites

The prerequisites you must have before configuring the Schema Creator Utility are:

- Oracle User ID/Password with SYSDBA privileges.
- JDBC Connection URL for RAC/Non RAC database.
- HOSTNAME/IP of the server on which OFSAA is being installed.
- For enabling Transparent Data Encryption (TDE) in your OFSAA instance during installation, perform the steps explained in the Appendix R: Enabling Transparent Data Encryption (TDE) in OFSAA.

Configuring the Schema Creator Utility

This section explains the steps to configure the Schema Creator Utility.

To configure the Schema Creator Utility, follow these steps:

1. Log in to the system as non-root user.
2. Navigate to the following path: `OFS_ALM_PACK/schema_creator/conf` directory.
3. Edit the `OFS_ALM_SCHEMA_IN.xml` file in a text editor.
4. Configure the elements as described in Configuring <<APP Pack>>_SCHEMA_IN.xml File.
5. Save the `OFS_ALM_SCHEMA_IN.xml` file.

Note: On successful execution of the utility, the entered passwords in the `OFS_ALM_SCHEMA_IN.xml` file are nullified.

Executing the Schema Creator Utility

This section includes the following topics:

Executing the Schema Creator Utility in Online Mode

In Online mode, the Schema Creator Utility creates all the Schemas, Schema Objects, Tablespaces, Grants, and Roles in the database during the execution process.

To execute the Schema Creator Utility in Online mode, follow these steps:

1. Log in to the system as non-root user.

2. Navigate to the following path: `OFS_ALM_PACK/schema_creator/bin/`
3. Execute the `osc.sh` file using the following command:

   `./osc.sh`
   The following message is displayed:

   You have chosen ONLINE mode. Triggering the utility in ONLINE mode will execute the DDLs directly on the Database. Do you wish to proceed? (Y/y or N/n).
4. Enter Y/y to proceed with the script generation.
5. Enter the DB Username with SYSDBA Privileges. For example: SYS as SYSDBA.
6. Enter the User Password.

Figure 4–1 Schema Creation - Online Mode

```
$ ./osc.sh
=============================================================
You have chosen ONLINE mode
=============================================================
Triggering the utility in ONLINE mode will execute the DDLs directly on the Database. Do you wish to proceed? (Y/y or N/n)
y
=============================================================
Java Validation Started ...
Java found in : /scratch/ofsaa/jdk1.6.0_25/jre/bin
JAVA Version found : 1.6.0_25
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
=============================================================
DB specific Validation Started ...
Enter the DB User Name With SYSDBA Privileges:
sys as sysdba
Enter the User Password:
Oracle Client version : 11.2.0.3.0. Status : SUCCESS
Oracle Server version Current value : 11.2.0.3.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
=============================================================
```

7. The console runs the initial validation checks and then displays the following message:

   You have chosen to install this Application Pack on <Name of the Atomic Schema>ATOMIC schema. Do you want to proceed? (Y/N).
8. Enter Y/y to proceed with the schema creation.

   The following message is displayed:

   You have chosen to install this Application Pack on <Name of the Infodom>. Do you want to proceed? (Y/N).

Figure 4–2 Schema Creation - Online Mode (contd.)

```
================================================================================
                    Generating Schema Creation Scripts Started
================================================================================
Checking OFSAA installation...
Found OFSAA installation at /scratch/ofsaadb/OFSAAI
Validating the dat file OFS_AAAI_CFG.dat started...
Sucessfully validated OFS_AAAI_CFG.dat file
Parsing /scratch/ofsaadb/OFSAAI/conf/DynamicServices.xml
Successfully connected to User - dev_conf1 URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Validating the input XML file.../scratch/ofsaadb/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
================================================================================
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:
MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC sche
ma. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "ofsaaaiinfo1". Do y
ou want to proceed? (Y/N)
y
================================================================================
```

9. Enter Y/y to start the schema creation.

Figure 4–3 Schema Creator Utility - Online

```
All the prechecks execution completed successfully.
================================================================================
Executing TableSpace Scripts started...
Executing TableSpace Scripts completed...
================================================================================
Creating Schemas started...
CONFIG User dev_conf14 successfully created on Default TableSpace : USERS on Temp TableSpace : TEMP
Grants creation scripts execution started...
Grants creation scripts execution completed...
Successfully connected to User - dev_conf14 URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Scripts execution for CONFIG schema started ...
Scripts execution for CONFIG schema completed ...
User dev_conf14 details updated into the dbmaster table
User dev_atm14 details updated into the dbmaster table
User dev_atm14 is successfully created on Default TableSpace : USERS on Temp TableSpace : TEMP
User dev_atm14 already exists in dbmaster table.
Creating Schemas completed ...
================================================================================
Roles creation scripts execution started ...
Roles creation scripts execution completed ...
================================================================================
Grants creation scripts execution started...
Grants creation scripts execution completed...
================================================================================
                        Schemas Creation Completed
================================================================================
Schema Creator executed Successfully.Please proceed with the installation.
$
```

Note:

- On successful execution of schema creator utility, the console displays the following status message:

  Schema Creator executed successfully. Please proceed with the installation.

- See log file in `OFS_ALM_PACK/schema_creator/logs` directory for execution status. If there are any errors, contact Oracle Support Services.

Executing the Schema Creator Utility in Offline Mode

In Offline mode, the Schema Creator Utility creates an output in SQL file format. This script must be executed manually by logging as database user with SYSDBA privileges. The SQL file contains the creation of Schemas, Schema Objects, Tablespaces, Grants, and Roles.

Prerequisites

To execute the utility in Offline mode, you must connect a database user with the following GRANTS (alternatively, you can also connect as a user with SYSDBA privileges):

- `SELECT ON DBA_ROLES`
- `SELECT ON DBA_USERS`
- `SELECT ON DBA_DIRECTORIES`
- `SELECT ON DBA_TABLESPACES`
- `CREATE SESSION`

Note: Explicit GRANTS to the user are required. GRANTS assigned through Roles are not supported.

To execute the schema creator utility in Offline mode, follow these steps:

1. Log in to the system as non-root user.
2. Navigate to the `OFS_ALM_PACK/schema_creator/bin` directory.
3. Execute the `osc.sh` file using the following command:

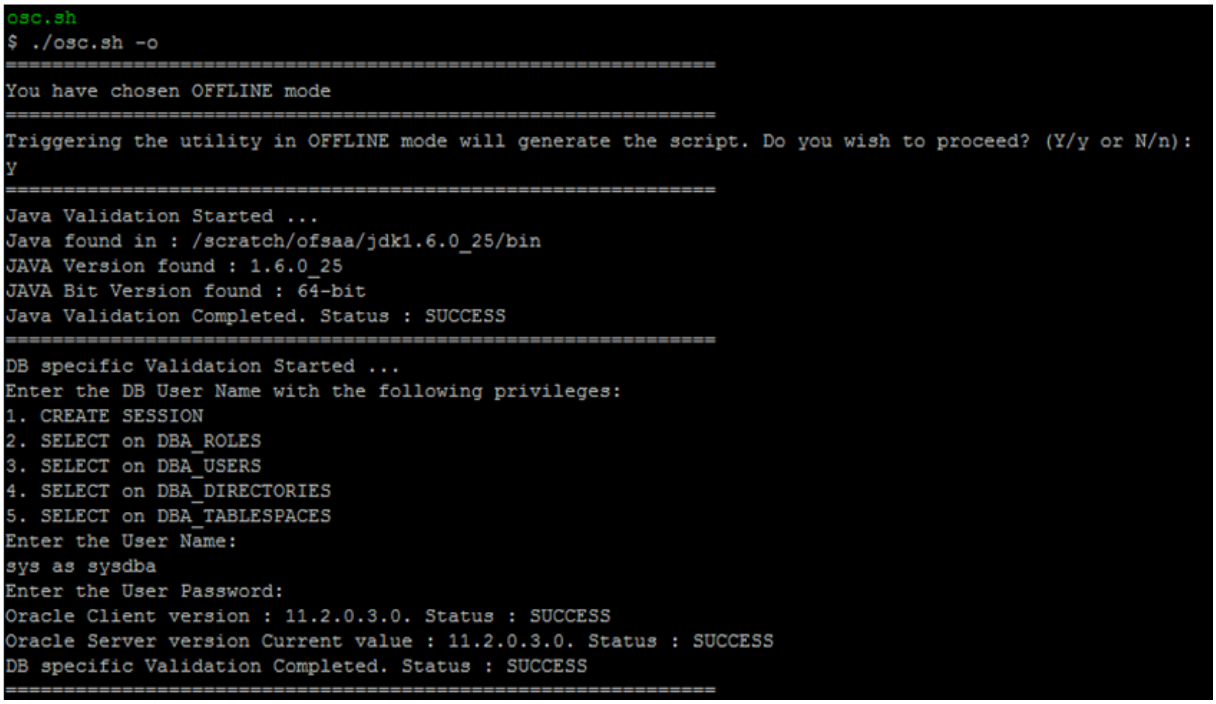
   ```
   ./osc.sh -o
   ```

4. The following message is displayed:

   You have chosen OFFLINE mode. Triggering the utility in OFFLINE mode will generate the script. Do you wish to proceed? (Y/y or N/n).

5. Enter Y/y to generate the script.
6. Enter the DB Username with `SELECT` privileges.
7. Enter the User Password.

Figure 4–4 Schema Creation - Offline Mode



8. The console runs the initial validation checks and displays the following message:

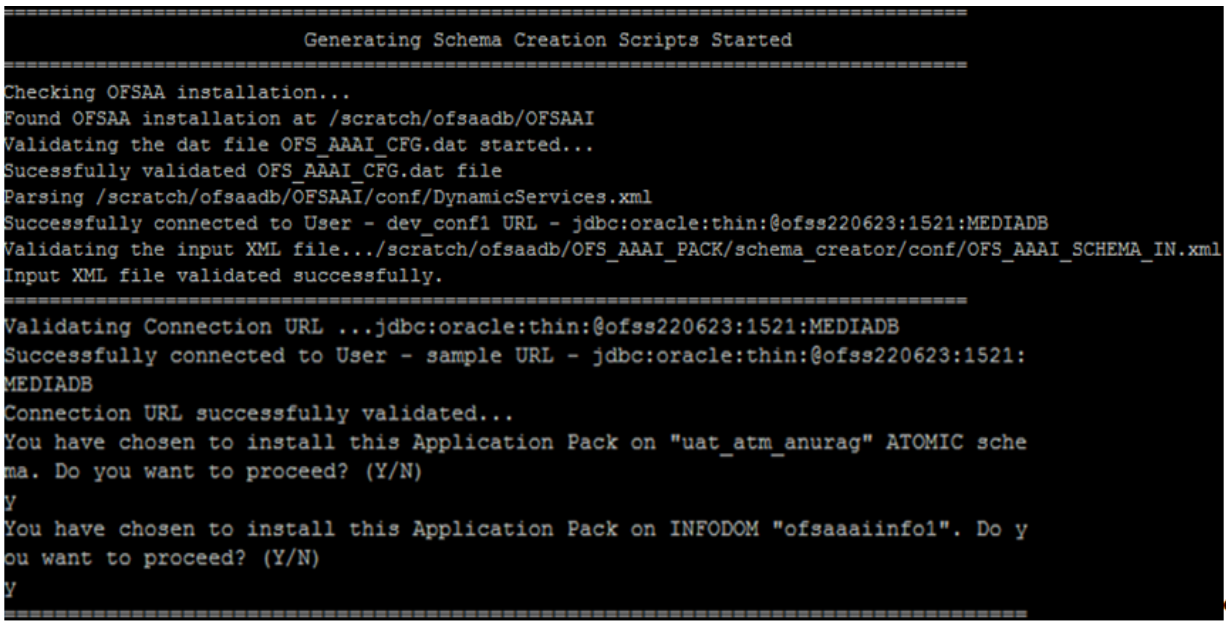
   You have chosen to install this Application Pack on <Name of the Atomic Schema>ATOMIC schema. Do you want to proceed? (Y/N).

9. Enter Y/y to start the script generation.

   The following message is displayed:

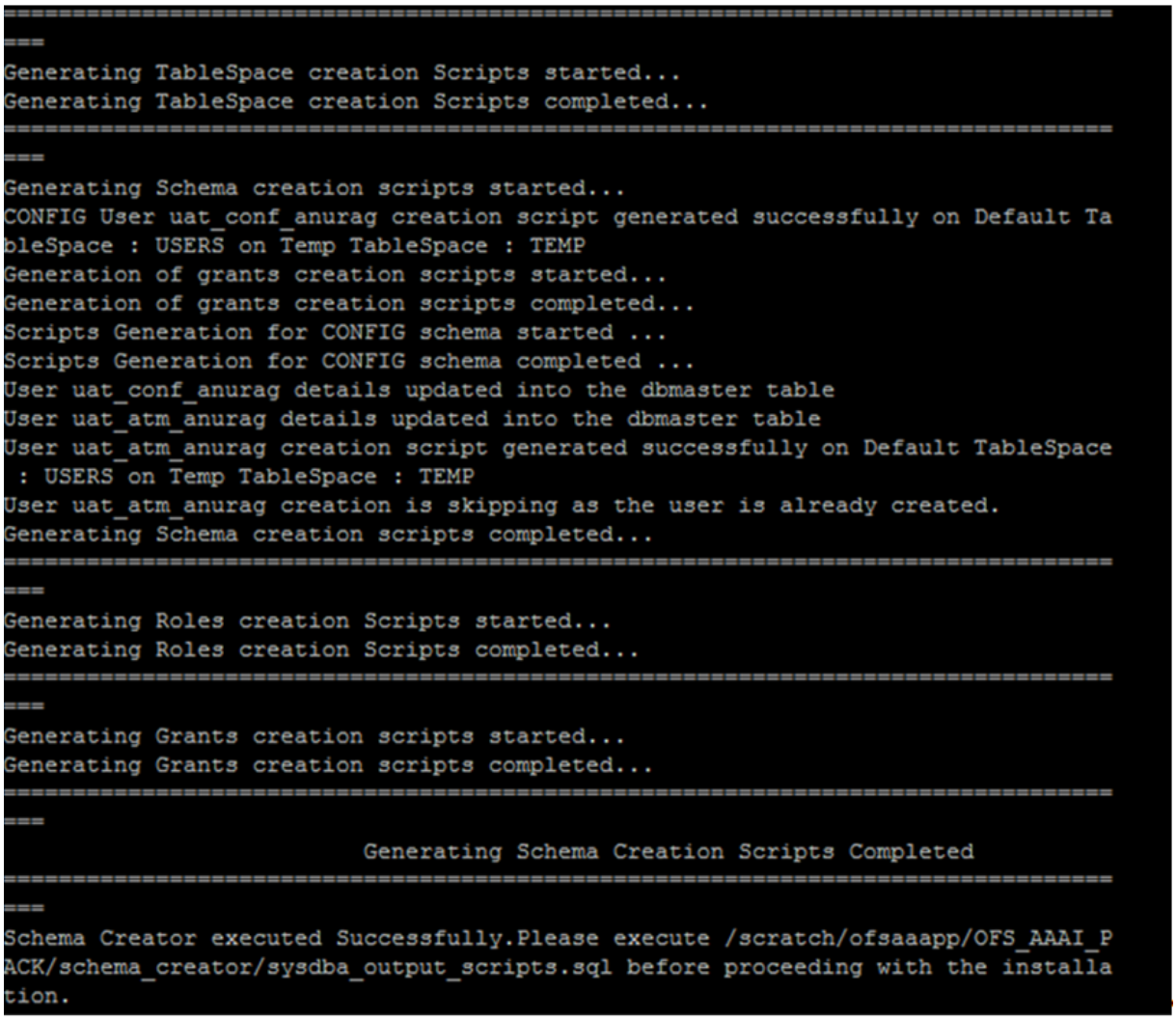
   You have chosen to install this Application Pack on <Name of the Infodom>. Do you want to proceed? (Y/N)

Figure 4–5 Schema Creation - Offline Mode



10. Enter Y/y to start the script generation.

Figure 4–6 Schema Creator Utility - Offline



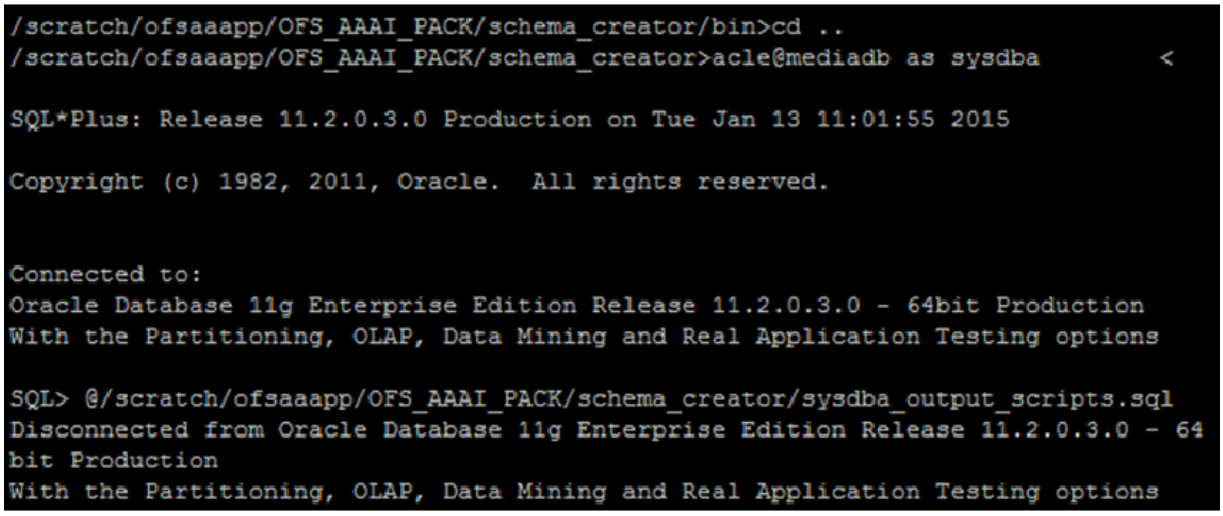
On successful execution of schema creator utility, the console displays the following status message:

Schema Creator executed successfully. Please execute /scratch/ofsaaapp/OFS_ALM_PACK/schema_creator/sysdba_output_scripts.sql before proceeding with the installation.

Additionally, if you have configured the `<<APP PACK>>_SCHEMA_BIGDATA_IN.xml` file, a file called `hive_output_scripts.hql` is also created in the `/scratch/ofsaaapp/OFS_ALM_PACK/schema_creator` directory.

11. Navigate to the directory `OFS_ALM_PACK/schema_creator`.
12. Log in to SQLPLUS with a user having SYSDBA privileges.

Figure 4–7 Schema Creator - Offline Mode (contd.)



13. Connect to the Oracle DB Server on which the OFSAA Application Pack installation is to be performed and execute the `sysdba_output_scripts.sql` file using the following command:

    ```
    SQL>@sysdba_output_scripts.sql
    ```

    Alternatively, you can copy the `sysdba_output_scripts.sql` file and `SQLScripts` directory to a remote server and execute the `sysdba_output_scripts.sql` file.

14. (This step is optional and applicable only for HDFS installation.) Connect to the HDFS repository using a HUE Browser. Log in to the Hue Browser with System Administrator privileges. Execute the script mentioned under hive_output_ scripts.hql (omitting the slash ('/')) in the HIVE Query Editor. For example, the query can be as follows:

    ```
    CREATE SCHEMA IF NOT EXIST <<HIVE SCHEMA NAME>>
    ```

> **Note:** See log `sysdba_output_scripts.log` file for execution status. If there are any errors, contact Oracle Support Services. If there are no errors in the execution, the log file is empty.

Executing the Schema Creator Utility with -s Option

If you intend to run the OFS ALM Application Pack Installer in Silent mode, it is mandatory to execute the schema creator utility with `-s` option.

To execute the utility with `-s` option, follow these steps:

1. Edit the file `OFS_ALM_PACK/schema_creator/conf/OFS_ALM_SCHEMA_IN.xml` in text editor.
2. Execute the utility with `-s` option.

   For example: `./osc.sh -s`.

Note:

- To execute the utility in OFFLINE mode with SILENT option, enter the following command:
  `./osc.sh -o -s`

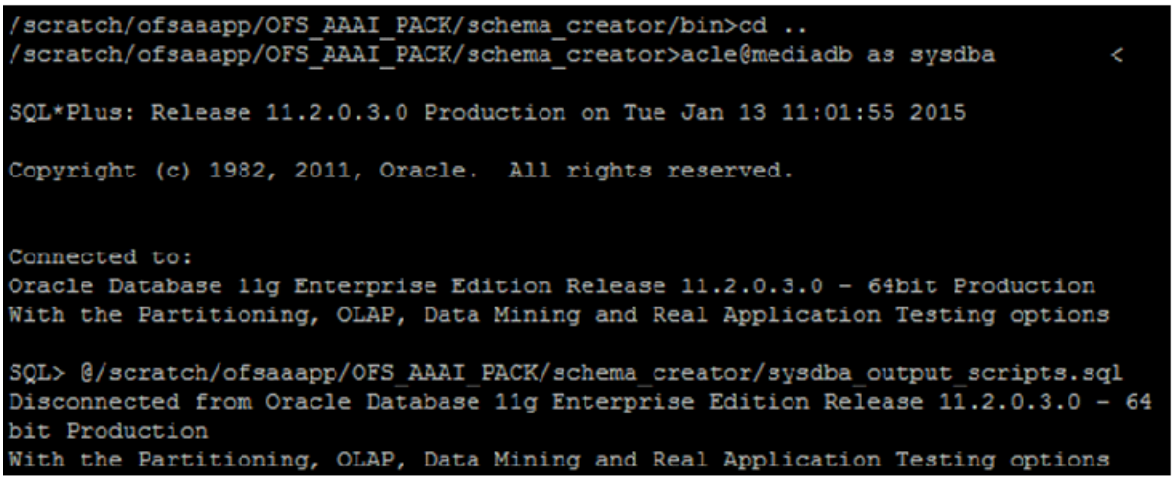
Figure 4–8 Schema Creator Utility with -s Option

```
/scratch/ofsaaapp/OFS_AAAI_PACK/schema_creator/bin>./osc.sh -s -o
================================================================
You have chosen OFFLINE mode
================================================================
Triggering the utility in OFFLINE mode will generate the script. Do you wish to
proceed? (Y/y or N/n):
y
================================================================
Java Validation Started ...
Java found in : /usr/bin
JAVA Version found : 1.6.0_45
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
================================================================
DB specific Validation Started ...
Enter the DB User Name with the following privileges:
1. CREATE SESSION
2. SELECT on DBA_ROLES
3. SELECT on DBA_USERS
4. SELECT on DBA_DIRECTORIES
5. SELECT on DBA_TABLESPACES
Enter the User Name:
sample
Enter the User Password:
Oracle Client version : 11.2.0.3.0. Status : SUCCESS
Oracle Server version Current value : 11.2.0.3.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
================================================================
================================================================================
===
                        Generating Schema Creation Scripts Started
================================================================================
===
Checking OFSAA installation...
OFSAA installation not found.
Validating the dat file OFS_AAAI_CFG.dat started...
Sucessfully validated OFS_AAAI_CFG.dat file
Validating the input XML file.../scratch/ofsaaapp/OFS_AAAI_PACK/schema_creator/c
onf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
================================================================================
```

Figure 4–9 Schema Creator Utility with -s Option

```
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:
MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC sche
ma. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "cfsaaaiinfo1". Do y
ou want to proceed? (Y/N)
y
================================================================================
===
Generating TableSpace creation Scripts started...
Generating TableSpace creation Scripts completed...
================================================================================
===
Generating Schema creation scripts started...
CONFIG User uat_conf_anurag creation script generated successfully on Default Ta
bleSpace : USERS on Temp TableSpace : TEMP
Generation of grants creation scripts started...
Generation of grants creation scripts completed...
Scripts Generation for CONFIG schema started ...
Scripts Generation for CONFIG schema completed ...
User uat_conf_anurag details updated into the dbmaster table
User uat_atm_anurag details updated into the dbmaster table
User uat_atm_anurag creation script generated successfully on Default TableSpace
 : USERS on Temp TableSpace : TEMP
User uat_atm_anurag creation is skipping as the user is already created.
Generating Schema creation scripts completed...
================================================================================
===
Generating Roles creation Scripts started...
Generating Roles creation Scripts completed...
================================================================================
===
Generating Grants creation scripts started...
Generating Grants creation scripts completed...
================================================================================
===
                        Generating Schema Creation Scripts Completed
================================================================================
===
Schema Creator executed Successfully.Please execute /scratch/ofsaaapp/OFS_AAAI_P
ACK/schema_creator/sysdba_output_scripts.sql before proceeding with the installa
tion.
```

Figure 4–10 ALMSchema Creator Utility with -s Option



Executing the Schema Creator Utility while Installing Subsequent Applications Pack

While executing the schema creator utility for subsequent Applications Pack, you can choose to install the pack either on the same Information Domain /Atomic Schema or on a new Information Domain /Atomic Schema. You can execute the schema creator utility either in Online or Offline mode.

> **Note:** OFS ALM Application Pack can be installed on any Information Domain / Atomic schema where any OFS Application Packs are installed other than OFS Behavior Detection Application Pack or OFS Compliance Regulatory Reporting Application Pack.

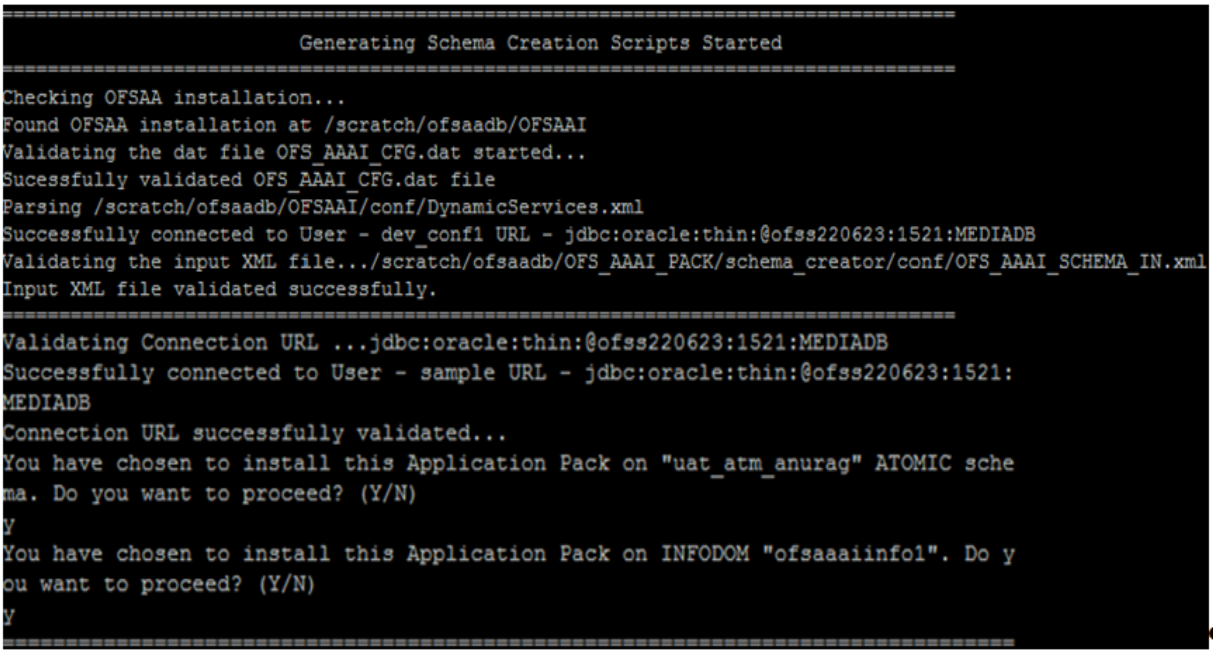
To execute the schema creator utility while installing OFS ALM Application Pack over an existing Application Pack, follow these steps:

1. Repeat the steps 1 to 9 from the Executing the Schema Creator Utility section.

> **Note:** Ensure to use the same config schema user name as the previous Application Pack.

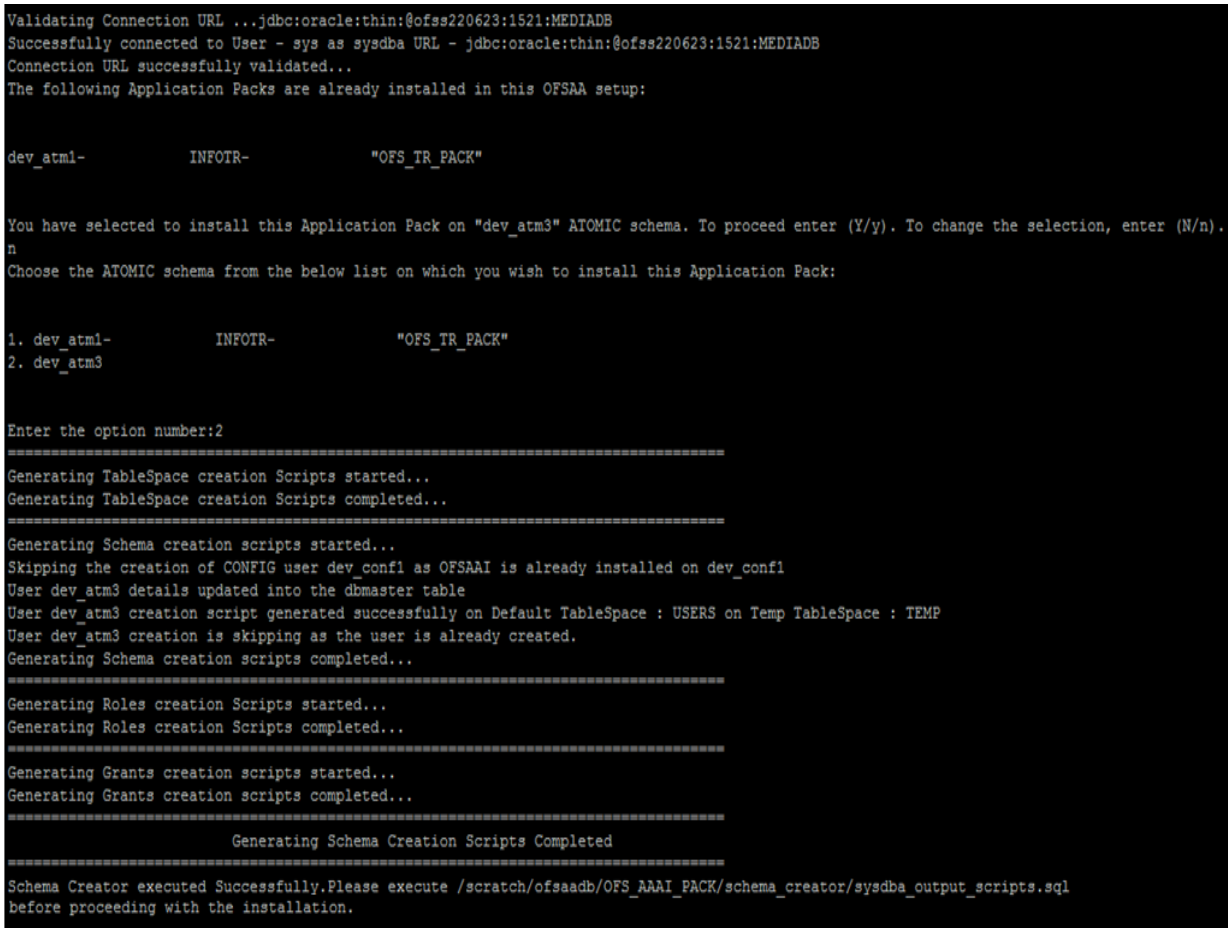
2. The utility identifies the Application Packs that are already installed on the current OFSAA setup and displays the following on the console:
   - Atomic schema of the existing Application Pack
   - Information Domain Name of the existing Pack, and the
   - List of Installed Application Packs

Figure 4–11 Schema Creator Utility while installing Subsequent Application Pack



3. Select the Atomic User, on which you want to install the Application Pack.

Figure 4–12 Schema Creator Utility while installing Subsequent Application Pack



On successful execution of schema creator utility, the console displays the following status message:

Success. Please proceed with the installation.

Note:

- See the log file in `OFS_ALM_PACK/schema_creator/logs` directory for execution status.
- See the log file `sysdba_output_scripts.log` for execution status if executed in offline mode. This log would be empty if there are no errors in the execution.
- If there are any errors, contact Oracle Support Services.

Installing the OFS ALM Application Pack

This section provides instructions to install the OFS ALM Application Pack depending on the mode of installation.

This section includes the following topics:

- Installing in SILENT Mode
- Verifying the Log File

> **Note:** The Schema Creator job needs to be run first, if you are performing OFS ALM 8.0.7 fresh installation on an existing Pack. It will append the new artifacts in the existing instance.
>
> Download the ERwin patch 29009206 from http://support.oracle.com/.

Installing in SILENT Mode

In the SILENT Mode Installation, you must configure the product XML files and follow instructions in the command prompt.

To install OFS ALM in SILENT mode, follow these steps:

1. Log in to the system as non-root user.
2. Identify a directory for installation and set the same in the user `.profile` file as follows:

   ```
   FIC_HOME=<OFSAA Installation Directory>

   export FIC_HOME
   ```

3. Execute the user `.profile`.
4. Navigate to `OFS_ALM_PACK` directory.
5. Edit the `OFS_ALM_PACK/conf/OFS_ALM_PACK.xml` to enable the product licenses. Update the attribute ENABLE=YES/NO in OFS_ALM_pack.xml for licensing the App in the pack.

   > **Note:** See Configuring <<APP Pack>>_PACK.xml File section for details on configuring this XML file.
   >
   > Update `OFS_ALM_PACK.XML`, set the attribute "ENABLE=YES" of <APP_ID> tag for applications to be enabled during installation. If any application has mentioned OFS_ALM as PREREQ in the <APP_ ID> tag, set the attribute "ENABLE=YES" for OFS_ALM.

6. Rename the OFS_ALM_PACK/schema_creator/conf/OFS_ALM_SCHEMA_ IN.xml.TEMPLATE to OFS_ALM_PACK/schema_creator/conf/OFS_ALM_ SCHEMA_ IN.xml.
7. Edit the `OFS_ALM_PACK/schema_creator/conf/OFS_ALM_SCHEMA_IN.xml` file to set the appropriate attribute values.

   Include INFODOM = "<Infodom Name>" in OFS_ALM_SCHEMA_IN.xml file.

Note: See Configuring <<APP Pack>>_SCHEMA_IN.xml File section for details on configuring this XML file.

8. Edit the `OFS_ALM_PACK/OFS_AAI/conf/OFSAAI_InstallConfig.xml` file to set the appropriate infrastructure installation attribute values.

Note:

This step can be ignored if an installation of OFSAA 8.0.0.0.0 already exists.

9. Execute the schema creator utility.

Note:

This step is mandatory and should be executed before every OFSAA Application Pack installation.

Ensure to execute with `-s` option in Online/Offline mode.

For more information, see Executing the Schema Creator Utility.

10. Rename the `SILENT.template` file in the installer as `SILENT.props`.
11. In the console, navigate to the path OFS_ALM_PACK/bin. Enter the following command in the console to execute the application pack installer with Silent option.

```
./setup.sh SILENT
```

12. Enter the Infrastructure Application /Database component FTP/SFTP password value, when prompted at the command prompt.

Table D–4 Console Prompts - Silent Mode installation

Console Prompts	User Inputs
Please OFSAA Processing Tier FTP/SFTP password	Enter the password to access processing tier directory in the application server. **Note**: In case the prompt reads as follows, enter the username/ password for accessing the product Staging/ Metadata Repository FTPSHARE • Kerberos username [user] • Kerberos password for user:
Please enter HIVE Server SFTP/FTP password	Enter the password to access the HIVE Server. Note: This information is required if you have opted for Big Data installation.

13. Enter Always, when prompted to add host key fingerprint.

The OFSAAI License Agreement is displayed.

14. Enter Y/y to accept the License Agreement.
15. Enter the passwords for default Infrastructure administrator and authorizer users.

> **Note:** The installation process continues on the console. Do not close the console until the installation process is complete.

16. The following message is displayed in the console:

    Installation completed…

17. On completion of installation, see the installation log files.

    For more information, see Verifying the Log File.

18. DMT migration utility is available as part of the installer to migrate the DMT metadata (PLC/Data Source/Data Mapping/Data File Mapping) to be persisted in tables instead of XML. To identify when to migrate, what/how to migrate, and how to handle migration issues, see OFSAA DMT Metadata Migration Guide.

> **Note:** Execute the DMT Migration Utility to manually migrate the DMT metadata of the Applications which are not upgraded to 8.0.7.0.0.

19. Update `.profile` file to define `$OFSAA_LOG_HOME`

    Example of entry:

    ```
    OFSAA_LOG_HOME=/u01/app/FTPSHARE//logs
    export OFSAA_LOG_HOME
    ```

20. Verify FTPSHARE logs directory has 775 permission

    ```
    chmod -R 775 FTPSHARE
    ```

21. Install the one-off patch 30273976 as instructed in the Readme.txt packaged with the patch.
22. Install the one-off patch 30667083 as instructed in the Readme.txt packaged with the patch.
23. Perform the steps mentioned in Post Deployment Configurations section.
24. For enabling Transparent Data Encryption (TDE), see Configuring TDE, Data Redaction and the Corresponding Settings in OFSAA.
25. For enabling Data Redaction, see Data Redaction section under Data Security and Data Privacy chapter in ***OFS Analytical Applications Infrastructure Administration Guide 8.0.7.0.0.***

Silent.props File

SILENT installation is achieved via a properties file [Silent.props] that must be updated with proper values, before attempting to install using the silent mode.

> **Note:** Do not install the new applications in the same segment if the pre-installed applications use run management.

The following table lists all the properties that need to be specified:

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	1= General 0 = Debug	Optional; Default : 0
SEGMENT_1_CODE	Segment Code	Not Applicable	MANDATORY Note: The Segment Code should be in upper case.
APPFTP_LOG_ PATH=	Infodom Maintenance log path (to be created) for the new Infodom for applayer	Not Applicable	# Mandatory if this an App Layer Installation and if you want to create a new infodom # That is, you have specified INSTALL_ APP=1 and INFODOM_TYPE=0
DBFTP_LOG_PATH	Infodom Maintenance log path (to be created) for the new Infodom for DBLayer	Not Applicable	# Mandatory if this an App Layer Installation and if you want to create a new infodom # That is, you have specified INSTALL_ APP=1 and INFODOM_TYPE=0
OBI_HOST	Host Name of the OBIEE Server	Not Applicable	
OBI_PORT	Port Number of the OBIEE Server	Not Applicable	
OBI_CONTEXT	Context Name of the OBIEE Server	Not Applicable	
OBI_PROTOCOL	HTTP details of the OBIEE Server	URL	
UPLOAD_MODEL	If you want to perform Model Upload	0 = No 1 = yes	
MODEL_TYPE	Released data model or Customized data model	0 = released 1 = customized	
DATAMODEL	Path for the customized data model	Not Applicable	# Mandatory only if you want to upload the customized data model # That is, you have specified MODEL_ TYPE=1
DM_DIRECTORY	File name for the customized data model	Not Applicable	# Mandatory only if you want to upload the customized data model # That is, you have specified MODEL_ TYPE=1

Property Name	Description of Property	Permissible values	Comments
ETL_APPSRC_TYPE	Create new ETL App/Src pair or use an existing one	0 = New 1 = Existing	# Mandatory if this an AppLayerinstallation # That is, you have specified INSTALL_ APP=1 # 0 = If you want to create a new ETL app/src pair # 1 = If you want to use an existing pair
ETL_APP_1_DESC	Description for the ETL App	Not Applicable	# Mandatory if you want to create new ETL app/src pair #That is, you have specified ETL_ APPSRC_TYPE=0
ETL_SRC_1_1_DESC	Description for the ETL Staging source description	Not Applicable	# Mandatory if you want to create new ETL app/src pair #That is, you have specified ETL_ APPSRC_TYPE=0
ETL_SRC_1_2_DESC	Description for the ETL Processing source description	Not Applicable	# Mandatory if you want to create new ETL app/src pair #That is, you have specified ETL_ APPSRC_TYPE=0
ETL_APP_1_NAME	ETL application name	Not Applicable	This is for App Layer installation
ETL_SRC_1_1_NAME	ETL Staging source name	Not Applicable	This Source must be mapped to the above ETL Application
ETL_SRC_1_2_NAME	ETL Processing source name	Not Applicable	This Source must be mapped to the above ETL Application

Verifying the Log File

Verify the following logs files for more information:

- See the `Pack_Install.log` file located in the `OFS_ALM_PACK/logs/` directory for OFS ALM Application Pack installation logs.
- See the log file(s) located in the `OFS_ALM_PACK/OFS_AAI/logs/` directory for Infrastructure installation logs.
- See the `OFSAAInfrastucture_Install.log` file located in the $FIC_HOME directory for Infrastructure installation logs.

5

Upgrading the OFS ALM Application Pack

This chapter includes the following topics:

- Upgrading the OFS ALM Application Pack

Upgrading the OFS ALM Application Pack

Refer to the following instructions to download, extract, install, and configure this release:

Note:

- Upgrade of ALM Application Pack 8.0.7.0.0 requires the upgrade of related packs like the PFT pack and PM pack to 8.0.7.0.0. If these packs are not upgraded, the applications within these packs will be disabled from the User Interface. For Example:

VERSION	PACK ID	COMPATIBLE PACK ID
8.0.7.0.0	OFS_ALM_PACK	OFS_PFT_PACK
8.0.7.0.0	OFS_ALM_PACK	OFS_PM_PACK

1. To download and copy the OFS ALM Application Pack v8.0.7.0.0 archive file, see Downloading and Copying the OFS ALM Applications Pack Installer section.

   Note: The archive files are different for every operating system like AIX, Solaris, and RHEL/Oracle Linux.

2. Log in to the OFSAA Server with user credentials that was used to install OFSAA.
3. Shut down all the OFSAAI Services. For more information, see the Starting/Stopping Infrastructure Services section.
4. Execute the following command:

   ```
   chmod -R 750 $FIC_HOME
   ```

5. If you have Unzip utility, skip to the next step. Download the Unzip utility (OS specific) and copy it in **Binary** mode to the directory that is included in your PATH variable, typically **$HOME** path or directory in which you have copied the 8.0.7.0.0 installer.

   - Uncompress the unzip installer file using the command:

     ```
     uncompress unzip_<os>.Z
     ```

Note: In case you notice an error message "**uncompress: not found [No such file or directory]**" when the package is not installed, contact your UNIX administrator.

- Give EXECUTE permission to the file using the command:

  chmod 751 OFS_ALM_80700_<OperatingSystem>.zip

6. Extract the contents of the Oracle ALM Application Pack 8.0.7.0.0 installer archive file using the following command:

   `unzip_<os> <name of the file to be unzipped>`

7. Give EXECUTE permission to the archive file. Navigate to the path `OFS_ALM_80700_<OperatingSystem>.zip` and execute the command:

   chmod -R 750 OFS_ALM_80700_<OperatingSystem>

8. Rename the `SILENT.template` file in the installer as `SILENT.props`.

9. Configure `Silent.Props` file for following parameters:

Property Name	Description of Property	Permissible values	Comments
UPLOAD_MODEL	If you want to perform Model Upload	0 = No 1 = Yes	Mandatory Select "1" to perform the Model Upload Select "0" to skip Model Upload
MODEL_TYPE	Released data model or Customized data model	0 = Released 1 = Customized	# Mandatory only in the case of uploading the data model If the UPLOAD_MODEL option is selected as "1", then you can choose to upload Released Model (0) or Customized Model (1).
DATAMODEL	Path for the customized data model	Not Applicable	# Mandatory only in the case of uploading the Customized data model # Option selected for MODEL_TYPE=1
DM_DIRECTORY	File name for the customized data model	Not Applicable	# Mandatory only in the case of uploading the Customized data model # Option selected for MODEL_TYPE=1

10. Execute `setup.sh` file using the following command:

    `./setup.sh SILENT`

    Verify if the release is applied successfully by checking the log files generated in the installation folder as mentioned below:

- `OFS_ALM_PACK/OFS_AAAI_PACK/logs/OFSAAIUpdate.log` for Infrastructure installation log file.
- `OFS_ALM_PACK/OFS_ALM /logs/OFS_ALM_installation.log` for OFS ALM Application Pack installation log file.

You can ignore following errors:

ORA-00001

ORA-00955

ORA-02260

ORA-01430

Error Message->DMT.DUPLICATE_RECORD_FOUND

Error Message->COMMONOBJECT.SAVE_FAILED

errors in the log file. In case of any other errors, contact Oracle Support.

11. DMT migration utility is available as part of the installer to migrate the DMT metadata (PLC/Data Source/Data Mapping/Data File Mapping) to be persisted in tables instead of XML. To identify when to migrate, what/how to migrate, and how to handle migration issues, see OFSAA DMT Metadata Migration Guide.
12. For more information on securing your OFSAA Infrastructure, see the Security Guide in OHC Documentation Library.
13. Add `umask 0027` in the `.profile` of the UNIX account which manages the WEB server to ensure restricted access permissions.
14. Restart all the OFSAAI services. For more information, see the Starting/ Stopping Infrastructure Services section.
15. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR / WAR file, see the Creating and Deploying EAR/ WAR File section.
16. After successful installation, follow these steps:

    Log in to the web application server and clear the application cache. Navigate to the following path depending on the configured web application server and delete the files.

    - Tomcat

      <Tomcat installation folder>/work/Catalina/localhost/<Application name>/org/apache/jsp

    - Weblogic

      <Weblogic installation location>/domains/<Domain name>/servers/<Server name>/tmp/_WL_user/<Application name>/<auto generated folder>/jsp_servlet

      In case of WebLogic version 12.2.x.x, delete the folder named ".WL_internal" present in the path <WebLogic installation location>/user_projects/domains/< Domain name >/applications/<context_name>.ear/META-INF/", if it exists.

    - Websphere

      <Websphere installation directory>/AppServer/profiles/<Profile name>/temp/<Node name>/server1/<Application name>/<.war file name>

17. Update `.profile` file to define `$OFSAA_LOG_HOME`

    Example of entry:

    ```
    OFSAA_LOG_HOME=/u01/app/FTPSHARE//logs
    export OFSAA_LOG_HOME
    ```

18. Verify FTPSHARE logs directory has 775 permission

    ```
    chmod -R 775 FTPSHARE
    ```

19. Install the one-off patch 30667083 as instructed in the Readme.txt packaged with the patch.

20. If OFS Enterprise Modeling is licensed and enabled in your OFSAA instance, uninstall OFSAAIRunner package and reinstall the latest available OFSAAIRunner package. For more details, see Configuring Oracle R distribution and Oracle R Enterprise (ORE).

21. For enabling TDE, see Configuring TDE in case of Upgrade section in Configuring TDE, Data Redaction and the Corresponding Settings in OFSAA

Removing Old Struts Libraries

After you upgrade the ALM Pack, the Struts libraries need to be checked and the older version of the files should be removed mandatorily. Use the following procedure to remove the old Struts libraries:

Navigate to the path `$FIC_WEB_HOME/webroot/WEB-INF/lib` and perform the following checks:

1. If both `struts2-core-2.3.32.jar` and `struts2-core-2.3.34.jar` exist, then delete the file `struts2-core-2.3.32.jar` file.
2. If both `xwork-core-2.3.32.jar` and `xwork-core-2.3.34.jar` exist, then delete the file `xwork-core-2.3.32.jar` file.
3. If both `ognl-3.0.19.jar` and `ognl-3.0.21.jar` exist, then delete the file `ognl-3.0.19.jar` file.

Post Upgrade Configuration

Due to structure change for the ALM UI Artifacts, perform following steps on the installed environment to clean up the old artifacts:

> **Note:** If you have integrated environment where Profitability pack is also installed, then perform these steps post upgrade of PFT pack to 8.0.7.

1. Go to <FIC_HOME>/ficweb/
2. Change the file 'uiArtifactsCleanup.sh' permission to 775.

   For example: chmod 775 uiArtifactsCleanup.sh

3. Execute the below command

   ./uiArtifactsCleanup.sh

4. Open and verify the log file <FIC_HOME>/ficweb/uiArtifactsCleanup-*.log for errors.

5. Go to <FIC_HOME>/ficweb /webroot/WEB-INF/classes.
6. Open the struts.xml file. Remove the below lines and do the save.

```
<include file="AssumptionSpecification.xml" />
  <include file="MasterMaintenance.xml" />
  <include file="ALMCommon.xml" />
```

6

Post Installation Configurations

On successful installation of the Oracle ALM Application Pack, follow these post-installation steps:

This chapter includes the following sections:

- Configuring Resource Reference
- Starting OFSAA Infrastructure Services
- Adding TNS entries in the TNSNAMES.ORA File
- Configuring Oracle R distribution and Oracle R Enterprise (ORE)
- Creating and Deploying the Application Pack Web Archive
- Accessing the OFSAA Application
- Performing Post Deployment Configurations

> **Note:** Ensure to clear the application cache prior to the deployment of Applications Pack Web Archive. This is applicable to all Web Servers (WebSphere, WebLogic, and Tomcat). For more information, see Clearing Application Cache section.

Configuring Resource Reference

Configure the resource reference in the Web Application Server configured for OFSAA Applications. See Configuring Resource Reference in Web Application Servers for details on configuring the resource reference in WebSphere, WebLogic, and Tomcat Application Servers.

Starting OFSAA Infrastructure Services

Start the OFSAA Infrastructure Services prior to deployment or accessing the OFSAA Applications. See to the Starting/ Stopping Infrastructure Services for details on Start/Stop OFSAA Services.

Adding TNS entries in the TNSNAMES.ORA File

Add TNS entries in the `tnsnames.ora` file, for every schema created for the Application Pack.

To find the tnsname for the entries, follow these steps:

1. Log in to the application using System Administrator privileges.

2. Navigate to System Configuration & Identity Management tab.
3. Click Administration and Configuration, select System Configuration, and click Database Details.
4. Expand **Name** to get the list of TNS entry names.
5. Alternatively, you can connect to the CONFIG schema and execute the following query:

```
select dbname from db_master where dbname !='CONFIG'
```

Configuring Oracle R distribution and Oracle R Enterprise (ORE)

This section is applicable only if OFS Enterprise Modeling is licensed and enabled in your OFSAA instance.

1. Install OFSAAIRunner Package. For more information, see Installing OFS AAAI Runner Package. If you have already installed the OFSAAIRunner package (as part of a previous installation), uninstall it. (For more information, see Uninstalling OFSAAI Runner Package section), and reinstall the latest available OFSAAIRunner package.
2. Log in to the database with dba privileges and provide the following privilege to Configuration Schema:

- `RQADMIN` by executing the command:

```
GRANT RQADMIN TO <config_schema>;
```

3. Log in to the database with DBA privileges and provide the following privileges to Atomic Schema:

- `CREATE MINING MODEL` privilege (to execute the Data Mining models) by executing the command:

```
GRANT CREATE MINING MODEL TO <atomic_schema>;
```

Installing OFS AAAI Runner Package

OFSAAIRunner is an R package built by the OFS Enterprise Modeling Application. It is a prerequisite for executing models developed using R scripts. This package helps in:

- Initializing inputs
- Mapping framework variables to R objects
- Configuring possible outputs of the script
- Storing results back to the Database

OFSAAIRunner package (`OFSAAIRunner_1.0.0.tar.gz`) is available under `$FIC_DB_HOME/lib`.

Prerequisite

Oracle R & ORE must be installed on the Oracle Database server before installing the OFSAAIRunner package.

Refer to the following instructions to install the OFSAAIRunner package:

1. Log in to the OFSAA Server. Navigate to the folder `$FIC_DB_HOME/lib`.

2. Copy the file `OFSAAIRunner_1.0.0.tar.gz` in Binary mode to the Oracle Database Server.
3. Log in to the Oracle Database Server with the user using which Oracle Database Server installation is done.
4. Navigate to the directory where the file `OFSAAIRunner_1.0.0.tar.gz` is copied.
5. Install the package by executing the command:

   ```
   ORE CMD INSTALL OFSAAIRunner_1.0.0.tar.gz
   ```

   Successful installation is indicated in the installation log as:

   ```
   * DONE (OFSAAIRunner)

   Making packages.html ... done
   ```

   Note: The OFSAAIRunner package is installed in `/usr/lib64/R/library`.

6. Navigate to the directory $ORACLE_HOME/R/library and check whether the OFSAAIRunner package is listed there by executing the command:

   ```
   >library(OFSAAIRunner)
   ```

   `>OFSAAIRunner::` and press TAB twice.

   This lists out all the functions.

Uninstalling OFSAAI Runner Package

Note: This procedure is required only if you are uninstalling OFSAAI Runner Package.

Perform the following instructions to uninstall the OFSAAIRunner package:

1. Log in to the Oracle Database Server with the same username, using which Oracle Database Server installation is done.
2. Enter ORE in command prompt and execute the command:

   #ORE

   >remove.packages("OFSAAIRunner")

3. To save the workspace image, enter the command:

   >q()

4. Enter **y** when prompted to save the workspace image.

   Save workspace image? [y/n/c]: y

5. Navigate to the directory $ORACLE_HOME/R/library and verify the package is not listed there by executing the command:

   ls –l

Configuring ORE Execution

Perform the following step: to configure ORE execution:

1. Add a TNS entry in `tnsnames.ora` file with TNS name same as that of value set for ORACLE_SID in the database server.

Note: For the RAC database, follow the preceding configuration in all machines.

Configuring Tomcat

To stop generating static content with one print statement per input line, you need to configure the `web.xml` file.

To configure the `web.xml` file, perform the following steps:

1. Navigate to tomcat/conf directory.
2. Edit `web.xml` file as follows:

   Set the mapped file parameter to False in the servlet tag mentioned with

   ```
   <servlet-name>jsp</servlet-name>.
   <init-param>
   <param-name>mappedfile</param-name>
   <param-value>false</param-value>
   </init-param>
   ```

Creating and Deploying the Application Pack Web Archive

On successful installation of the OFSAA Application Pack, the web archive file is automatically generated. However, you need to deploy the generated web archive file on the Web Application Server.

To identify the location of the generated web archive file and to generate and deploy the web archive file later, see Creating and Deploying EAR/ WAR File.

Note: See the ***Oracle Financial Services Forms Manager User Guide*** for instructions on Creating and Deploying the Forms Manager Web Archive.

Accessing the OFSAA Application

Prior to accessing the OFSAA application ensure the Internet Explorer Settings are configured.

Refer to Accessing OFSAA Application for details on accessing the OFSAA Application on the successful deployment of the application web archive.

Performing Post Deployment Configurations

Prior to using the OFSAA Application perform the Post Deployment Configuration steps detailed in Post Deployment Configurations.

7

Starting or Stopping Infrastructure Services

This section details how to start and stop Infrastructure services. This chapter covers the following topics:

- Starting Infrastructure Services
- Stopping Infrastructure Services

Starting Infrastructure Services

Once the installation of Infrastructure is completed successfully and the post-installation steps are completed, the servers must be started. Log on to each machine and run the `.profile` file. All servers mentioned must be started from the same shell encoding. The servers mentioned in this section are dependent on each other. It is mandatory to maintain the order in which the servers are started. Allow each of the servers to initialize completely before starting the next server.

1. On the machine in which Infrastructure Application components have been installed, navigate to `$FIC_APP_HOME/common/FICServer/bin` and execute the following command to start the Infrastructure Server.

   ```
   ./startofsaai.sh
   ```

   Note: You can also start the Infrastructure Server by executing the command `nohup ./ startofsaai.sh &`. Starting the process using `nohup` and `&` will return the command prompt without having to wait till the process completes. However, this command cannot be used when you are starting the server for the first time or starting after changing the user password in the configuration database schema.

2. Start ICC server:
   - On the machine in which Infrastructure default Application components have been installed, navigate to `$FIC_HOME/ficapp/icc/bin`
   - Execute the command:

     ```
     ./iccserver.sh
     ```

     Note: Only Infrastructure Default Application Server can hold the ICC component.

3. Start Back-end Services:

   - On the machine on which Infrastructure Database components are installed, navigate to `$FIC_DB_HOME/bin` and execute the command to start **Agent server**:

     `./agentstartup.sh`

     Or

   - Start Back-end services using the command:

     `nohup ./agentstartup.sh &`

     Note: This agent internally starts the Router, Message Server, OLAP Data Server, and AM services.

Starting Web Application Servers

Start the Web Application Server depending on the type from the following table.

Table 7–5 Webserver startup options

Startup Option	Description
Starting WebSphere Profile	On the machine in which WebSphere is installed, navigate to `[Webshpere_Install_Directory] /AppServer/<profiles>/<profile name>/bin` and execute the command: `./startServer.sh server1`
Starting WebLogic Domain	On the machine in which WebLogic is installed, navigate to `<WebLogic Installation directory>/user_ projects/domains/<domain name>/bin` and execute the command: `startWebLogic.sh -d64` **Note**: If WebLogic is already running, access the ***WebLogic Admin Console***. Stop and start the `application <context name>.ear`
Starting Tomcat Application	On the machine in which Tomcat is installed, navigate to `<Tomcat_Install_ Directory>/bin` and execute the command: `./catalina.sh run`

Stopping Infrastructure Services

To stop Infrastructure services, follow these steps:

1. On the machine in which Infrastructure Application components are installed, navigate to `$FIC_APP_HOME/common/FICServer/bin` and execute the command:.

   `./stopofsaai.sh`

2. To stop the ICC server, on the machine in which Infrastructure default Application components are installed, navigate to `$FIC_HOME/ficapp/icc/bin` and execute the command:

   `./iccservershutdown.sh`

   Note: Only Infrastructure Default Application Server can hold the ICC component.

3. To stop the Back-end server, on the machine in which Infrastructure database components are installed, navigate to `$FIC_DB_HOME/bin` and execute the command:

```
./agentshutdown.sh
```

8

Accessing OFSAA Application

This section details the steps to be performed to access OFSAA Application.

Accessing the OFSAA Application

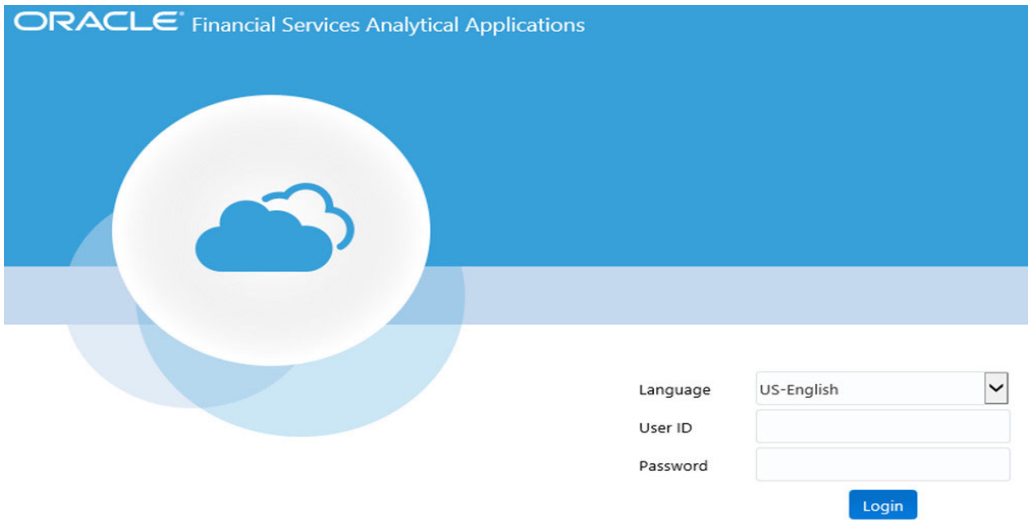
1. From your system, open the browser and enter the URL in the following format:

   `<scheme>://<IP address/ hostname>:<port>/<context-name>/login.jsp`

   For example, `https://192.0.2.2/ofsaa/login.jsp`

   The ***OFSAA login*** window is displayed.

Figure 8–1 OFSAA Login Window



2. With the installation of every OFSAA Application Pack, there are two seeded user profiles configured in the system:

   SYSADMN - System Administrator

   SYSAUTH - System Authorizer

> **Note:** For SYSADMN and SYSAUTH, the default password is password0.

3. Log in to the application using the "SYSADMN" User ID. (Note that, there is no "I" in the SYSADMN login USER ID). On the first login, you will be prompted to change the password.

9

OFSAA Landing Page

This section includes the following topics:

OFSAA Landing Page for ALM Administrator

On successful authentication, the OFSAA Landing Page is displayed. This is a common landing page for all users until a preferred application landing page is set by the user in his preferences.

The landing page includes multiple tabs and each tab has specific links to OFSAA Infrastructure and/or Application modules. The tabs and links are displayed based on the OFSAA Application accessed and the access roles mapped to the logged in user.

Each tab contains LHS Menu and RHS Menu. The LHS Menu holds link(s) to modules in a tree structure. The RHS Menu holds link(s) to modules in a navigational window format.

The following tabs are available in the Landing Page:

Applications Tab

This tab lists the various OFSAA Applications that are installed in the OFSAA setup. The **Select Application** drop-down list displays the OFSAA Applications, based on the logged in user and mapped OFSAA Application User Group(s). Links to related modules within Applications and Infrastructure are grouped appropriately to maintain a unified experience.

Object Administration Tab

This tab lists the various OFSAA Information Domains created in the OFSAA setup. The **Select Information Domain** drop-down list displays the OFSAA Information Domains based on the logged in user and mapped OFSAA Application User Group(s). Links to modules that enable object traceability and migration of objects are grouped in this tab.

System Configuration and Identity Management Tab

This tab lists the OFSAA Infrastructure System Configuration and Identity Management modules. These modules work across Applications/ Information Domains and hence there are no Application and Information Domain drop-down lists in this tab. Links to modules that allow the maintenance of setup installation and identity management tasks are grouped together in this tab.

Note: The navigation path differs from Application to Application. That is, based on the selected Application, the navigation varies.

For more details on how to operate on each tab, see OFSAAI User Guide available in OTN.

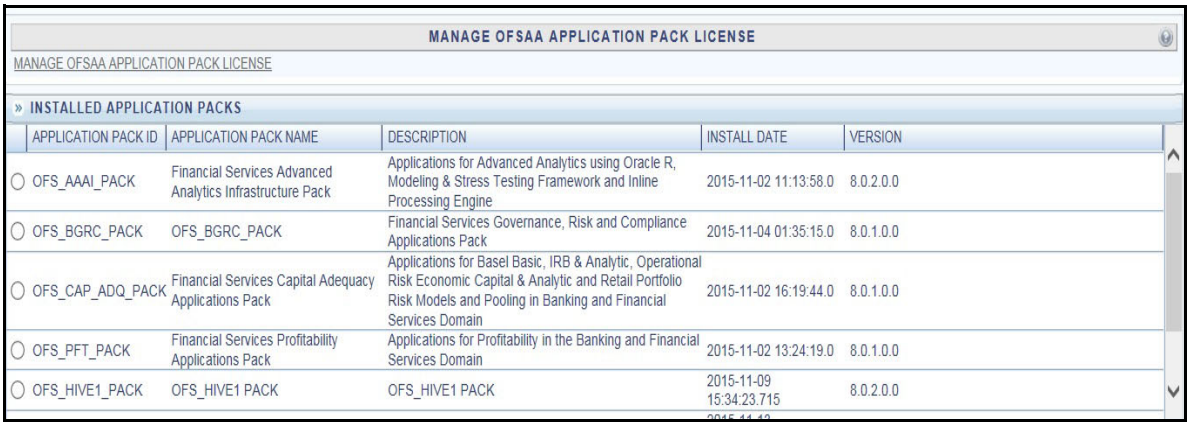
Enabling a Product within an Application Pack

You can also enable a product/ application within an application pack post installation at any point of time.

To enable a product through the application UI, follow these steps:

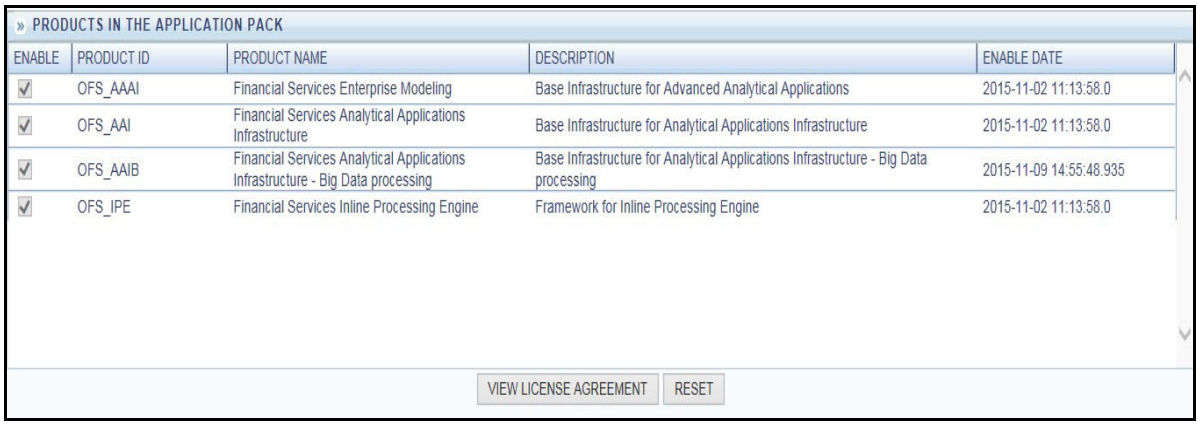
1. Login to the application as SYSADMN user or any user with System Administrator privileges.
2. Navigate to **System Configurations & Identity Management** tab, expand **Administration and Configuration** and select **System Configuration**.
3. Click **Manage OFSAA Product License(s)**. ***The Manage OFSAA Product License(s) window*** is displayed.

Figure 9–1 Manage OFSAA Product License(s) window



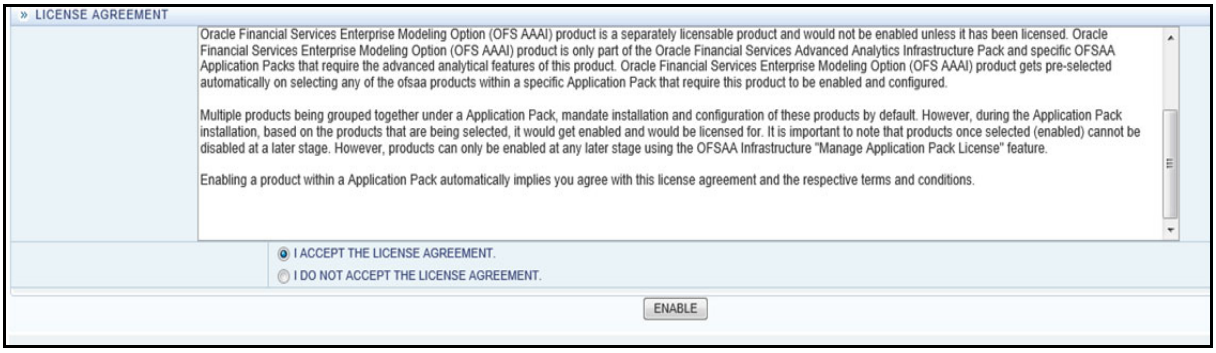
4. Select an Application pack to view the products in it. The products are displayed in the ***Products in the Application Pack*** grid.

Figure 9–2 Manage OFSAA Product License(s) window- Part 2



5. Select the checkbox to enable a product within the Application Pack which is not enabled during installation.
6. Click **VIEW LICENSE AGREEMENT** to view the license information. The ***License Agreement*** section is displayed.

Figure 9–3 License Agreement



7. Select the option **I ACCEPT THE LICENSE AGREEMENT** and click **ENABLE**. A pop-up message confirmation is displayed showing that the product is enabled for the pack.

Note:

- To use the newly enabled product, you need to map your application users to the appropriate product specific User_ Group(s) and authorize the actions by logging in as System Authorizer.
- For more information, see Mapping/Unmapping Users section in the OFSAAI User Guide available on OTN.
- To identify the newly enabled product specific UserGroups/ Application Pack specific User_Groups, refer to the respective Application Pack specific Installation and Configuration Guide/ User Manual.

10

Post Deployment Configurations

This section provides detailed information about the Post Deployment Configuration.

Post Deployment Configurations

This section lists the various configurations to be completed before you use the OFSAA Applications.

- Deploying the Application
- Logging as System Administrator
- Creating Application Users
- Mapping Application User(s) to User Group
- Changing ICC Batch Ownership
- Mapping ICC Batch Execution Rights to User
- Saving Post- Load Change Transformations

Deploying the Application

This section provides the details on ALM and ALMBI application deployment. It covers the following topics:

- Deploying the ALM Application
- Deploying the ALMBI Application

> **Note:** You must update Security Patches post application installation. For more information, see the Support ID 2306980.1.

Deploying the ALM Application

To deploy the ALM application, follow the steps:

The Oracle Financial Services Analytical Applications Infrastructure Application Server is started using startofsaai.sh. This file can be edited for setting customized memory settings, garbage collector settings depending on the available hardware configuration. Please raise an SR in support.Oracle.com if you have any queries related to EPM applications.

Once the installation of Oracle Financial Services Asset Liability Management pack is completed, you must perform the following steps:

1. Check the Log file.

2. Add the below mentioned entries in excludeURLList.cfg file located in the path $FIC_WEB_HOME/webroot/conf/. These entries are required for Asset and Liability Management, Funds Transfer pricing, Profitability Management and Hedge Management / IFRS:

   [SQLIA]./fsapps/common/batchCreate.action

   [SQLIA]./fsapps/common/batchEdit.action

   Note: Copy the above information into notepad, and then copy it from notepad into cfg file. Take extra care to avoid copying formatting characters into the cfg file.

3. For Administrative Reports (Admin BI) configuration follow the steps mentioned in Oracle Financial Services Administrative Reports on OBIEE 11g v8.0.0.0.0 - Configuration Note.docx under $FIC_HOME/adminbi

   Note: You can also find the Oracle Financial Services Administrative Reports on OBIEE 11g v8.0.0.0.0 - Configuration Note on OTN.

4. The web.xml under the path $FIC_WB_HOME \webroot\WEB-INF\ should have Resource tag, if not present add the tag and replace ORDEMO with the INFODOM name.

   <resource-ref>

   <description>DB ConnectionORDEMO</description>

   <res-ref-name>jdbc/ORDEMO</res-ref-name>

   <res-type>javax.sql.DataSource</res-type>

   <res-auth>Container</res-auth>

   </resource-ref>

   Note: Copy the above information into notepad, and then copy it from notepad into cfg file. Take extra care to avoid copying formatting characters into the cfg file.

5. Transfer the ownership of batches to the required User.

   Login to config user.

   Execute the Following anonymous pl/sql block to execute procedure “AAI_OBJECT_ADMIN.TRANSFER_BATCH_OWNERSHIP”.

   ```
   begin

   AAI_OBJECT_ADMIN.TRANSFER_BATCH_
   OWNERSHIP('fromUser','toUser','infodom');

   end;

   OR

   begin

   AAI_OBJECT_ADMIN.TRANSFER_BATCH_
   OWNERSHIP('fromuser','touser');

   end;
   ```

   Parameter details:

from User: indicates the user who currently owns the batch,

to User: indicated the user to which the ownership has to be transferred.

infodom: optional parameter, if specified the ownership of batches pertaining to that Infodom will be changed.

6. If the web application server is hosted on a machine other than where pack is installed, then perform the following step.

   Generate RSA key for the machine where Web application server is hosted.

   Add the generated RSA key to the authorized keys list of the machine where Pack is installed

Deploying the ALMBI Application

Note: ALMBI in OBIEE version 11.1.1.7.1, 12.2.1.2.0, and 12.2.1.3.0 will be present, but features of ALMBI version 8.0.7.0.0 will be available for OBIEE versions 11.1.1.9.5 and 12.2.1.4.0.

OBIEE 11.1.1.9.5

To deploy the ALMBI application, follow the OBIEE configuration steps:

1. Make sure Oracle Business Intelligence (Version 11.1.1.9.0) installation is completed.

   Note: After Installation, patch 22061111 is recommended for all the customers who are using Oracle Business Intelligence Enterprise Edition 111.1.1.9.0. This patch can be downloaded from Oracle support site.

2. Set the <Oracle BI Instance Home> directory.

   For example,

   `/u01/OBIEE11G/instances/instance1.`

3. Start WebLogic AdminServer.
   1. Set the < BI Domain Home> directory.

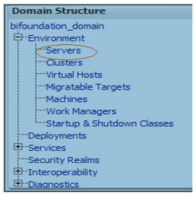
      For Example, `/u01/OBIEE11G/user_projects/domains/bifoundation_domain`.

   2. Navigate to `< BI Domain Home >/bin and run nohup ./startWebLogic.sh &.`

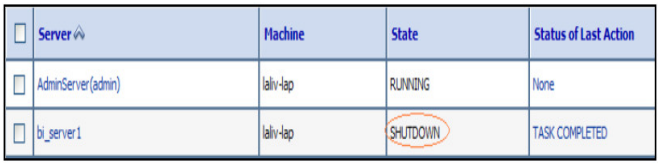
   3. Bringing up this service may take a few minutes depending on your environment. Check the logs using the command tail –f nohup.out.

4. Start WebLogic Managed Server(bi_server1).
   1. Login onto `http://localhost:7001/console` using your Administrator credentials created during platform install (Replace the hostname based on your setup).

   2. Under Environment, click Servers link.



The bi_server1 line should show as shutdown state at this point.



3. Click Control tab.

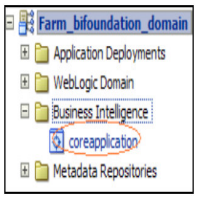
4. Select the bi_server1 line by clicking on the left tick box.
5. Click Start button at the top of the list and confirm starting this service.

6. State will update to “RUNNING” mode after a few minutes.

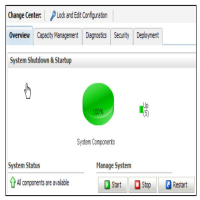
5. Start OBIEE services and login.
   1. Starting services From EM screen

      Login to the EM administration screen using the URL: `http://localhost:7001/em` (Replace the hostname and port number based on your setup). Use the login you created in BIEE installation to log in.

      Expand 'Business Intelligence' node on the left and choose Coreapplication.



Click Overview Tab.



Click Restart (or Start) under the Manage System section.

Click Yes on dialog box to confirm the move. Wait for message that confirms successful restart.

2. If starting using EM is not successful and complaining about OPMNCTL not up, follow starting process with OPMNCTL

   Open a command prompt, navigate to `<Oracle BI Instance Home>/bin`.

   Run ./opmnctl status, this will show you status of all the OBIEE core services

   run ./opmnctl startall or ./opmnctl stopall depending on your need.

6. Deploy RPD and webcat file(s).

   1. Navigate to folder `$FIC_HOME/ALMBI/RPD_WEBCATALOG/11.1.1.9.5` which contains both ALMBI.rpd and archived ALMBI.catalog. Copy both the files to a local folder.

   2. Modify connection pool and set the properties. Open the OBI Administration tool.

      Select Start > Programs > Oracle Business Intelligence > BI Administration.

      Select File > Open > Offline and select 'ALMBI.rpd' file from the local folder as mentioned in previous step.

      Enter Repository password as 'Administrator1'.

      RPD changes:

      Go to Manage -> Variables edit the Session variable 'TNS'

      For Ex: Change the Default Initializer from 'TNS ENTRY' to 'actual TNS entry' like '(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<Database IP address>)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=<Database Name>)))'

      Edit the Initialization Block 'TNS Init Block' ->Click Edit Data Source

      For Ex: Change the Default Initialization string from "select 'TNS ENTRY' from dual " to select (DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<Database IP address>)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=<Database Name>)))' from dual

      Edit the Session variable 'DBUSER'

      Change the Default Initializer from ''USERNAME'' to actual Database schema name.

      Edit the Initialization Block 'DBUSER Init Block' ->Click Edit Data Source

      Replace 'USERNAME' with the actual atomic schema name.

Edit the Session variable 'DBUSERPWD'

Edit the Initialization Block DBUSERPWD Init Block' ->Click Edit Data Source

Replace 'PASSWORD' with the actual atomic schema password.

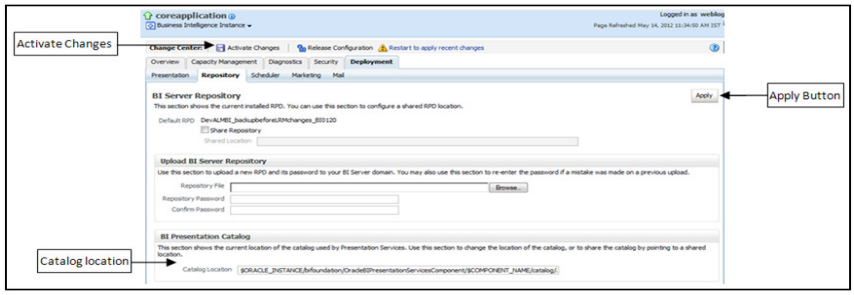
Check-in the changes and give yes for global consistency check. Make sure No errors and warnings. Click Save.

Close the RPD file (File / Exit).

3. Login to OBIEE – Enterprise Manager URL (`http://<ip address>:<port>/em`).

   Click on coreapplication from **Business Intelligence** tab on left hand side.

   Under 'coreapplication', select the tab **Deployment** and click **Lock and Edit Configuration** button located below title 'coreapplication'. The below screen is displayed.



RPD Deployment:

Select Browse button available under Upload BI Server Repository section and select ALMBI.rpd file from the local folder. Enter Repository password 'Administrator1'.

Web Catalog Deployment:

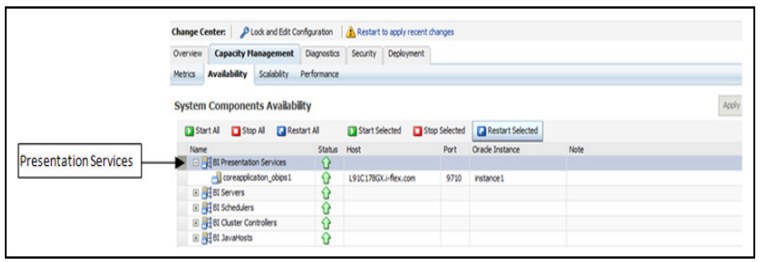
Create a new webcatalog folder for ALM BI application through Enterprise Manager of OBIEE.

Set the Catalog Location available under 'BI Presentation Catalog' like: "$ORACLE_ INSTANCE/bifoundation/OracleBIPresentationServicesComponent/$COMPONENT_NAME/catalog/ALMBI".

Click Apply and then click Activate changes. A pop up is displayed after successful activation.

Click Close and switch to Capacity management tab.

Restart the presentation services. Under the System Components Availability, select Presentation Services and click on Restart Selected option.

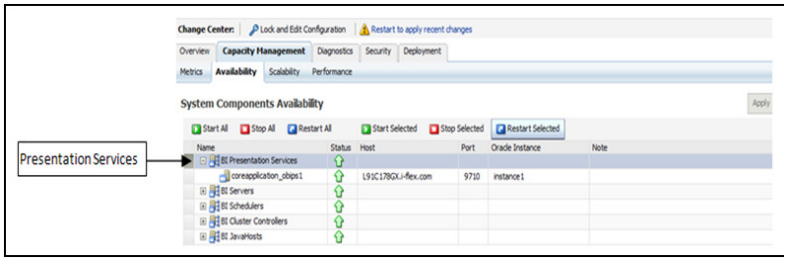


Once the Presentation Service is restarted, it will give the pop up for successful restart. Click Close.

Verify that new folder structure is created in the system. It can be found under path :

```
<Oracle BI Instance Home>
\bifoundation\OracleBIPresentationServicesComponent\coreapplication_obips1\catalog\ALMBI
```

This 'ALMBI' folder will be having a root folder which in turn contains three folders named 'shared', 'system' and 'users'.



4. Open the Catalog Manager

   Navigate to File menu and open the catalog online (File->Open catalog) by giving the necessary credentials based on your setup (Type - (online), URL - (http://<ipaddress>:<port>/analytics/saw.dll).

   Once the catalog is opened, it will display a folder structure on left hand side. Select the shared folder in the LHS tree structure.

   Go to 'File' menu and select 'Unarchive'. It will ask for the path for a file.

   Browse the path of the archived catalog file saved in your local folder using the 'Browse' button in the pop up. Click 'OK'.

   The catalog will be unarchived in specified location. A pop up for successful operation will be shown. Restart the presentation services once again.

5. Open the analytics OBIEE URL- (http://<ipaddress>:<port>/analytics/saw.dll?bieehome) Login with credentials based on your setup, and verify that catalog is available.

7. Configure **tnsnames.ora**.

   Open **tnsnames.ora** file under the folder - `<Oracle Home>/network/admin`.

   Make sure an entry is made in the tnsnames.ora to connect to atomic schema of OFSAA application.

   Save the t**nsnames.ora**.

8. Configure ODBC data source to connect to Oracle BI Server.
    1. Go To Control Panel>Administrative Tools>Data Sources (ODBC).
    2. Select the 'System DSN' tab and click 'Add' Button.
    3. Select a driver specific to (Oracle BI Server 11g) and click 'Finish' Button.
    4. Enter 'Name' and 'Server' details (Specify the Host Name or IP Address of the BI Server and click 'Next').
    5. Enter Oracle BI Server login id and password (Enter User Name and Password created at the time of OBIEE installation). Click 'Next'.
    6. Click **Finish**.
    1. Open the OBI Administration tool.
    2. Select Start > Programs > Oracle Business Intelligence > BI Administration.
    3. Select File > Open > Online and select 'ALMBI.rpd' file.
    4. In the Open dialog box, select and open 'ALMBI.rpd' file.
    5. Enter Repository password as 'Administrator1'.
    6. RPD changes:

       Go to Manage -> Variables edit the Session variable 'TNS'

       For Ex: Change the Default Initializer from 'TNS ENTRY' to 'actual TNS entry' like '(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<Database IP address>)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=<Database Name>)))'

       Edit the Initialization Block 'TNS Init Block' ->Click Edit Data Source

       For Ex: Change the Default Initialization string from "select 'TNS ENTRY' from dual " to select (DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<Database IP address>)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=<Database Name>)))' from dual

       Edit the Session variable 'DBUSER'

       Change the Default Initializer from ''USERNAME'' to actual Database schema name.

       Edit the Initialization Block 'DBUSER Init Block' ->Click Edit Data Source

       Replace 'USERNAME' with the actual atomic schema name.

       Edit the Session variable 'DBUSERPWD'

       Edit the Initialization Block DBUSERPWD Init Block' ->Click Edit Data Source

       Replace 'PASSWORD' with the actual atomic schema password.

       Check in the changes and give yes for global consistency check. Make sure No errors and warnings. Click Save.

       Close the RPD file (File / Exit).
    7. WEBCATALOG changes:

       Click Open->shared Folders->Change Database Connection-> Prompt For Sources_TNS

Select the Prompt TNS and click on edit.

Change the sql statement in default selection.

For example: select case when '@{DBNAME}' ='ALMDB' THEN '(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<IP ADDRESS>)(PORT=1521)))(CONNECT_DATA=(SERVICE_ NAME=<DATBASE NAME>)))' end from "ALM BI" and Click Save.

9. Login into OFSALMA Application using the URL: `http://localhost:9704/analytics.(Replace the port number based on your setup).`

   Navigate to FICWEBHOME .

   Run `ant.sh`

10. Once the OBIEE Environment is up and running, the OBIEE URL needs to be updated in the table 'AAI_MENU_B' for an end user to access the respective Business Intelligence Analytics Application.

    Following update statement needs to be executed in the config schema:

```
UPDATE AAI_MENU_B
SET V_MENU_URL = '<URL>'
WHERE V_MENU_ID IN (‘<List of enabled BI Analytical Links for a particular Media Pack >’)
/
COMMIT
/
For ALM Media Pack as an example:
UPDATE AAI_MENU_B
SET V_MENU_URL = 'http://10.1.2.3:9704/analytics'
WHERE V_MENU_ID IN ('OFS_ALM_ABI','OFS_ALMBI_LINK')
/
COMMIT
/
```

    (Replace the IP address and port number based on your setup.)

OBIEE 12.2.1.4.0

To deploy the ALMBI application, follow the OBIEE configuration steps:

1. Install Oracle Business Intelligence Version 12.2.1.4.0. Refer ***Installing and Configuring Oracle Business Intelligence 12c(12.2.1.3) E78115-02*** for more details.
2. Ensure BI server is up and running.
3. Deploy RPD and webcat file(s)

8. Navigate to folder $FIC_HOME/ALMBI/RPD_WEBCATALOG/12.2.1.4.0 which contains both ALMBI.rpd and archived ALMBI.catalog. Copy ALMBI.rpd and ALMBI.catalog to a folder in the server where BI client tools are installed.
9. Modify connection pool and set the properties using below steps:

   Open the OBI Administration tool.

   Select Start > Programs > Oracle Business Intelligence > BI Administration.

   Select File > Open > Offline mode and select 'ALMBI.rpd' file from the folder where you have copied the file (Step 3-1).

   Enter Repository password as 'Administrator1'.
10. RPD changes:

    Go to Manage -> Variables edit the Session variable 'TNS'

    For Ex: Change the Default Initializer from 'TNS ENTRY' to 'actual TNS entry' like '(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<Database IP address>)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=<Database Name>)))'

    Edit the Initialization Block 'TNS Init Block' ->Click Edit Data Source

    For Ex: Change the Default Initialization string from "select 'TNS ENTRY' from dual " to select (DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<Database IP address>)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=<Database Name>)))' from dual

    Edit the Session variable 'DBUSER'

    Change the Default Initializer from ''USERNAME'' to actual Database schema name.

    Edit the Initialization Block 'DBUSER Init Block' ->Click Edit Data Source

    Replace 'USERNAME' with the actual atomic schema name.

    Edit the Session variable 'DBUSERPWD'

    Edit the Initialization Block DBUSERPWD Init Block' ->Click Edit Data Source

    Replace 'PASSWORD' with the actual atomic schema password.

    Check in the changes and give yes for global consistency check. Make sure No errors and warnings. Click Save.

    Close the RPD file (File / Exit).
11. Create a folder in the below location

    <Oracle_Home>/user_projects/domains/domain_name
12. Copy the ALMBI.rpd to the folder created in the above step.
13. Open the command prompt and go to below location

    <Oracle_Home>/user_projects/domains/bi/bitools/bin

RPD Deployment

Note: You can only upload the repository to a specific service instance.

Oracle provides the `downloadrpd` and `uploadrpd` commands for offline repository diagnostic and development purposes such as testing, only. In all other repository development and maintenance situations, you should use BAR to utilize BAR's repository upgrade and patching capabilities and benefits.

You can use this command to upload the Oracle BI repository in RPD format. You cannot use this command to upload a repository composed of MDS XML documents.

You can execute the utility through a launcher script `datamodel.sh` on UNIX and `datamodel.cmd` on Windows. If the domain is installed in default folder, then the location of the launcher script looks like the following:

`Oracle_Home/user_projects/domains/Domain_Name/bitools/bin/datamodel.sh or datamodel.cmd` on Windows

If the client installed does not have domain names, then launcher script location is as follows:

`Oracle_Home\bi\bitools\bin\datamodel.sh or datamodel.cmd` on Windows

Syntax:

The uploadrpd command takes the following parameters:

```
uploadrpd -I <RPD filename> [-W <RPD password>] [-SI
<service_instance>] -U <cred_username> [-P <cred_password>]
[-S <host>] [-N <port>] [-SSL] [-H]
```

- **I** specifies the name of the repository that you want to upload.
- **W** is the repository's password. If you do not supply the password, then you will be prompted for the password when the command is run. For security purposes, Oracle recommends that you include a password in the command only if you are using automated scripting to run the command.
- **SI** specifies the name of the service instance.
- **U** specifies a valid user's name to be used for Oracle BI EE authentication.
- **P** specifies the password corresponding to the user's name that you specified for U. If you do not supply the password, then you will be prompted for the password when the command is run. For security purposes, Oracle recommends that you include a password in the command only if you are using automated scripting to run the command.
- **S** specifies the Oracle BI EE host name. Only include this option when you are running the command from a client installation.
- **N** specifies the Oracle BI EE port number. Only include this option when you are running the command from a client installation.
- **SSL** specifies to use SSL to connect to the WebLogic Server to run the command. Only include this option when you are running the command from a client installation.
- **H** displays the usage information and exits the command.Use -H or run .sh without any parameters to display the help content.

ALMBI repository password is 'Administrator1'

such as

```
./datamodel.sh  uploadrpd -I <Oracle_Home>/user_
projects/domains/doamin_name/tmp/ALMBI.rpd -W Administrator1
-SI ssi -U Username -P Password
```

You will get below message if RPD deployment is successful:

Operation successful.

RPD upload completed Successfully.

Catalog Deployment

1. Open Catalog Manager.
2. Navigate to File menu and open the catalog online (File->Open catalog) by giving the necessary credentials based on your setup (Type - (online), URL - (http://<ipaddress>:<port>/analytics-ws).
3. Once the catalog is opened, it will display a folder structure on left hand side. Select the Shared Folders in the LHS tree structure.
4. Go to **File** menu and select **Unarchive**. It will ask for the path for a file.
5. Browse the path of the archived catalog file saved in your local folder using the 'Browse' button in the pop up. Click **OK**.
6. The catalog will be unarchived in specified location. A pop up for successful operation will be shown.
7. Open the analytics OBIEE URL- (http://<ipaddress>:<port>/analytics) Login with credentials based on your setup, and verify that catalog is available

4. Configure **tnsnames.ora**.

   Open **tnsnames.ora** file under the folder - `<Oracle Home>/network/admin`.

   Make sure an entry is made in the tnsnames.ora to connect to atomic schema of OFSAA application.

   Save the t**nsnames.ora**.

5. Configure ODBC data source to connect to Oracle BI Server.
   1. Go To Control Panel>Administrative Tools>Data Sources (ODBC).
   2. Select the **System DSN** tab and click **Add** Button.
   3. Select a driver specific to (Oracle BI Server 12c) and click 'Finish' Button.
   4. Enter **Name** and **Server** details (Specify the Host Name or IP Address of the BI Server and click **Next**).
   5. Enter Oracle BI Server login id and password (Enter User Name and Password created at the time of OBIEE installation). Click **Next**.
   6. Click **Finish**.
6. Open the OBI Administration tool. Perform consistency check. Make sure, there are no errors or warnings. Close the RPD file.

   7. WEBCATALOG changes:

Click Open->shared Folders->Change Database Connection-> Prompt For Sources_TNS

Select the Prompt TNS and click on edit.

Change the sql statement in default selection.

For example: select case when '@{DBNAME}' ='ALMDB' THEN '(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<IP ADDRESS>)(PORT=1521)))(CONNECT_DATA=(SERVICE_ NAME=<DATBASE NAME>)))' end from "ALM BI" and Click Save.

7. Login into OFSALM Application using the URL: `http://localhost:9704/ofsa.(Replace the port number based on your setup).`

   Navigate to FICWEBHOME .

   Run `ant.sh`

8. Once the OBIEE Environment is up and running, the OBIEE URL needs to be updated in the table 'AAI_MENU_B' for an end user to access the respective Business Intelligence Analytics Application.

   Following update statement needs to be executed in the config schema:

```
UPDATE AAI_MENU_B
SET V_MENU_URL = '<URL>'
WHERE V_MENU_ID IN ('<List of enabled BI Analytical Links for a particular Media Pack >')
/
COMMIT
/
For ALM Media Pack as an example:
UPDATE AAI_MENU_B
SET V_MENU_URL = 'http://10.1.2.3:9704/analytics'
WHERE V_MENU_ID IN ('OFS_ALM_ABI','OFS_ALMBI_LINK')
/
COMMIT
/
```

   (Replace the IP address and port number based on your setup.)

> **Note:** In case during this Application Pack installation, you enabled OFS ALM BI product only, download and apply patch no to correct the inconsistency in the OFSAA installation audit tables. This patch is not required if you enabled OFS ALM and OFS ALM BI during installation.

Post Installation Changes in instanceconfig.xml File

Do the following changes in the instanceconfig.xml file as post installation changes:

1. Backup and edit the instanceconfig.xml file located at:

```
$ORACLE_HOME/user_
projects/domains/bi/config/fmwconfig/biconfig/OBIPS
```

Table I–6

Tag to be changed	Changes
<Views>	<Views> <Charts> <DefaultWebImageType>flash</DefaultWebImage Type> </Charts> </Views>
<Security>	<Security> <CheckUrlFreshness>false</CheckUrlFreshness> <EnableSavingContentWithHTML>true</ EnableSavingContentWithHTML> </Security>

2. Save and exit the file.
3. Restart the presentation server for the changes to take effect.

GDPR Configuration

By default, data will be redacted to WebLogic user. If you want to see redacted data(PII data on the PII dashbaord) after enabling GDPR , then create WebLogic user or any new user(who wants to see redacted data) in OFSAA application and OBIEE (if it's new user) and map the user to "Data Security Group" in OFSAA using SMS.

For more information on PII dashboard, refer to GDPR section in the ***Oracle Financial Services Asset Liability Management Analytics User Guide*** on OHC.

For more information on Data Protection Implementation by OFSAA, refer to ***Oracle Financial Services Data Foundation User Guide*** on OHC.

Instrument Table Validation

Run the Instrument Table Validation. For more information, see the Doc ID 1457511.1 and Data Model Utility Guide

Check the FSI_MESSAGE_LOG file after running Instrument Table Validation to verify that tables are classified correctly.

Logging as System Administrator

Post installation, the first login into Infrastructure is possible only for a System Administrator through user id "sysadmn". This ID is created at the time of installation with the password provided during installation. Enter login id "sysadmn" and password that was provided during installation. Click Login.

System Administrator

System Administration refers to a process of managing, configuring, and maintaining confidential data in a multi-user computing environment. System Administration in Security Management involves creating functions, roles, and mapping functions to specific roles. System Administration also involves maintaining segment information,

holiday list, and restricted passwords to ensure security within the Infrastructure system.

You can access System Administrator in LHS menu of Security Management. The options available under System Administrator are:

- Function Maintenance
- Role Maintenance
- Segment Maintenance
- Holiday Maintenance
- Restricted Passwords

Function Maintenance

A function in the Infrastructure system defines the privileges to access modules or components and to define or modify metadata information associated. Function Maintenance allows you to create functions for users to ensure only those functions are executed which are specific to the user's role.

You can access Function Maintenance by expanding System Administrator section within the tree structure of LHS menu. The Function Maintenance window displays the function details such as Function Code, Function Name, Description, and the number of Roles Mapped to the function. The Function Maintenance window also facilitates you to view, create, modify, and delete functions within the system.

You can also make use of Search and Pagination options to search for a specific function or view the list of existing functions within the system

Role Maintenance

A role in the Infrastructure system is a collection of functions defined for a set of users to execute a specific task. You can create roles based on the group of functions to which users are mapped.

You can access Role Maintenance by expanding System Administrator section within the tree structure of LHS menu. The Role Maintenance window displays the role details such as Role Code, Role Name, Role Description, and the number of Users Mapped to the role. The Role Maintenance window also facilitates you to view, create, modify, and delete roles within the system.

You can also make use of Search and Pagination options to search for a specific role or view the list of existing roles within the system.

Segment Maintenance

Segment is used to control access rights on a defined list of objects. It is mapped to an information domain.

Segment Maintenance in the Infrastructure system facilitates you to create segments and assign access rights. You can have different segments for different Information Domains or same segments for different Information Domains.

User scope is controlled by segment/ folder types with which the object is associated.

Objects contained in a public folder will be displayed irrespective of any user.

Objects contained in a shared folder will be displayed if user belongs to a user group which is mapped to an access type role with the corresponding folder.

Objects contained in a private folder will be displayed only to the associated owner.

You can access Segment Maintenance by expanding System Administrator section within the tree structure of LHS menu. The Segment Maintenance window displays a list of available segments with details such Domain, Segment Code, Segment Name, Segment Description, Segment/Folder Type, Owner Code, and the number of Users Mapped to the segment. You can view, create, modify, and delete segments within the Segment Maintenance window.

You can also make use of Search and Pagination options to search for a specific role or view the list of existing roles within the system.

Holiday Maintenance

Note: As part of OFSAAI 7.3.3.0.0 release, this feature will not be available if Authentication is configured to SSO Authentication and SMS Authorization.

Holiday Maintenance facilitates you to create and maintain a schedule of holidays or non-working days within the Infrastructure system. On a holiday, you can provide access to the required users and restrict all others from accessing the system from the User Maintenance window.

You can access Holiday Maintenance by expanding System Administrator section within the tree structure of LHS menu. The Holiday Maintenance window displays a list of holidays in ascending order. In the Holiday Maintenance window you can create and delete holidays.

Restricted Passwords

Note: As part of OFSAAI 7.3.3.0.0 release, this feature will not be available if Authentication Type is selected as SSO Authentication and SMS Authorization from System Configuration> Configuration.

Restricted Passwords facilitates you to add and store a list of passwords using which users are not permitted to access the Infrastructure system.

You can access Restricted Passwords by expanding System Administrator section within the tree structure of LHS menu. The Restricted Passwords window displays a list of restricted passwords and allows you to add and delete passwords from the list.

You can also make use of Search and Pagination options to search for a specific password or view the list of existing passwords within the system. For more information, refer Pagination and Search & Filter.

Note: While searching for any pre defined restricted password, you have to key in the entire password

Creating Application Users

Create the application users in the OFSAA setup prior to use.

Note: This step may not be required if you have already setup users in the OFSAA setup.

For more information, see user creation section from the ***Oracle Financial Services Analytical Applications Infrastructure User Guide***.

Mapping Application User(s) to User Group

Starting the OFSAA 8.0 release, with installation of ALM Application Pack, pre-configured application user groups are seeded. These user groups are unique to every OFSAA Application Pack and have application roles pre-configured.

For more information, see the Support ID 2550556.1.

Map the application user (s) to the respective Application User Group (s) and subsequently authorize the entitlements by logging in as SYSAUTH (System Authorizer) user.

For more information, see Mapping/Unmapping Users section from the ***Oracle Financial Services Analytical Applications Infrastructure User Guide***.

ALM Application specific User Group mappings

User Groups seeded with the OFS ALM Application are listed below:

- ALM Administrator
- System Administrator
- ALM Analyst
- ALM Auditor
- CFEENABLE (RLCFE)

ALM Administrator The **ALM Admin** has following access to following screens and modules:

ADCO Prepayments for ALM

ALM Access code for AAI

Application Preference: ALM Application Preference Admin, ALM Application Preference View

Rate Management: Add Currency, Add Currency Rate, Add Economic Indicator, Add Interest Rate Copy Economic Indicator, Copy Interest Rate, Delete Currency, Delete Currency Rate, Delete Economic Indicator, Delete Interest Rate, Edit Currency, Edit Currency Rate, Edit Economic Indicator, Edit Interest Rate, Execute Economic Indicator Loader, Launch Currency Rate Validation, Launch Interest Rate Loader, View Currency, View Currency Rate, View Economic Indicator , View Interest Rate

Process Tuning: Add, Delete, Edit, View

Adjustment Rules: Add, Delete, Edit, SaveAs/Copy, View

Admin BI

Batch Maintenance: Add, Copy, Delete, Edit, Run, View, Batch Processing, Execute Batch

Behavior Pattern: Add, Delete, Edit, SaveAs/Copy, View

Migration Execution: Execute/Run, Cancel

Cash Flow: Add, Delete, Edit, Run, SaveAs/Copy, View

Authorize Map(s), Create Map, Delete Map, Modify Map

Defi Administrator

Detail Cash Flows: Add All Records/Products

Discount Methods: Add, Delete, Edit, SaveAs/Copy, View

Dynamic Deterministic : Add, Delete, Edit, Run, SaveAs/Copy, View

Dynamic Stochastic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

FSAPPS Home Page Link

Forecast Balances: Add, Delete, Edit, SaveAs/Copy, View

Forecast Rates: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Formula Results: Add, Delete, Edit, SaveAs/Copy, View

Fusion Attributes: Add, Delete, Edit, View, View Dependent Data

Fusion Expressions: Add, Delete, Edit, View, View Dependent Data

Fusion Filters: Add, Delete, Edit, View, View Dependent Data

Fusion Hierarchies: Add, Delete, Edit, View, View Dependent Data

Fusion Members: Add, Delete, Edit, View, View Dependent Data

Global Preferences: View

Holiday Maintenance Screen: Add, Delete, Edit, Run, Save As, View

MDB Screen, Metadata Publish

Maturity Mix: Add, Delete, Edit, SaveAs/Copy, View

Moody Integration for ALM

Object Migration: Copy Migration Ruleset, Create Migration Ruleset, Delete Migration Ruleset, Edit Migration Ruleset, Home Page, Source Configuration, View Migration Ruleset

Operator Console

Payment Pattern: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Prepayment Models: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Prepayments: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Pricing Margin: Add, Delete, Edit, SaveAs/Copy, View

Product Characteristics: Add, Delete, Edit, SaveAs/Copy, View

Product Profiles: Add, Delete, Edit, SaveAs/Copy, View

Rate Dependency Patterns: Add, Delete, Edit, SaveAs/Copy, View

Repricing Pattern: Add, Delete, Edit, SaveAs/Copy, View

Static Deterministic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

Static Stochastic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

Stochastic Rate Index: Add, Delete, Edit, SaveAs/Copy, View

System Administrator Time Buckets: Add, Delete, Edit, SaveAs/Copy, View

Transaction Strategy: Add, Delete, Edit, Run, SaveAs/Copy, View

Transfer Pricing: Add, Delete, Edit, Run, SaveAs/Copy, View

View ALM Tasks

ALM Analyst The ALM Analyst has following access to following screens and modules:

ALM Access code for AAI

ALM Application Preference: View

Adjustments: Add, Delete, Edit, SaveAs/Copy, View

Batch Maintenance: Add, Copy, Delete, Edit, Run, View

Behavior Pattern: View

Cash Flow Edits: Add, Delete, Edit, SaveAs/Copy, View

Defi Administrator

Discount Methods: Add, Delete, Edit, SaveAs/Copy, View

Dynamic Deterministic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

Dynamic Stochastic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

FSAPPS Home Page Link

Forecast Balances: Add, Delete, Edit, SaveAs/Copy, View

Forecast Rates: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Formula Results: Add, Delete, Edit, SaveAs/Copy, View

Fusion Attributes: View Dependent Data, View Attributes

Fusion Filters: View Dependent Data, View Filters

Fusion Hierarchies: View Dependent Data, View Hierarchies

Fusion Members: View Dependent Data, Fusion View Members

Fusion Expressions: View Dependency Expressions, View Expressions

Global Preferences: View

Maturity Mix: Add, Delete, Edit, SaveAs/Copy, View

Moody Integration for ALM

Payment Pattern: View

Prepayment Models: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Prepayments: Add, Delete, Edit, SaveAs/Copy, Seeded Loader, View

Prepayments: Add, Delete, Edit, SaveAs/Copy, View

Pricing Margin: Add, Delete, Edit, SaveAs/Copy, View

Product Characteristics: Add, Delete, Edit, SaveAs/Copy, View

Product Profiles: View

Rate Dependency Patterns: Add, Delete, Edit, SaveAs/Copy, View

Repricing Pattern: View

Static Deterministic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

Static Stochastic Process: Add, Delete, Edit, Run, SaveAs/Copy, View

Stochastic Rate Index: Add, Delete, Edit, SaveAs/Copy, View

System Administrator: The System Administrator has following access to following screens and modules:

Time Buckets: Edit , View

Transaction Strategy: Add, Delete, Edit, SaveAs/Copy, View

Transfer Pricing: Add, Delete, Edit, SaveAs/Copy, View

View ALM Tasks

View CFE Tasks

Rate Management: View Currency, View Currency Rate, View Economic Indicator, View Interest Rate

Process Tuning: View

ALM Auditor The ALM Auditor has following access to following screens and modules:

ALM Access code for AAI

ALM Application Preference View

Adjustments: View

Batch Maintenance: Copy, View

Behavior Pattern: View

Cash Flow Edits: View

Defi Administrator

Discount Methods: View

Dynamic Deterministic Process: View

Dynamic Stochastic Process: View

FSAPPS Home Page Link

Forecast Balances: View

Forecast Rates: View

Formula Results: View

Fusion Attributes: View Dependent Data, View Attributes

Fusion Filters: View Dependent Data, View Filters

Fusion Hierarchies: View Dependent Data, View Hierarchies

Fusion Members: View Dependent Data, View Members

Fusion Expressions: View Dependency Expressions, View Expressions

Global Preferences: View

Maturity Mix: View

Object Migration: View Migration Ruleset

Payment Pattern: View

Prepayment Models: View

Prepayments: View

Pricing Margin: View

Product Characteristics: View

Product Profiles: View

Rate Dependency Patterns: View

Static Deterministic Process: View

Static Stochastic Process: View

Stochastic Rate Index: View

System Administrator

Time Buckets: Edit, view

Transaction Strategy: View

Transfer Pricing: View

View ALM Tasks

Rate Management: View Currency, View Currency Rate, View Economic Indicator, View Interest Rate

Process Tuning: View

CFEENABLE (RLCFE) The user mapped to group UGCFE only get access to CFE related links.

ALM cash flow engine functionality is used to support generation of

contractual and/or expected cash flows for use with Loan Loss Forecasting.

The following ALM objects can be used:

Rate Management

Dimension and Hierarchy Management

Filters

Holiday Calendars

Global Preferences

Application Preferences

Time Buckets

Product Profiles

Payment Patterns

Payment Schedules

Repricing Patterns

Behavior Patterns

Product Characteristics

Prepayments

Prepayment Models

Forecast Rates

Cash Flow Edits

Static Deterministic Process

Staging and Instrument tables seeded for selection within the Static

Deterministic Process and related T2T procedures

In the ALM Static Deterministic Process, Calculation Elements selection tab,

users can select the following:

Repricing Balances and Rates

Runofff Components

Prepayment Runoff

Tease, Cap, Floor and Neg Am Details

Standard Financial Elements

"Stop at Process Cash Flows" option

ALMBI Application specific User Group mappings

User Groups seeded with the OFS ALMBI Application are listed below:

- ALMBI Administrator
- ALMBI BI Analyst
- ALMBI Data Analyst

Mapping ICC Batch Execution Rights to User

By default all users who are mapped to Admin and Analyst will have the permission to execute the seeded Batches in ALM Application Pack. However, if any other user-defined batches or any other application pack batches created during the respective installation application packs, the user need to map the Batch execution rights for each user/batch in the Batch Execution Rights menu under Object Administration >> Object Security.

Note: Only SYSADMN user or any user who is mapped under Admin User Group will have the access to map the Batch execution rights menu access.

Saving Post- Load Change Transformations

After creating users, Login to Infrastructure as any user who is mapped to ALM Admin or Analyst group. Navigate to Data Management Framework >> Post Load Changes.

A New window will be displayed. Click on Each Transformation from Transformations List & Click on Stored Procedure in the Right Panel, Click on Edit in the Top Right Menu and Click on Finish Button in Bottom.

Note: All the Transformation Stored Procedures are required to be edited and saved (Finish Button) once for getting it is available.

Changes in `.profile` file for Solaris Operating System

For Solaris operating system, do the following changes in .profile file present in user's home directory.

1. Add the Oracle Developer Studio 12.5 installed path in the beginning of `LD_LIBRARY_PATH` variable in `.profile` file.

   For example:

   For Solaris sparc:

   ```
   LD_LIBRARY_
   PATH=/opt/SunProd/studio12u5/developerstudio12.5/lib/compiler
   s/CCgcc/lib/sparcv9
   ```

   For Solaris X86:

   ```
   LD_LIBRARY_
   PATH=/opt/SunProd/studio12u5/developerstudio12.5/lib/compiler
   s/CCgcc/lib/amd64
   ```

2. Append the path `$FIC_DB_HOME/lib/libC++11/ to LD_LIBRARY_PATH` variable in .profile file.

   For example:

   ```
   LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$FIC_DB_HOME/lib/libC++11
   ```

A

Configuring webserver

This section covers the following topics:

Configuring webserver

This step assumes the installation of a webserver exists as per the prerequisites.

See the product specific installation guide to install and configure the webserver. If an installation already exists, skip and proceed to the next step.

Note:

- Make a note of the IP Address/ Hostname and Port of the webserver. This information is required during the installation process.
- See the Oracle Financial Services Analytical Applications Infrastructure Security Guide mentioned in the Related Documents section for additional information on securely configuring your webserver.
- Ensure to enable sticky session/ affinity session configuration on the webserver. See the respective product specific Configuration Guide for more details. Additionally, you also need to enable the sticky session/ affinity session configuration at the Load Balancer level if you have configured a Load Balancer in front of the webserver (s).

Configuring Web Application Servers

This step assumes installation of a web application server exists as per the prerequisites. To configure the Web Application Server for OFSAA Deployment, see the following sections.

This section includes the following topics:

Note:

- Make a note of the IP Address/ Hostname and Port of the web application server. This information is required during the installation process (required if webserver is not configured).
- Add umask 0027 in the `.profile` of the UNIX account which manages the webserver to ensure restricted access permissions.
- Refer OFSAA Secure Configuration Guide/ Security Guide mentioned in the Related Documents section for additional information on securely configuring your webserver.

Configuring WebSphere Application Server for Application Deployment

You can deploy multiple OFSAA applications on different profiles of a stand-alone WebSphere application server. To create multiple WebSphere "Profiles" in a stand-alone server, use the command line option as explained in the following section. A profile is the set of files that define the runtime environment. At least one profile must exist to run WebSphere Application Server.

This section covers the following topics:

Creating a New Profile in WebSphere

The Profile is created in WebSphere through the command line using the `manageprofiles.sh` that resides in the `<WebSphere Install directory>/AppServer/bin` folder.

The command to create a profile ***without admin*** security through command line is as follows:

```
"manageprofiles.sh -create -profileName <profile> -profilePath <profile_path> -templatePath <template_path> -nodeName <node_name> -cellName <cell_name> -hostName <host_name>"
```

Example:

```
$usr/home>./manageprofiles.sh -create -profileName mockaix
-profilePath/websphere/webs64/Appserver/profiles/mockaix
-templatePath/websphere/webs64/Appserver/profileTemplates/default
-nodeName ipa020dorNode04 - cellName ipa020dorNode04Cell -hostName
ipa020dor
```

The command to create a profile ***with admin*** security through command line is as follows:

```
"manageprofiles.sh -create -profileName <profile> -profilePath <profile_
path> -templatePath <template_path> -nodeName <node_name> -cellName <cell_
name> -hostName <host_name> -enableAdminSecurity true -adminUserName
<Admin User Name> -adminPassword < Admin User Password> -samplespassword
<sample User Password>"
```

Example:

```
$usr/home>./manageprofiles.sh -create -profileName mockaix
-profilePath/websphere/webs64/Appserver/profiles/mockaix
-templatePath/websphere/webs64/Appserver/profileTemplates/default
-nodeName ipa020dorNode04 -cellName ipa020dorNode04Cell -hostName
ipa020dor -enableAdminSecurity true -adminUserName ofsaai -adminPassword
ofsaai -samplespassword ofsaai"
```

Note: While using the `manageprofiles.sh` command to create a New Profile in WebSphere, you can also use "-validatePorts" to validate if the specified ports are not reserved or in use. Additionally, you can specify new ports with "`-startingPort <base port>`" which specifies the starting port number to generate and assign all ports for the profile. For more information on using these ports, refer WebSphere manageprofiles command.

Managing IBM WebSphere SDK Java Technology Edition Versions

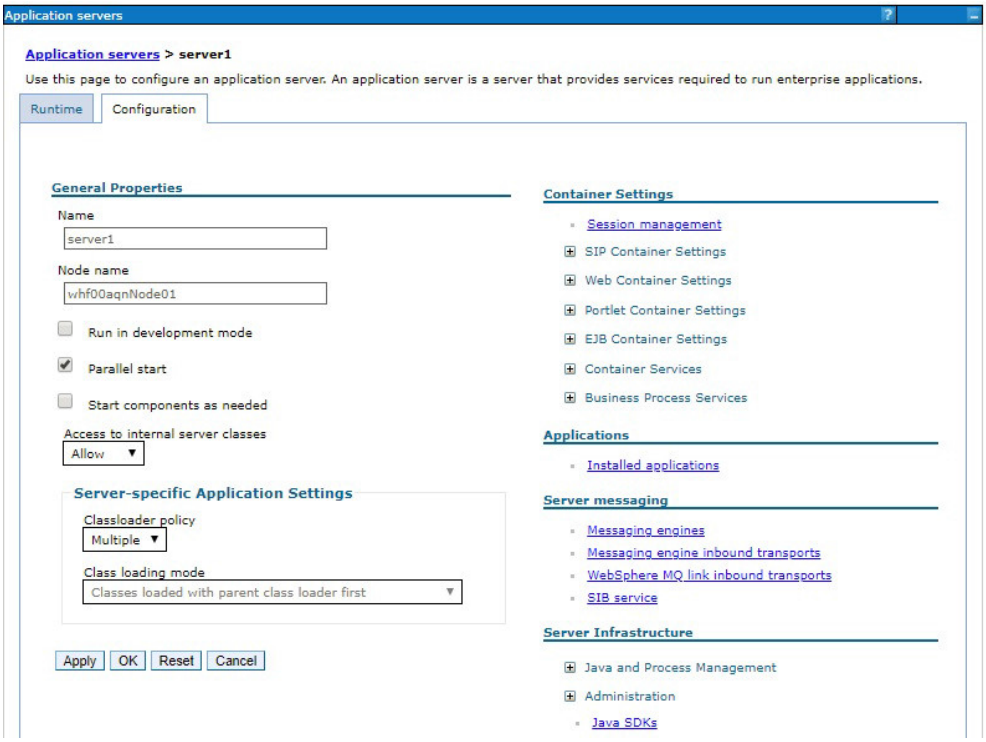
By default, WebSphere Application Server V8.5.5.X uses the Java 6.0 SDK. You must upgrade to Java 7.X SDK or JAVA 8.X SDK.

Prerequisites: Install the IBM WebSphere SDK Java Technology Edition Versions 1.7.X_64 or 1.8.X_64.

Perform the following steps to upgrade to Java 7.X SDK or JAVA 8.X SDK:

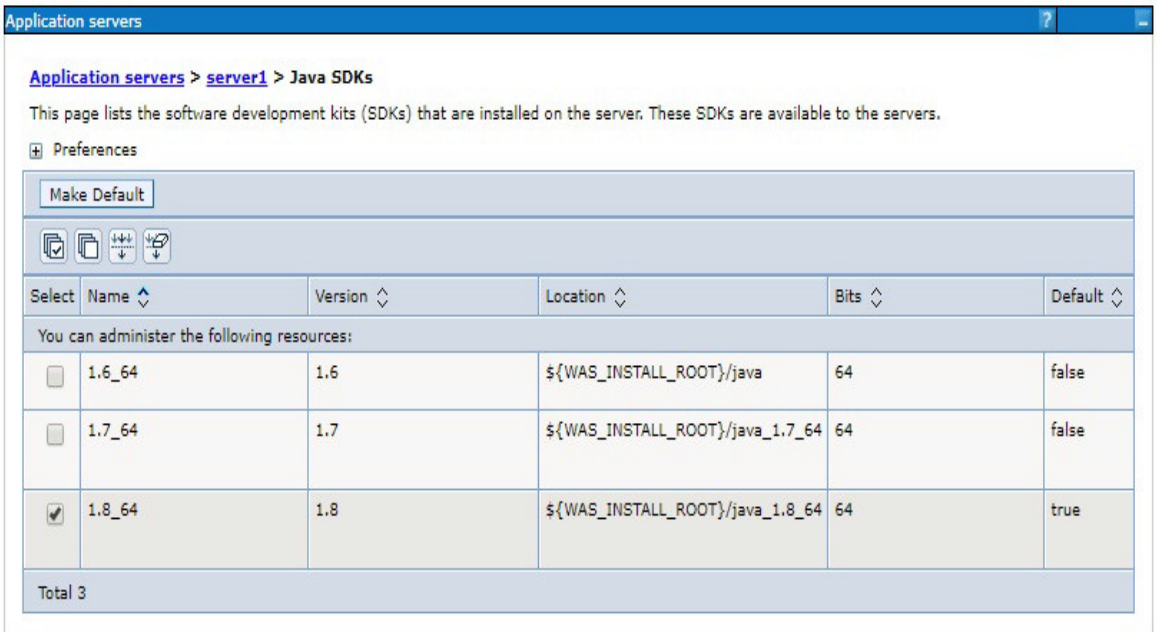
1. Enter the WebSphere URL in the format http://HOST_NAME:PORT_NUMBER/ibm/console (use https if SSL is enabled.). For example, `http://192.168.1.0:9000/ibm/console.`
2. Log in with your administrator user ID and password.
3. From the LHS menu, click **Servers** to expand and view the menu.
4. Click **Server Types** to expand the menu further and then click **WebSphere Enterprise Application Servers** to view the ***Application servers*** window.
5. On the ***Application servers*** window, click the required Application Server link. For example, server1 in the following illustration:

Figure A–1 Application Server - Java SDKs



6. Click the **Java SDKs** link from Server Infrastructure to view the list of Java SDKs.

Figure A–2 Application Server - List of Java SDKs



7. Select either **1.7_64** or **1.8_64** based on the JVM version with which you plan to install OFSAA or have installed.

8. Click the **Make Default** button and save to master repository.
9. Restart the WebSphere Application Server to apply the changes to the IBM application profile.

Managing Applications in WebSphere

To manage the installed applications in WebSphere, follow these steps:

1. Open the administrator console using the following URL:

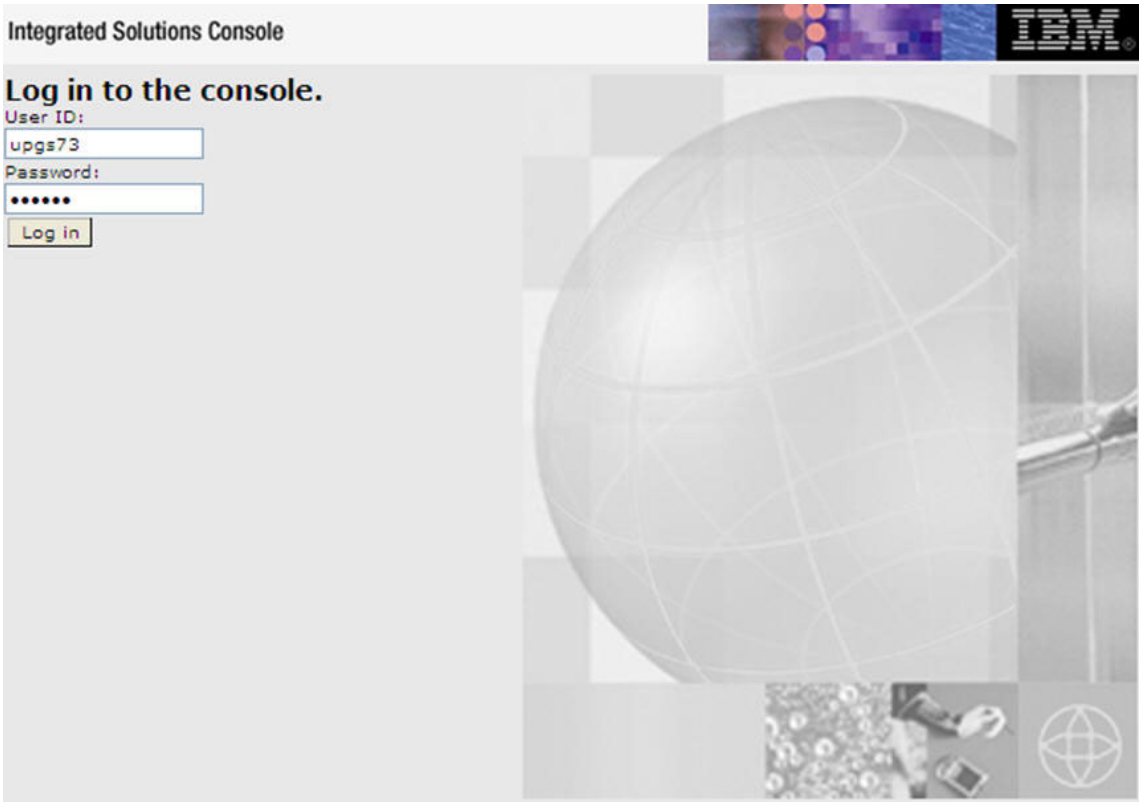
   `http://<ipaddress>:<Administrative Console Port>/ibm/console`

   For example: `http://10.111.222.333:9003/ibm/console` (https if SSL is enabled.)

   Note: Administrative Console Port value is available in `serverindex.xml` file within `<WebSphere Profile Directory>/config/cells/<Node Cell>/nodes/<Node Name>` directory.

   The *Integrated Solutions Console Login* window is displayed.

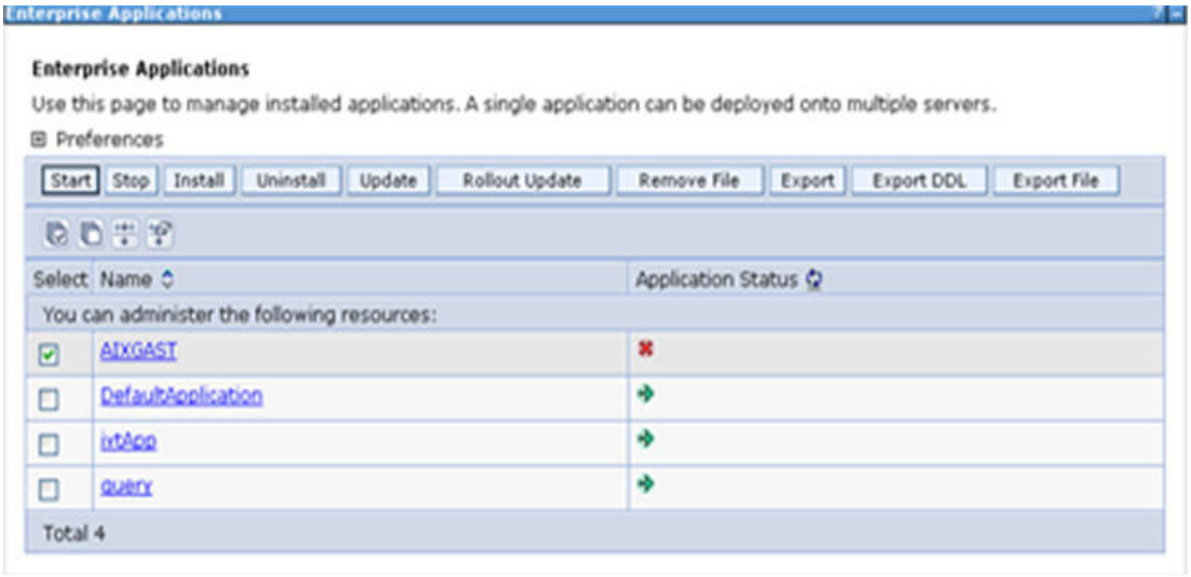
Figure A–3 Integrated Solutions Console Login



2. Log on with the **User ID** provided with the admin rights.
3. From the LHS menu, expand the **Applications** > **Application Type**> **WebSphere Enterprise Applications**.

The *Enterprise Applications* window is displayed.

Figure A–4 Enterprise Applications



This Enterprise Applications window helps you to:

- Install new application
- Uninstall existing applications
- Start or Stop the installed applications

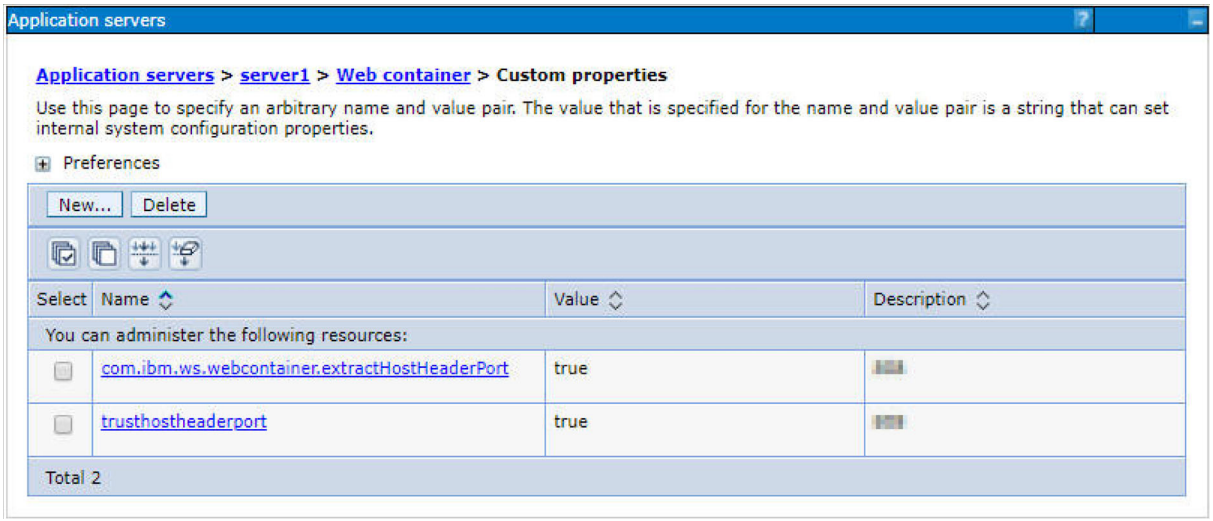
Configuring WebSphere Application Server to Use a Load Balancer or Proxy Server

The configuration prevents the process server from redirecting to an internal port when using a load balancer or proxy server.

The following steps describe the configuration:

1. Enter the WebSphere URL in the format `http://HOST_NAME:PORT_NUMBER/ibm/console` (use https if SSL is enabled.). For example, `http://192.168.1.0:9000/ibm/console`.
2. Log in with your administrator user ID and password.
3. From the LHS menu, click **Servers** to expand and view the menu.
4. Click the **Server Types** to expand the menu further and then click **WebSphere Enterprise Application Servers** to view the *Application servers* window.
5. On *Application servers* window, click the required Application Server link. For example, server1 in the following illustration:

Figure A–5 Application Servers - Load Balancer Proxy Server



6. Click **Web Container Settings** > **Custom Properties**.
7. Add the following properties:
   - Name: trusthostheaderport

     Value: true
   - Name: com.ibm.ws.webcontainer.extractHostHeaderPort

     Value: true
8. Restart the WebSphere Application Server to apply the changes.

Deleting WebSphere Profiles

To delete a WebSphere profile, follow these steps:

1. Select the checkbox adjacent to the required application and click **Stop**.
2. **Stop** the WebSphere profile to be deleted.
3. Navigate to WebSphere directory:

   `<WebSphere_Installation_Directory>/AppServer/bin/`
4. Execute the command:

   `manageprofiles.sh -delete -profileName <profile_name>`
5. Delete the profile folder.

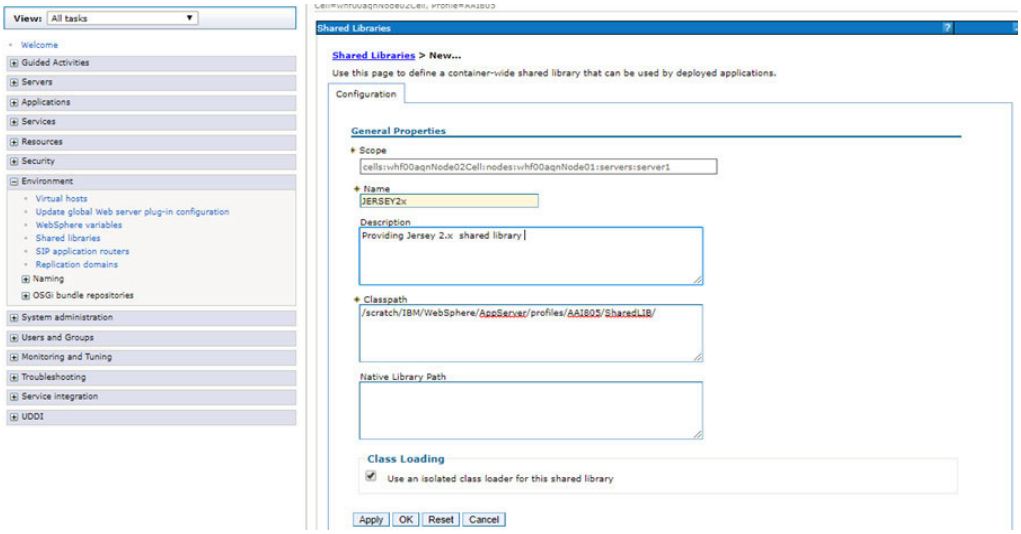
   Example: `<WebSphere_Installation_Directory>/AppServer/profiles/<profile_name>`
6. Execute the command:

   `manageprofiles.sh -validateAndUpdateRegistry`

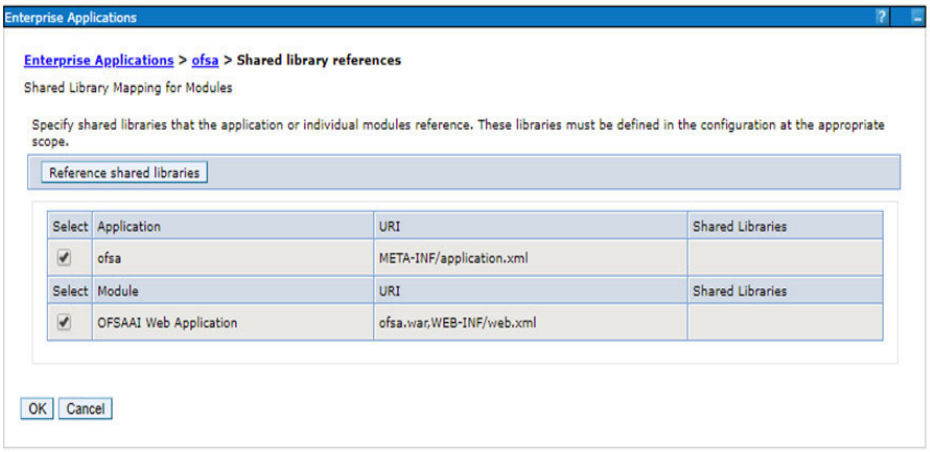
Configuring WebSphere Shared Library to Support Jersey 2x and Jackson 2.9x Libraries

Perform the following configuration to set the WebSphere shared library to support jersey 2x and Jackson 2.9x libraries.

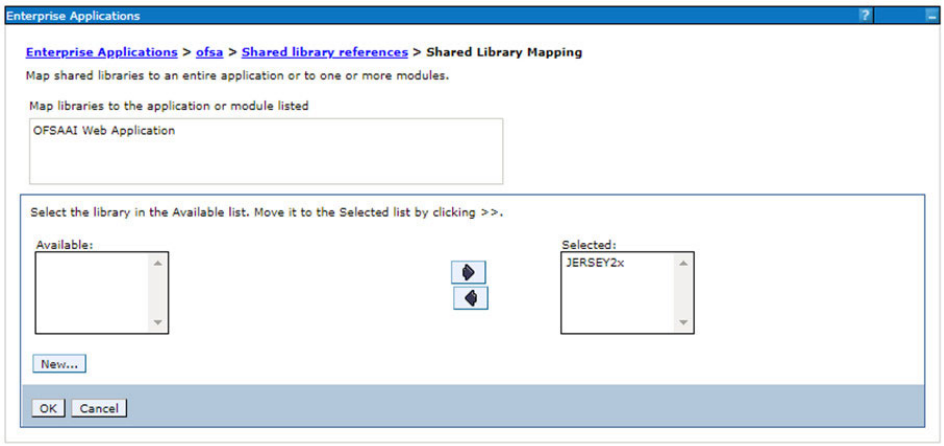
1. Click Environment from the menu on the left to expand and view the list. Click Shared Libraries to open the Shared Libraries window.



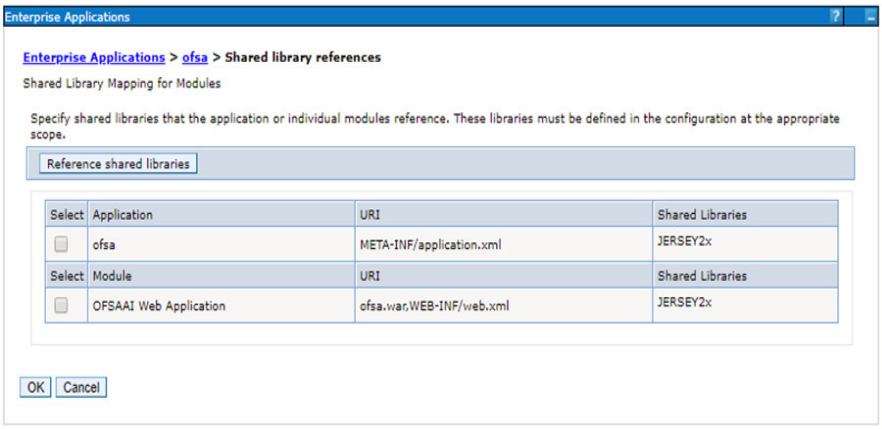
2. Enter details as shown in the following:
    1. Name: Enter an unique identifiable name.
    2. Description: Enter a valid description.
    3. Classpath: Enter the absolute path where the JARs related to Jersey 2.x and Jackson 2.9x are copied. These jars are available in the <OFSAA_ HOME>/utility/externallib/WEB-INF/lib directory after creation of the EAR file.
3. Select Use an isolated class loader for this library.
4. Click OK to save to master configuration.
5. From the Shared Library Mapping window, move the required shared libraries from Available to Selected. In the following illustration, JERSEY2x is selected.



6. Select the application or module and map the shared libraries. Click OK. In the following illustration, ofsa is selected.



7. Click OK.
8. Similarly, select the next application or module and repeat the procedure from steps 5 to 7.



9. Disable the built-in JAX-RS via JVM property.
    1. Go to WebSphere admin console in Servers > WebSphere Application Servers > yourServerName.
    2. In the Server Infrastructure section, go to Java and Process Management > Process definition > Java Virtual Machine > Custom properties.
    3. Add the following property:

       com.ibm.websphere.jaxrs.server.DisableIBMJAXRSEngine=true
10. Restart the application.

Configuring WebSphere HTTPS

To configure an HTTPS Transport on WebSphere, follow these steps:

1. Create a profile using the Profile Creation Wizard in WebSphere.

Note: Note down the https port specified during this process and use the same as a servlet port or webserver port during OFSAAI installation.

2. To enable https configuration on Infrastructure, assign value 1 to "HTTPS_ENABLE" in `OFSAAI_InstallConfig.xml` for Silent mode OFSAAI installation.

Configuring WebSphere Memory Settings

To configure the WebSphere Memory Settings, follow these steps:

1. Navigate to `Websphere applications server > Application servers > server1 > Process definition > Java Virtual Machine`.
2. Change the memory setting for Java Heap:

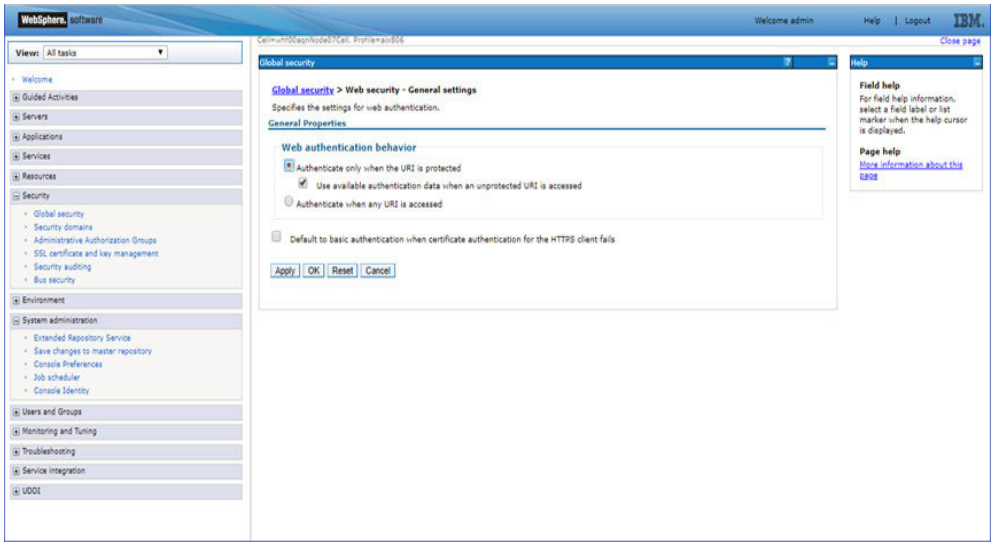
   `Initial heap size` = 512

   `Maximum heap size` = 3072

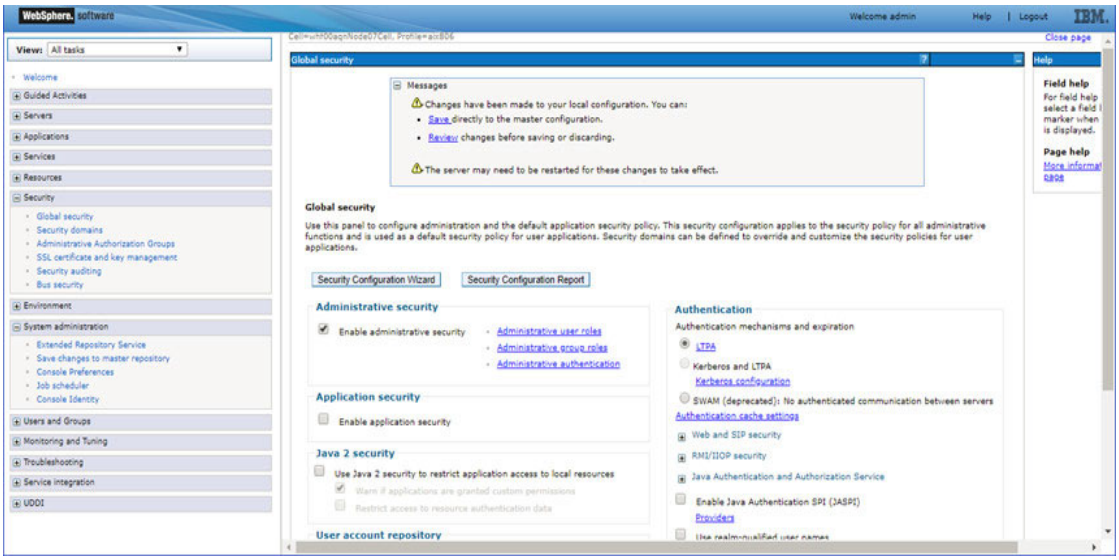
Configuring WebSphere for REST Services Authorization

Configure the following in WebSphere to enable REST API authorization by OFSAA:

1. Log on to WebSphere console with the User ID provided with the admin rights.
2. Expand the Security menu in the LHS and click Global security > Web and SIP security > General settings.



3. De-select the Use available authentication data when an unprotected URI is accessed checkbox.
4. Click OK.



5. Click Save to save the changes to master configuration.

Configuring Application Security in WebSphere

This is a mandatory security procedure for WebSphere to restrict the unauthorized access of configuration files in directories. For detailed information, see the Oracle Financial Services Analytical Applications Infrastructure Security Guide.

Configuring WebLogic for Application Deployment

You can deploy multiple Infrastructure applications on different domains of a stand-alone WebLogic application server. To create multiple WebLogic "Domains" in a stand-alone server, you can use the Domain Creation wizard. A domain is the set of files that define the runtime environment. At least one domain must exist to run WebLogic Application Server.

The following configuration is required only if OFS Big Data Processing is licensed and enabled in your OFSAA instance and OFSAA is deployed on Oracle WebLogic Server version 12.2.x:

The jersey-server-1.9.jar file should be copied to <HIVE_LIB_ PATH> path.

This section covers the following topics:

- Creating Domain in WebLogic Server
- Deleting Domain in WebLogic
- Configuring WebLogic Memory Settings
- Configuring WebLogic for REST Services Authorization

Creating Domain in WebLogic Server

To create a new domain using Configuration Wizard in WebLogic, follow these steps:

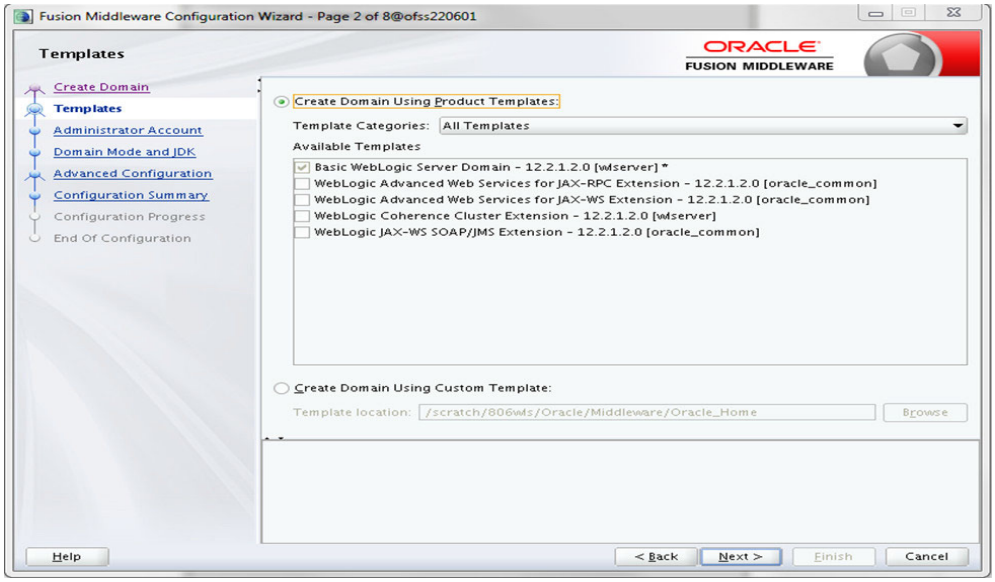
1. Navigate to the directory <WLS_HOME>/wlserver/common/bin and execute the command:

   ./config.sh

   The Configuration Type window of the Configuration Wizard is displayed.

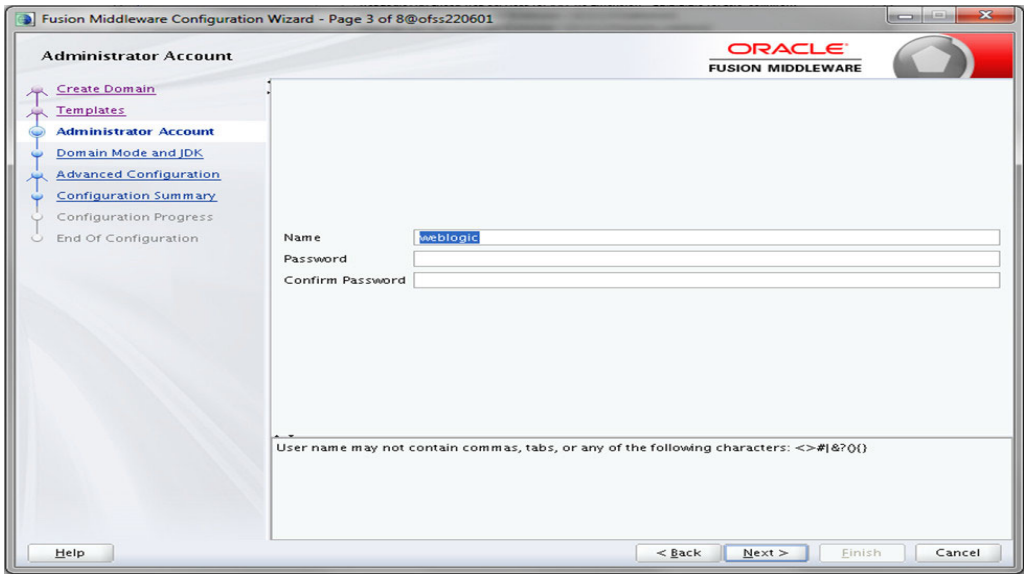
2. Select Create a new domain option and click Next.

   The Templates window is displayed.



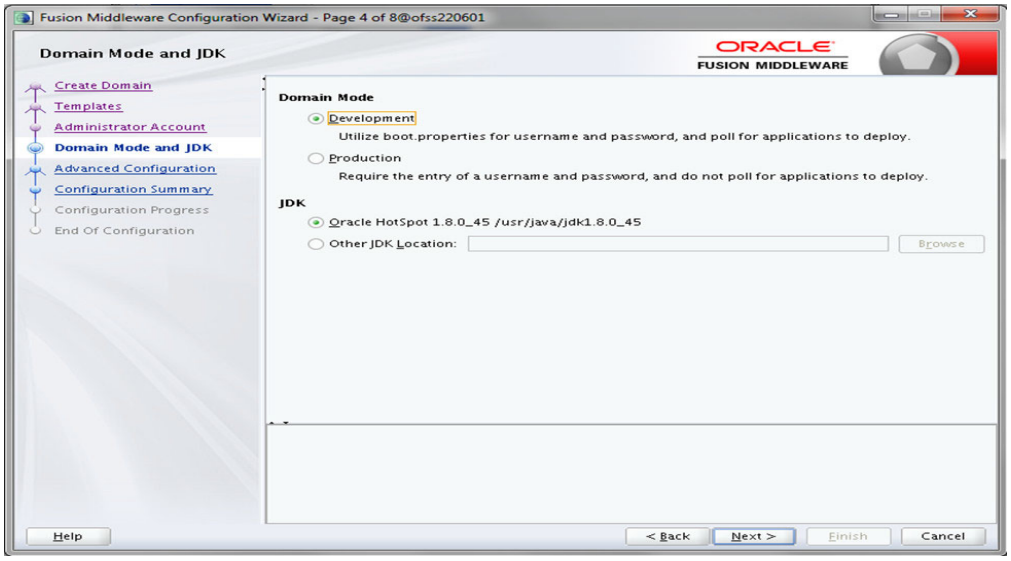
3. Select the Create Domain Using Product Templates option and click Next.

   The Administrator Account window is displayed.



4. Enter the user name to be assigned to the administrator, the password and confirm the password. Click **Next**.

   The Domain Mode and JDK window is displayed.

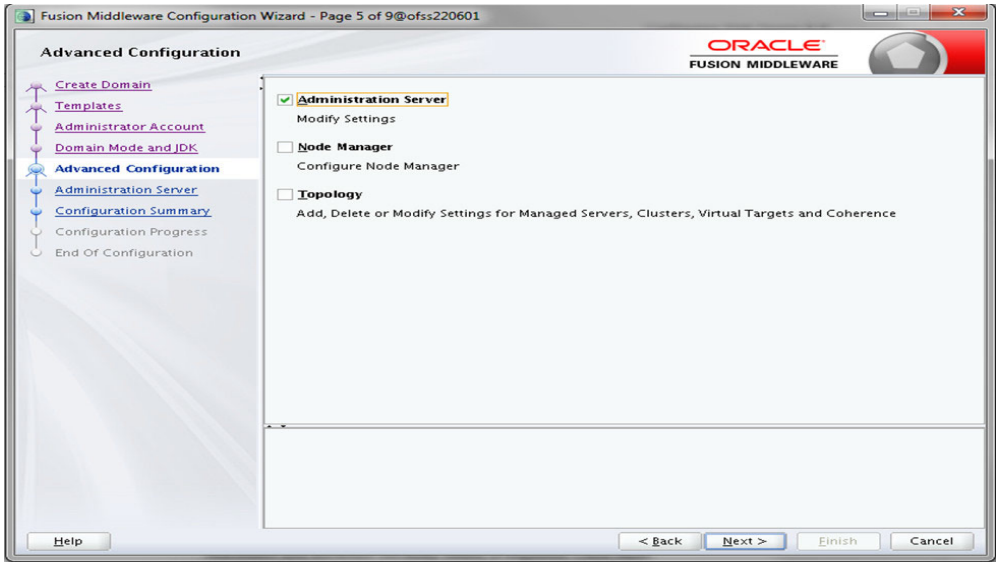


5. Select from the following options:

   In the Domain Mode section, select the required mode (Development or Production).

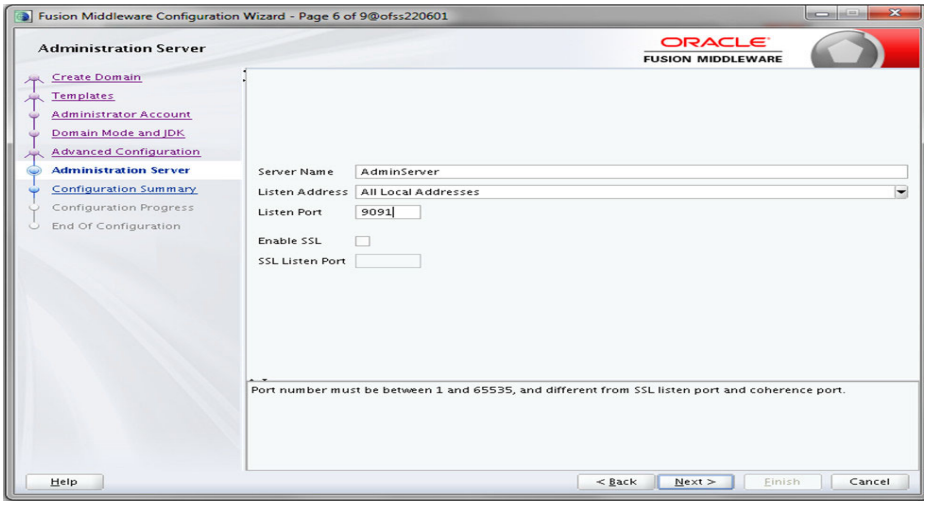
   In the JDK section, select the required option. If you select Other JDK Location, click Browse, navigate to the JDK location, and select. Click Next.

   The Advanced Configuration window is displayed



6. Select the Administration Server. A WebLogic Server domain must have an Administration Server. You can also select Manages Servers, Clusters and Machines and RDBMS Security Store, if required. Click Next.

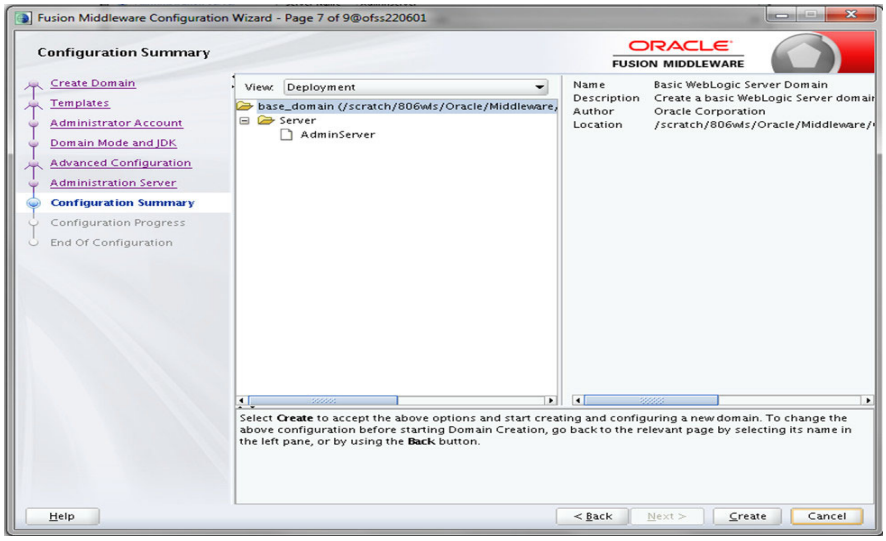
   The Administration Server window is displayed.



7. Enter Administration Server details such as the Server Name, Listen address, Listen Port, Enable SSL(for secure login using https, select this check box), and SSL listen port. Click Next.

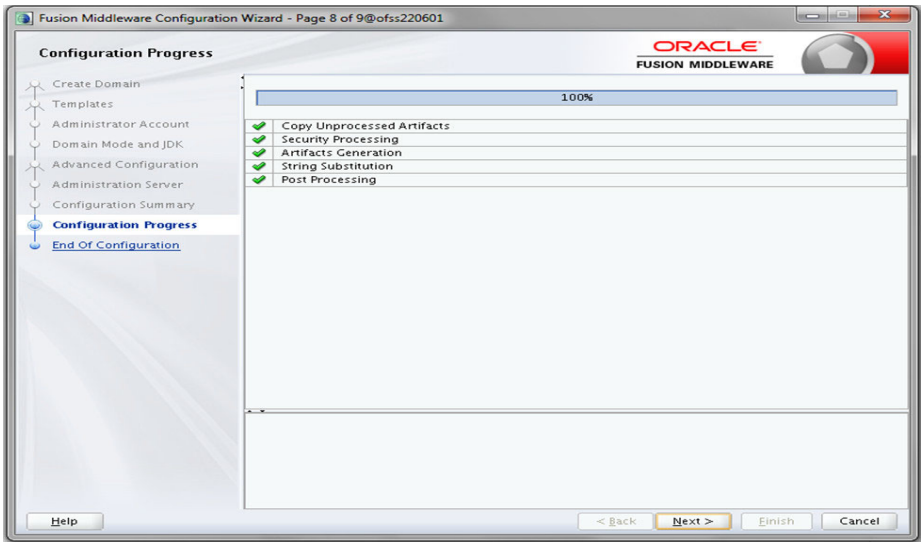
   The Configuration Summary window is displayed.

Note: Make a note of the Listen Port or SSL Listen Port value (for example: 7007), since the same has to be re-entered in the Servlet port field during Infrastructure installation.



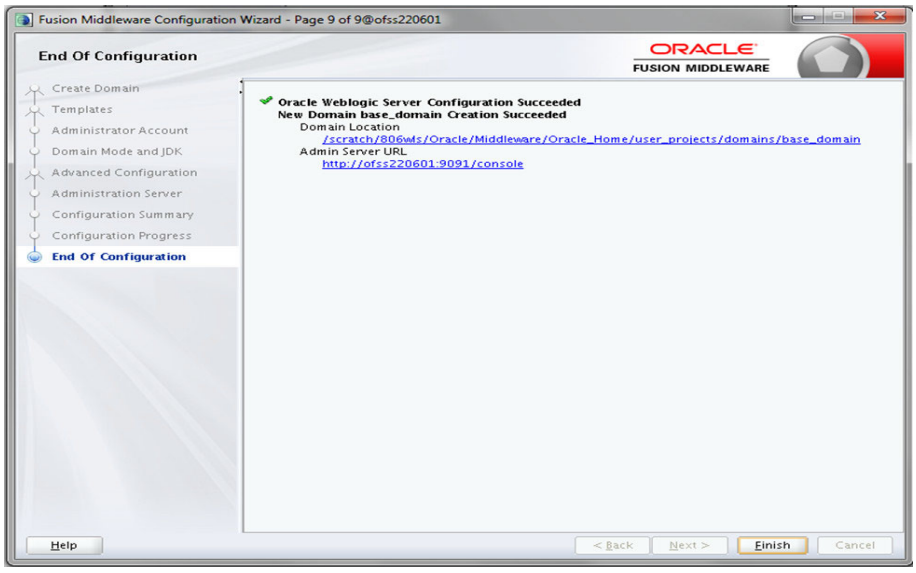
8. Verify the configuration details of the WebLogic domain and click Create.

   The Configuration Progress window is displayed with the status indication of the domain creation process.



9. Click Next when 100% of the activity is complete.

   The End of Configuration window is displayed



10. Click Finish. The domain server is created enabling the deployment of multiple Infrastructure applications on a single WebLogic.

Note: Note down the HTTPS port specified during this process and use the same as servlet port or webserver port during OFSAAI Installation.

To enable https configuration on Infrastructure, assign value 1 to "HTTPS_ENABLE" in OFSAAI_InstallConfig.xml for silent mode OFSAAI installation

---

11. Add a java option entry `-DUseSunHttpHandler=true` in `WLS_HOME/bin/"setDomainEnv.sh"` file (Required only if self signed certificate is used).

Deleting Domain in WebLogic

To delete a domain in WebLogic, follow these steps:

1. Navigate to the following directory:

   `<WebLogic Installation directory>/user_projects/domains/<domain name>/bin`

2. Execute `stopWebLogic.sh` to stop the Weblogic domain.
3. Delete the Weblogic domain.

Configuring WebLogic Memory Settings

To configure the WebLogic Memory Settings, follow these steps:

1. Change the memory setting for Java Heap to `-Xms512m -Xmx3072m` in `setDomainEnv.sh` file, which resides in the folder `<DOMAIN_HOME>/bin` and in `CommEnv.sh` file which resides in the folder `common/bin`.
2. Edit this file for customizing memory settings and garbage collector settings depending on the available hardware configuration.

Example 1:

```
if [ "${JAVA_VENDOR}" = "Sun" ] ; then
    WLS_MEM_ARGS_64BIT="-Xms512m -Xmx1024m"
    export WLS_MEM_ARGS_64BIT
    WLS_MEM_ARGS_32BIT="-Xms512m -Xmx1024m"
    export WLS_MEM_ARGS_32BIT
else
    WLS_MEM_ARGS_64BIT="-Xms512m -Xmx1024m"
    export WLS_MEM_ARGS_64BIT
    WLS_MEM_ARGS_32BIT="-Xms512m -Xmx1024m"
    export WLS_MEM_ARGS_32BIT
```

Example 2:

```
JAVA_VM=
MEM_ARGS="-Xms256m -Xmx1024m"
```

Configuring WebLogic for REST Services Authorization

To enable REST API authorization by OFSAA in WebLogic, perform the following steps:

1. Open the config.xml file located in the domain where OFSAA is deployed, that is <domain_home>/config/config.xml
2. Add the following in the security-configuration tag:

```
<enforce-valid-basic-auth-credentials>false</enforce-valid-basic-auth-credentials>
```

Configuring Apache Tomcat Server for Application Deployment

This section is applicable only when the Web Application Server type is Tomcat.

This section includes the following topics:

- Tomcat User Administration
- Configuring Tomcat to use JAVA 64 bit Executables
- Configuring Servlet Port
- Configuring SSL Port
- Configuring Apache Tomcat Memory Settings
- Configuring Axis API
- Configuring Tomcat for User Group Authorization and Data Mapping
- Uninstalling WAR Files in Tomcat

Tomcat User Administration

The Tomcat administration and manager application does not provide a default login. You are required to edit "`$CATALINA_HOME/conf/tomcat-users.xml`" as follows:

This file contains an XML <user> for each individual user that will display the username and password used by admin to log on to Tomcat, and the role names to

which the admin user is associated with. For example, <user name="admin" password="admin" roles="standard,manager" />

1. Add the manager role to any one of the existing username/password combination as shown in the preceding example.
2. Use the same username/password to which the manager role has been assigned to access the Tomcat Application Manager.
3. If the Tomcat server is already running, it requires a re-start after the preceding configuration is done.

Configuring Tomcat to use JAVA 64 bit Executables

To configure Tomcat to use JAVA 64 bit, follow these steps:

1. Navigate to the `$CATALINA_HOME/bin` folder.
2. Edit the `setclasspath.sh` file as follows:
3. Replace the following block of text

```
# Set standard commands for invoking Java.
_RUNJAVA="$JRE_HOME"/bin/java
if [ "$os400" != "true" ]; then
_RUNJDB="$JAVA_HOME"/bin/jdb
```

With:

```
# Set standard commands for invoking Java.
_RUNJAVA="$JAVA_BIN"/java
if [ "$os400" != "true" ]; then
_RUNJDB="$JAVA_BIN"/jdb
```

4. If the Tomcat server is already running, it requires a re-start after the preceding configuration is done.

Note: In case tomcat is installed under different Unix profile, set `JAVA_BIN` environment variable in `.profile` to include the Java Runtime Environment absolute path.

For example:

```
export JAVA_BIN /usr/java7_64/jre/bin
export JAVA_BIN = /usr/java7_64/jre/bin//sparcv9 for Solaris Sparc
```

Configuring Servlet Port

The default servlet port configured for the Tomcat installation is 8080. Ignore this section if you need to use the default port.

If you need to use a different port number, you must first configure the port in the `server.xml` file in the `conf` directory of the Tomcat Installation directory.

To configure the Servlet Port, follow these steps:

1. Navigate to `$CATALINA_HOME/conf`. Open `server.xml` and locate the tag:

"Define a non-SSL HTTP/1.1 Connector on port 8080 "

Against this tag, a parameter is specified 'Connector port = "8080" '. Edit this value to the new port number that was used during the Infrastructure installation process.

2. Save your changes in the server.xml file.

Note: Make a note of the servlet port configured. This information is required during the installation of the OFSAA Application Pack.

Configuring SSL Port

If you need to configure and access your OFSAA setup for HTTPS access, ensure that the following connect tag under **Define a SSL HTTP/1/1 Connector on port 8443** in <Tomcat_installation_folder>/conf/server.xml file is uncommented for SSL Configuration. (By default, it is commented).

```
<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
maxThreads="150" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS"
```

Note:

- Make a note of the servlet port configured. This information would be required during the installation of OFSAA Application Pack.
- To enable https configuration on Infrastructure, assign value 1 to "HTTPS_ENABLE" in OFSAAI_InstallConfig.xml file for SILENT mode OFSAAI installation.

For more information related to SSL Configuration on Tomcat, see http://tomcat.apache.org/.

Configuring Apache Tomcat Memory Settings

To configure the Apache Tomcat Memory Settings, follow these steps:

1. Locate the catalina.sh file that resides in the <CATALINA_HOME>/bin folder.
2. Edit this file for customizing the memory settings and garbage collector settings depending on the available hardware configuration.
3. Add the memory setting for Java Heap to -Xms512m -Xmx1024m.

   For example:

```
if [ -z "$LOGGING_MANAGER" ]; then
JAVA_OPTS="$JAVA_OPTS -Xms512m -Xmx1024m
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager"
else
JAVA_OPTS="$JAVA_OPTS -Xms512m -Xmx1024m $LOGGING_MANAGER"
fi
```

Configuring Axis API

Copy the `jaxrpc.jar` from the `<OFSAA Installation Directory>/axis-1_4/webapps/axis/WEB-INF/lib` and place it inside the `<Tomcat Installation Directory>/lib` folder and restart the Tomcat Server.

Configuring Tomcat for User Group Authorization and Data Mapping

Users with system authorization roles can access User Group Authorization. However, to make it available on the Tomcat webserver, you have to perform the following configuration steps:

1. Navigate to the `$CATALINA_HOME/conf` folder and open the `web.xml` file.
2. Enter the following in the `web.xml` file.

```
<init-param>
<param-name>mappedfile</param-name>
<param-value>false</param-value>
</init-param>
```

3. Save and close the file.

Uninstalling WAR Files in Tomcat

To uninstall WAR files in Tomcat, refer Uninstalling WAR Files in Tomcat.

B

Configuring Resource Reference in Web Application Servers

This section covers the following topics:

- Configuring Resource Reference in WebSphere Application Server
- Configuring Resource Reference in WebLogic Application Server
- Configuring Resource Reference in Tomcat Application Server

Configuring Resource Reference in WebSphere Application Server

This section is applicable only when the Web Application Server type is WebSphere.

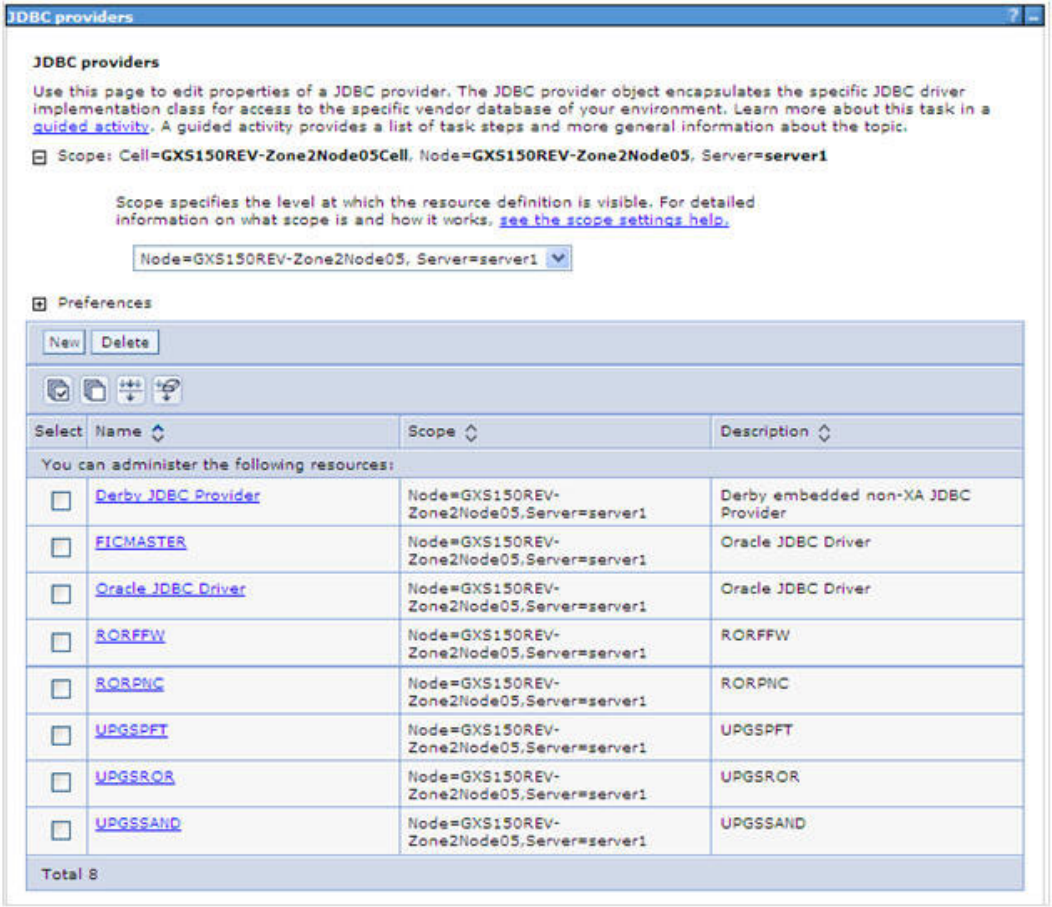
This section covers the following topics:

- Creating JDBC Provider
- Creating a Data Source
- Creating J2C Authentication Details
- Defining JDBC Connection Pooling

Creating JDBC Provider

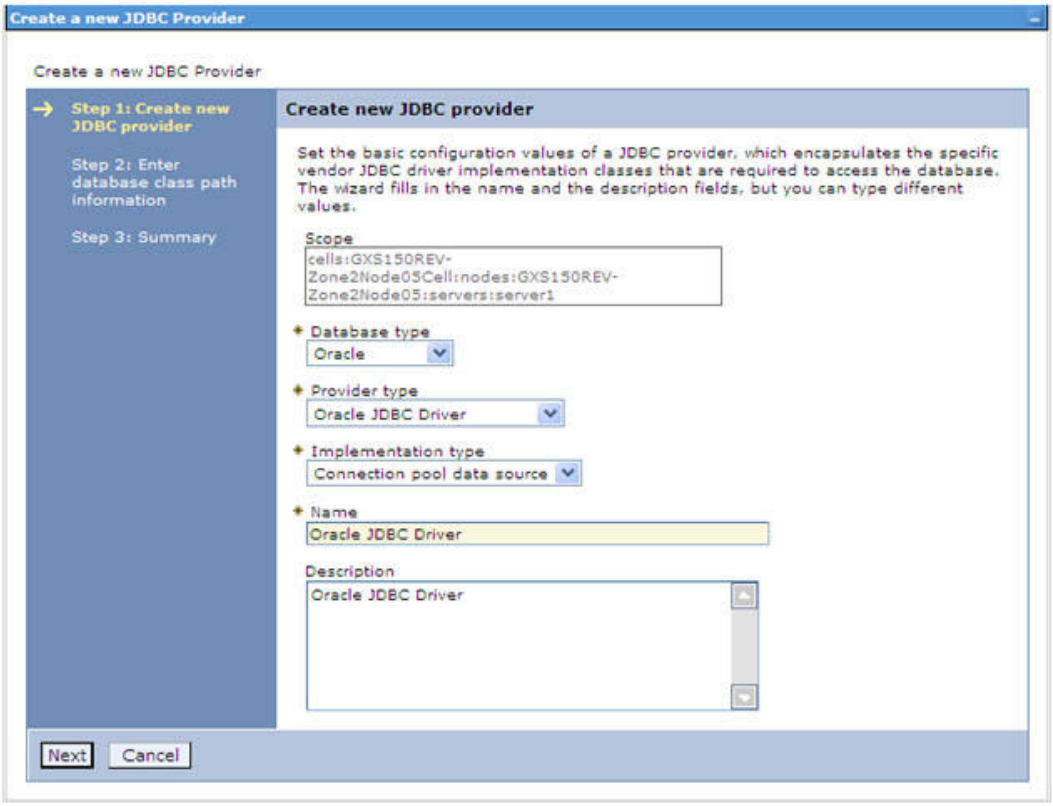
1. Open the WebSphere admin console in the browser window: `http://<ipaddress>:<administrative console port>/ibm/console`. (https if SSL is enabled). The ***Login*** window is displayed.
2. Log in with the user id that has admin rights.
3. Expand the **Resources** option in the LHS menu and click **JDBC** > **JDBC Providers**. The JDBC Providers window is displayed.

Figure B–1 JDBC Providers



4. Select the **Scope** from the drop-down list. The Scope specifies the level at which the resource definition is visible.
5. Click **New** to add new JDBC Provider under the ***Preferences*** section. The Create new JDBC provider window is displayed.

Figure B–2 Create a new JDBC Provider



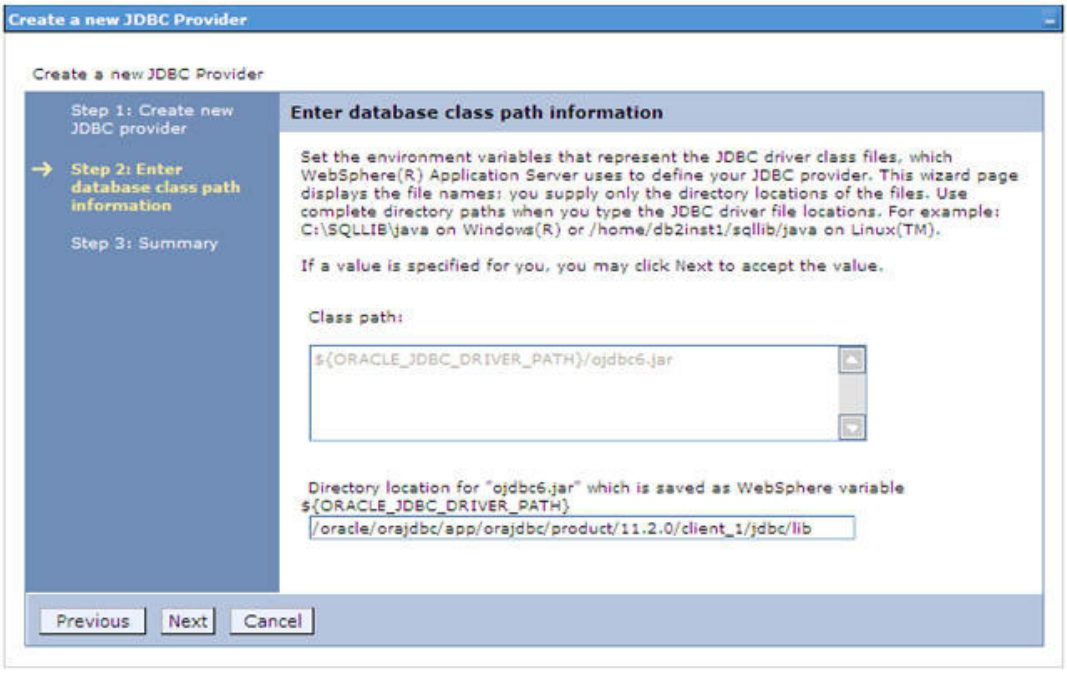
6. Enter the following details:

Table B–1 Fields and their description

Field	Description
Database Type	Oracle
Provider Type	Oracle JDBC Driver
Implementation Type	Connection pool data source
Name	The required display name for the resource
Description	The optional description for the resource

7. Click **Next.**

Figure B–3 Enter database class path information



8. Specify the directory location for "`ojdbc<version>.jar`" file. Ensure that you do not use the trailing slash file separators.

   The Oracle JDBC driver can be downloaded from the following Oracle Download site:

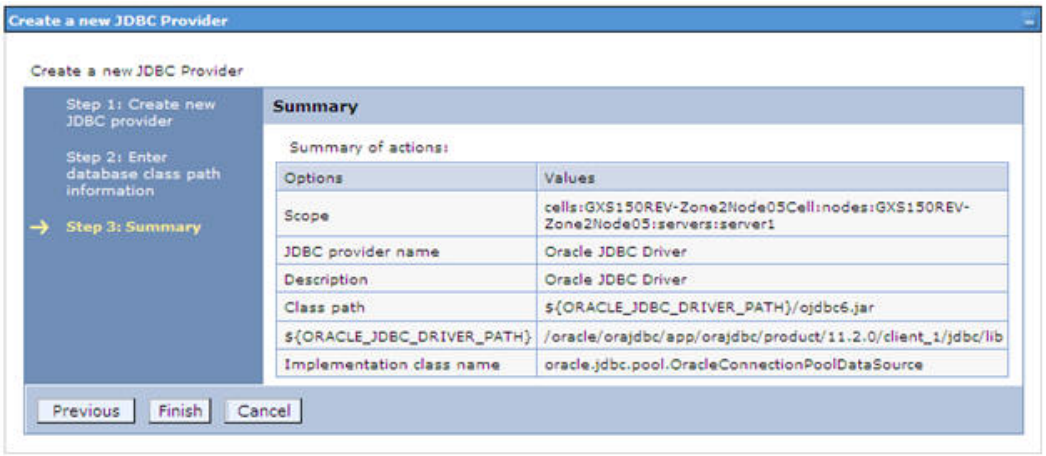
   - Oracle Database 11g Release 2 (11.2.0.4) JDBC Drivers
   - Oracle Database 12c Release 1 (12.1.0.1) JDBC Drivers

   Once downloaded, you need to copy the file in the required folder on the server.

   Note: Refer Appendix J for identifying the correct `ojdbc<version>.jar` version to be copied.

9. Click **Next**. The Summary window is displayed.

Figure B–4 Summary



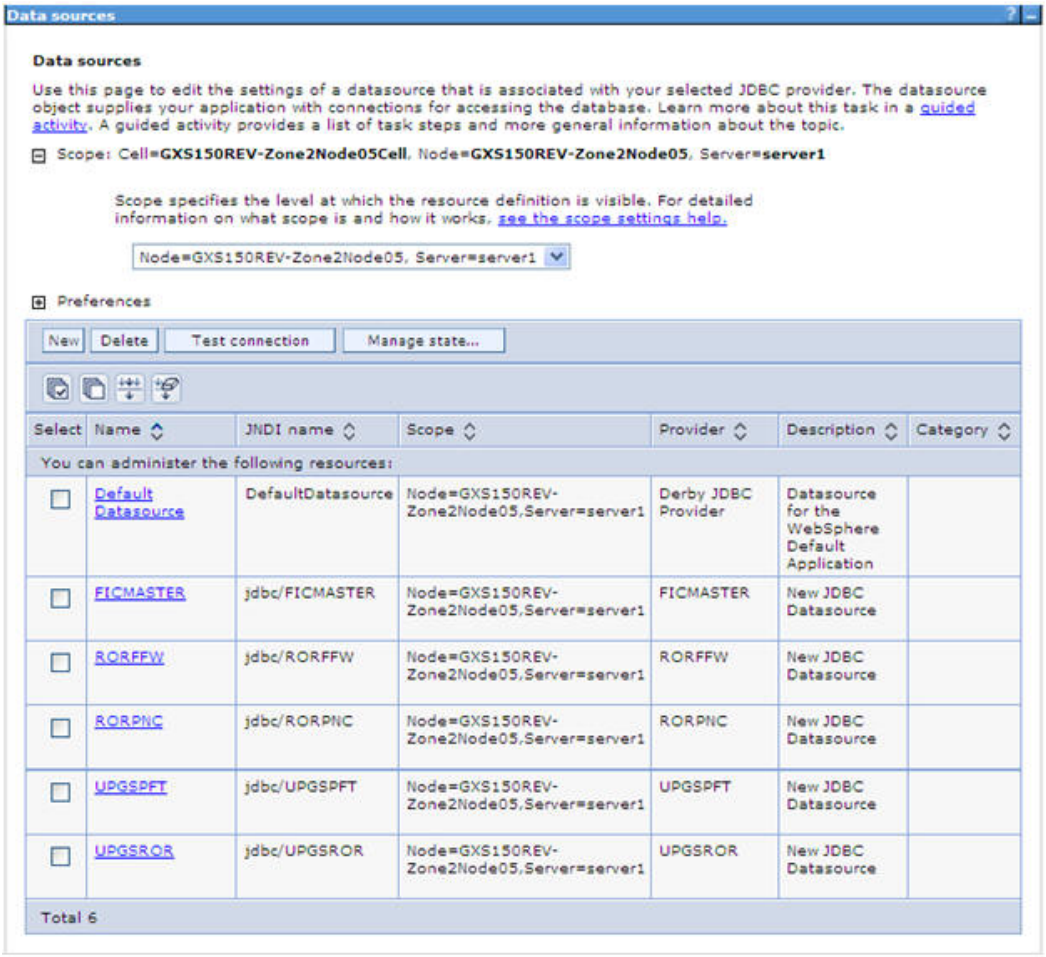
10. Verify the details and click **Finish** to create the JDBC Provider.
11. The options to **Save** and **Review** are displayed. Click **Save**.

Creating a Data Source

The following steps are applicable for both config and atomic data source creation.

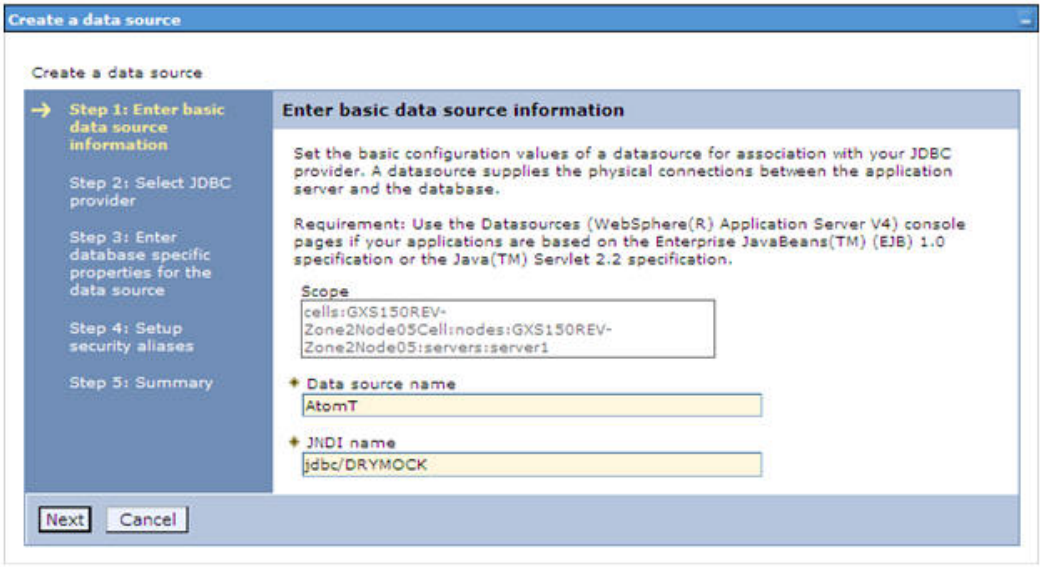
1. Open this URL in the browser window: `http://<ipaddress>:<administrative console port>/ibm/console`. (https if SSL is enabled). The ***Login*** window is displayed.
2. Log in with the user id that has admin rights.
3. Expand the **Resources** option in the LHS menu and click **JDBC** > **Data sources** option. The Data sources window is displayed.

Figure B–1 Data Sources



4. Select the **Scope** from the drop-down list. The Scope specifies the level at which the resource definition is visible.
5. Click **New**. The Create a Data Source window is displayed.

Figure B–2 Create Data Source



6. Specify the **Data Source name** and **JNDI name** for the new "Data Source".

   The **JNDI** and **Data Source** name are case sensitive and ensure that JNDI name is same as the "Information Domain" name.

7. Click **Next**. The Select JDBC provider window is displayed.

Figure B–3 Select JDBC provider

8. Select the option **Select an Existing JDBC Provider** and select the required JDBC provider from the drop-down list. Click **Next**.

Figure B–4 Enter database specific properties

9. Specify the database connection URL.

   For example: `jdbc:oracle:thin:@<DB_SEREVER_IP>:<DB_SERVER_PORT>:<SID>`

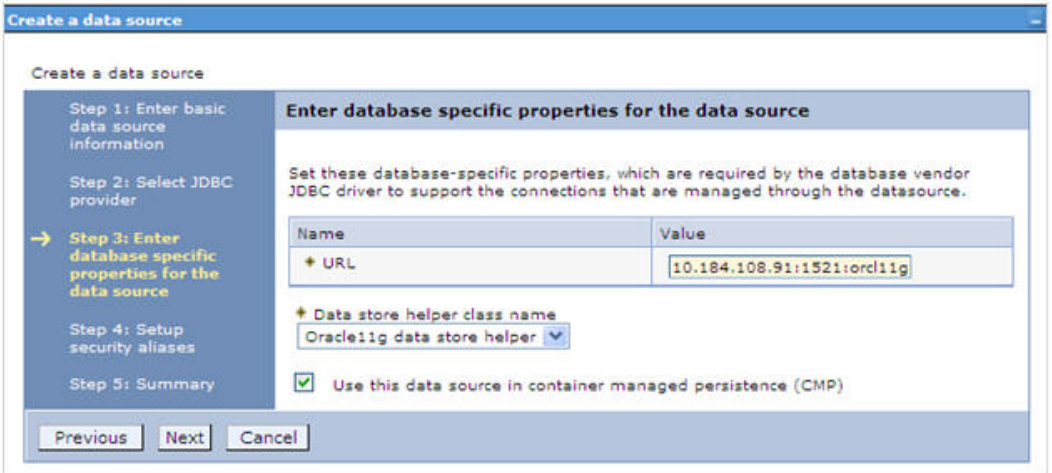
10. Select **Data Store Helper Class Name** from the drop-down list and ensure that the checkbox **Use this data source in container managed persistence (CMP)** is selected.

    Note: For RAC configuration, provide the RAC URL specified during installation.

    Example: `jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=10.11.12.13)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=10.11.12.14)(PORT=1521))(LOAD_BALANCE=no)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=pqadb)))`

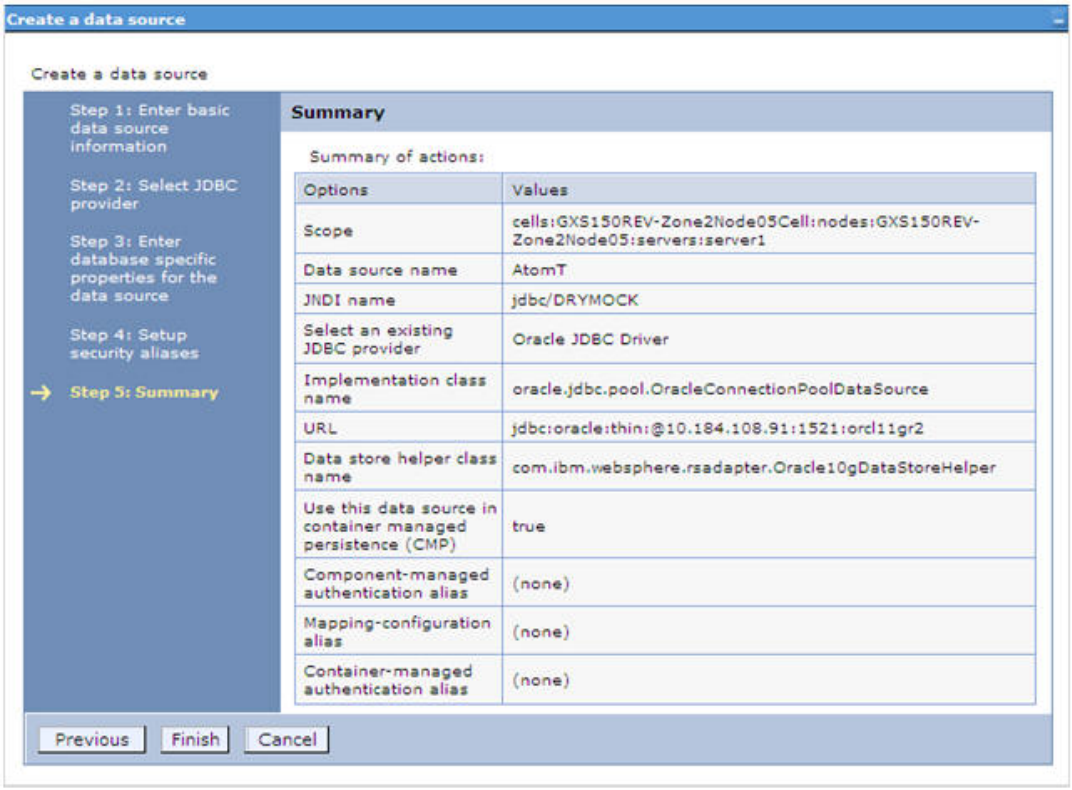
11. Click **Next**.

Figure B–5 Enter Database specific properties



12. Map the J2C authentication alias, if already created. If not, you can create a new J2C authentication alias by accessing the link given (**Global J2C authentication alias**) or you can continue with the data source creation by clicking **Next** and then **Finish**.

Figure B–6 Summary



You can also create and map J2C authentication alias after creating the data source.

13. You must create another Data source by following the preceding procedure with jdbc/FICMASTER as JNDI name pointing to the "configuration schema" of Infrastructure.

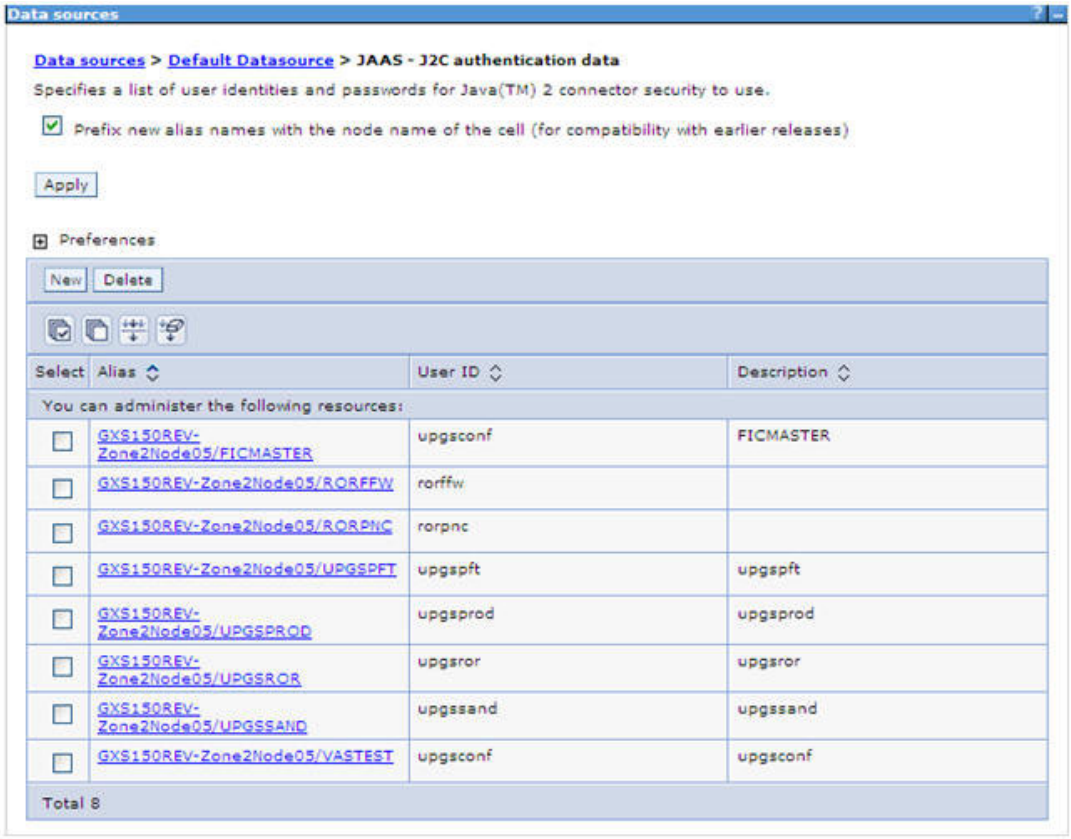
Creating J2C Authentication Details

The following steps are applicable for creating both config and atomic J2C Authentication.

To create J2C Authentication details, follow these steps:

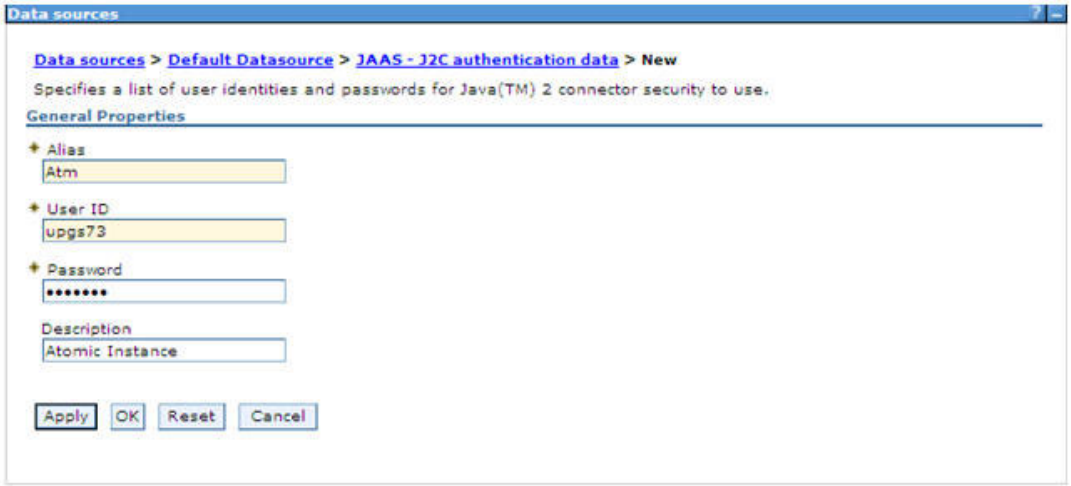
1. Select the newly created Data Source and click **JAAS - J2C authentication data** link under **Related Items.**

Figure B–7 JAAS- J2C authentication data



2. Click **New** under the *Preferences* section.

Figure B–5 JAAS- J2C authentication data- New



3. Enter the **Alias**, **User ID**, **Password**, and **Description**. Ensure the following:
   - User ID is the Oracle user ID created for the respective Config and Atomic Schema for the "Information Domain".

- Specify the Config database user ID and password information for the jdbc/FICMASTER data source, and specify the Atomic database user ID and password information for the Atomic schema data source that you created earlier.

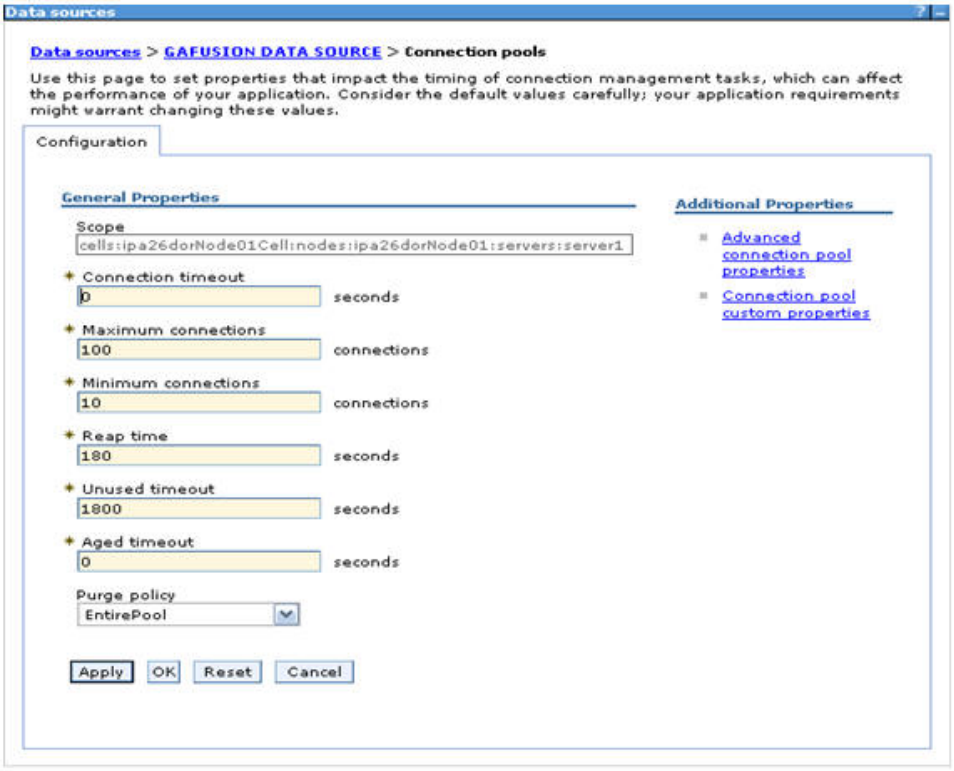
4. Click **Apply** and save the details.

Defining JDBC Connection Pooling

To define the JDBC connection pooling ensure that you have created JDBC Provider and Data source to access the data from the database.

1. Expand the **Resources** option in the LHS menu and click **JDBC > Data sources option**. The ***Data sources*** window is displayed.
2. Click the newly created Data Source `$DATA_SOURCE$` and navigate to the path `Data sources>$DATA_SOURCE$>Connection pools`.

Figure B–8 Connection pools



3. Set the values for **Connection timeout** to 0 seconds, **Maximum connections** to 100 connections, and Minimum connections to 10 connections as shown in the preceding figure. You can also define **Reap Time, Unused Timeout,** and **Aged Timeout** as required.

Configuring Resource Reference in WebLogic Application Server

This section is applicable only when the Web Application Server type is WebLogic.This section includes the following topics:

In WebLogic, you can create "Data Source" in the following ways:

- "For a Non RAC Database instance, Generic Data Source has to be created. See Create Data Source.
- "For a RAC Database instance, Gridlink Data Source has to be created. See Create GridLink Data Source.
- "When Load Balancing/Fail over is required, Multi Data Source has to be created. See Configure Multi Data Sources.

Creating Data Source

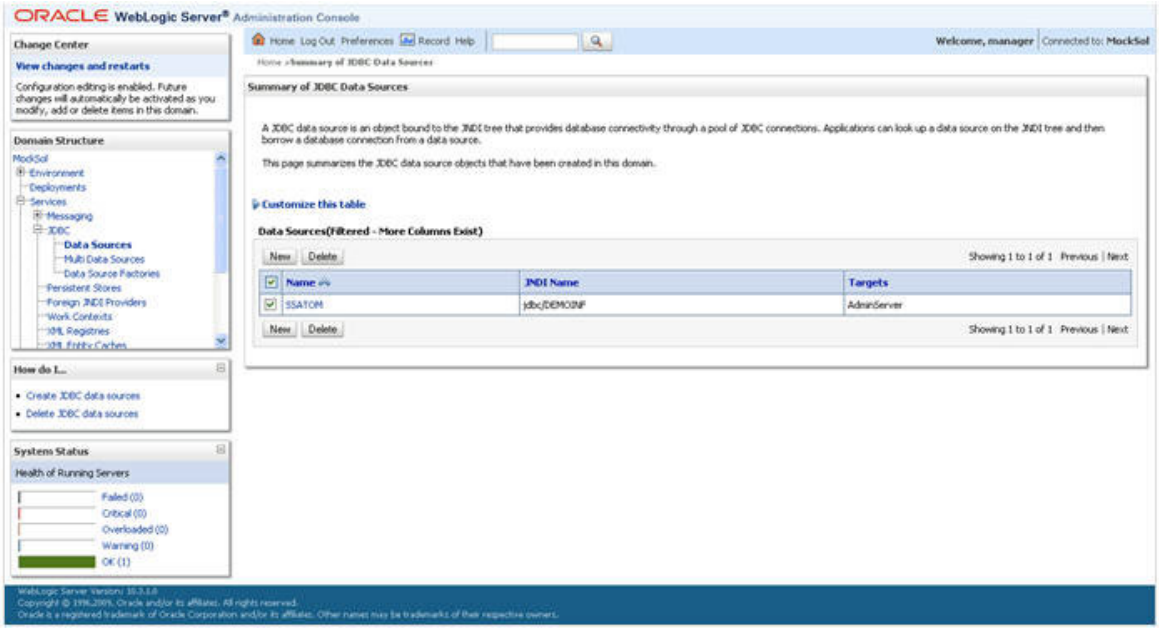
The following steps are applicable for both config and atomic data source creation.

1. Open the following URL in the browser window: `http://<ipaddress>:<administrative console port>/console`. (https if SSL is enabled). The ***Welcome*** window is displayed.
2. Login with the Administrator **Username** and **Password**.

Figure B–9 Welcome

3. From the LHS menu (Domain Structure), click **Services** > **Data Sources**. The *Summary of JDBC Data Sources* window is displayed.

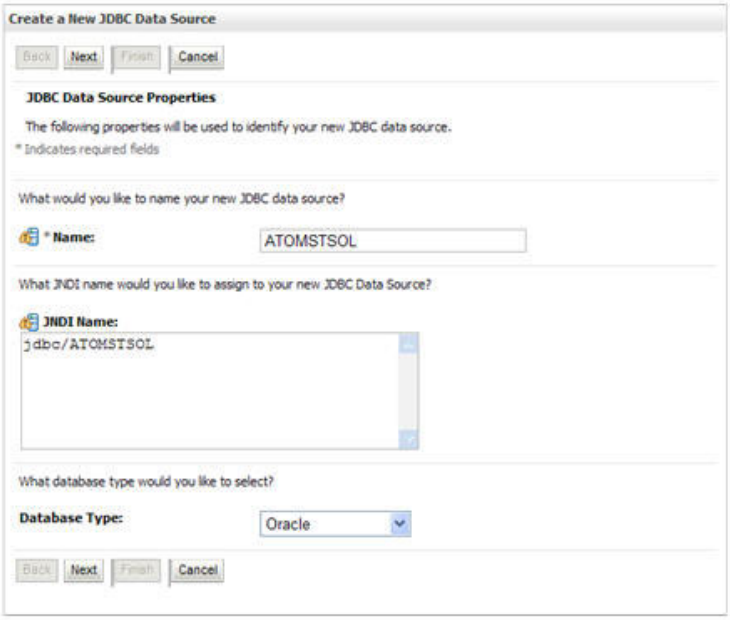
Figure B–10 Summary of JDBC Data Sources



4. Click **New** and select **Generic Data Source** option. The *Create a New JDBC Data Source* window is displayed.

You can also select **GridLink Data Source** or **Multi Data Source** while creating a Data Source. For more information, see Creating Data Source or Configuring Multi Data Sources.

Figure B–6 Create a New JDBC Data Source

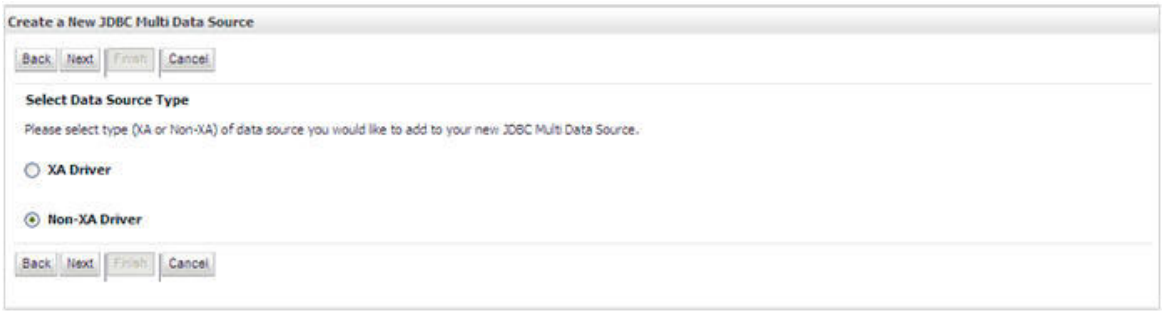


5. Enter JDBC data source **Name**, **JNDI Name**, and select the **Database Type** from the drop-down list. Click **Next**.

   Ensure the following:

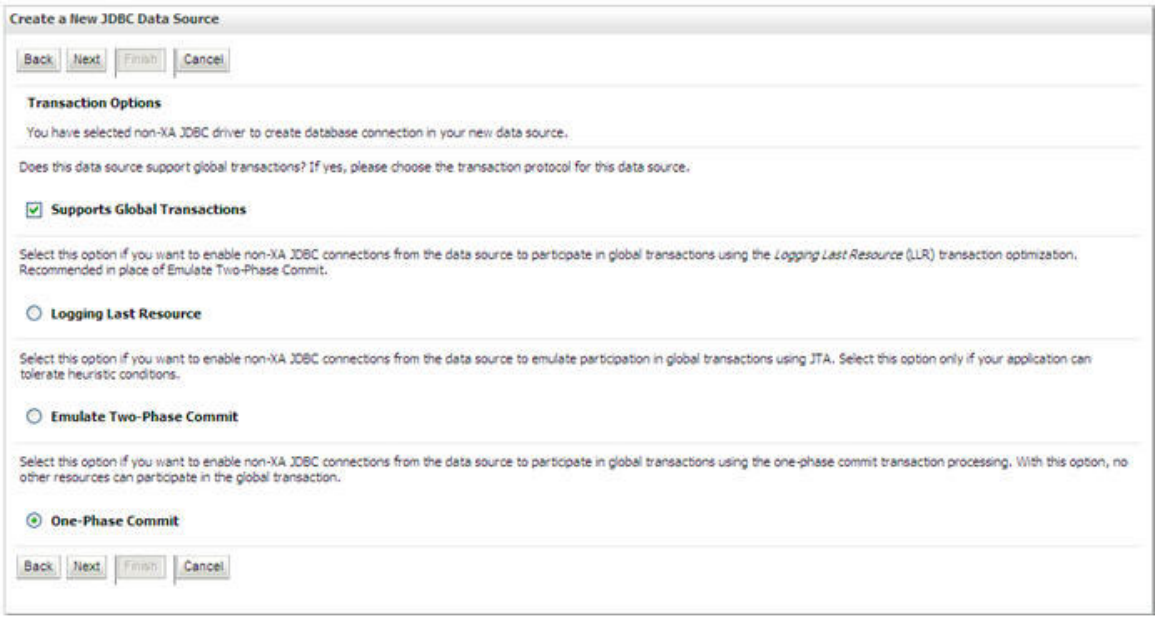
   - The JNDI Name field should be in the format "jdbc/informationdomain"
   - Same steps needs to be followed to create a mandatory data source pointing to the "configuration schema" of infrastructure with `jdbc/FICMASTER` as JNDI name.
   - JNDI Name is the same as mentioned in `web.xml` file of OFSAAI Application.
   - Required "Database Type" and "Database Driver" should be selected.

Figure B–11 JDBC Data Source Properties



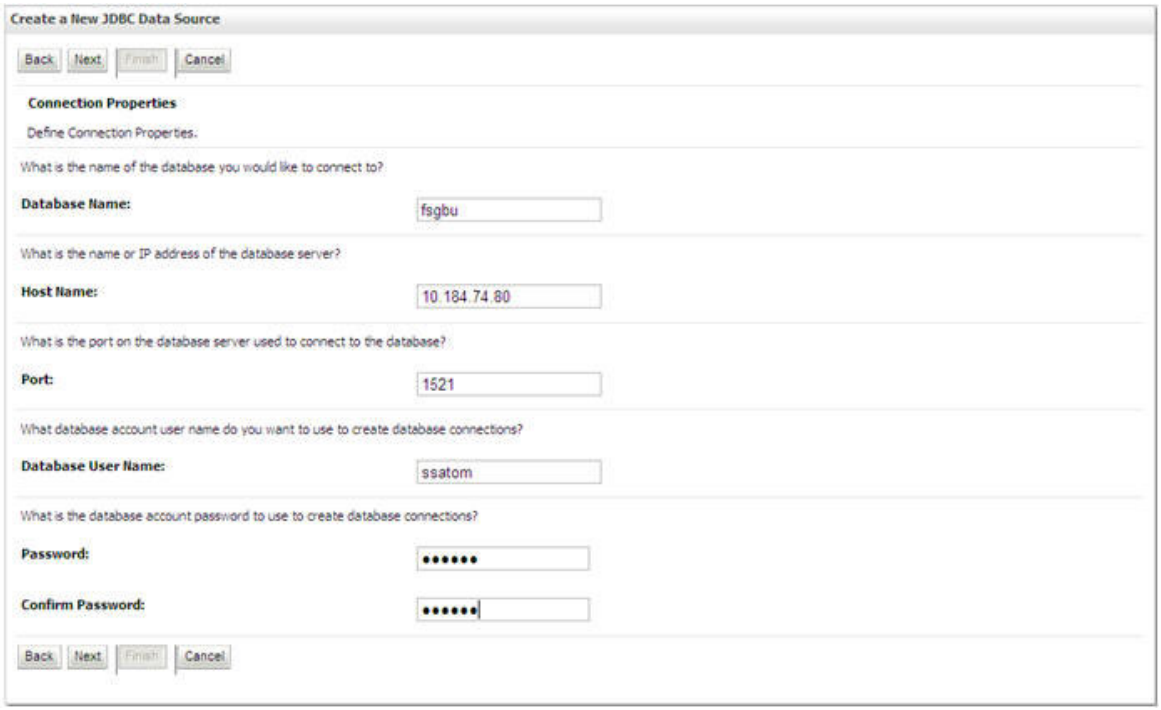
6. Select the **Database Driver** from the drop-down list. You need to select the Database Driver depending on database setup, that is, with or without RAC. Click **Next**.

Figure B–12 Transaction Options



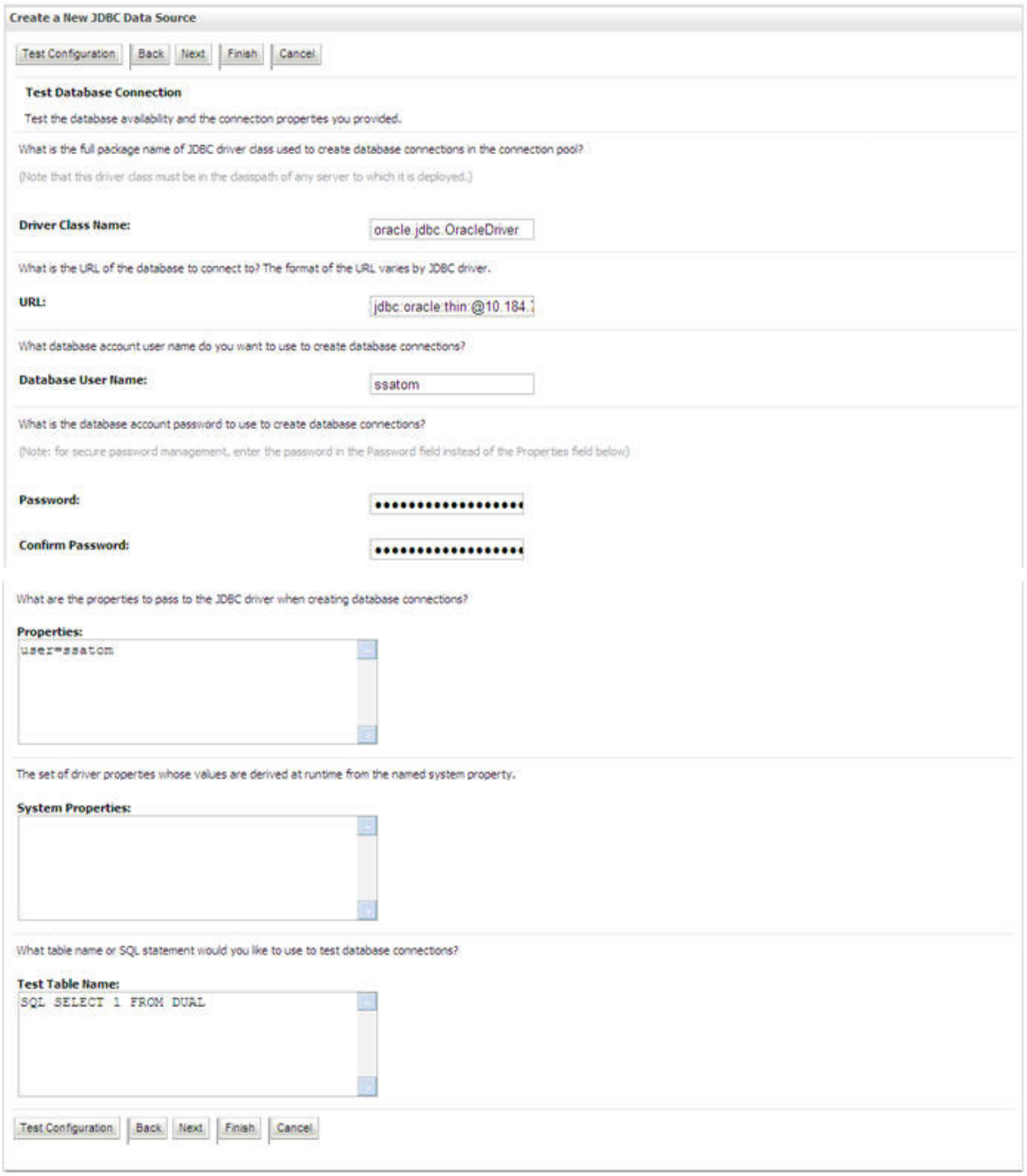
7. Select the **Supports Global Transactions** checkbox and the **One-Phase Commit** option.
8. Click **Next**. The ***Connection Properties*** window is displayed.

Figure B–13 Connection Properties



9. Enter the required details such as the Database Name, Host Name, Port, Oracle User Name, and Password.
10. Click **Next**. The ***Test Database Connection*** window is displayed.

Figure B–14 Test Database Connection



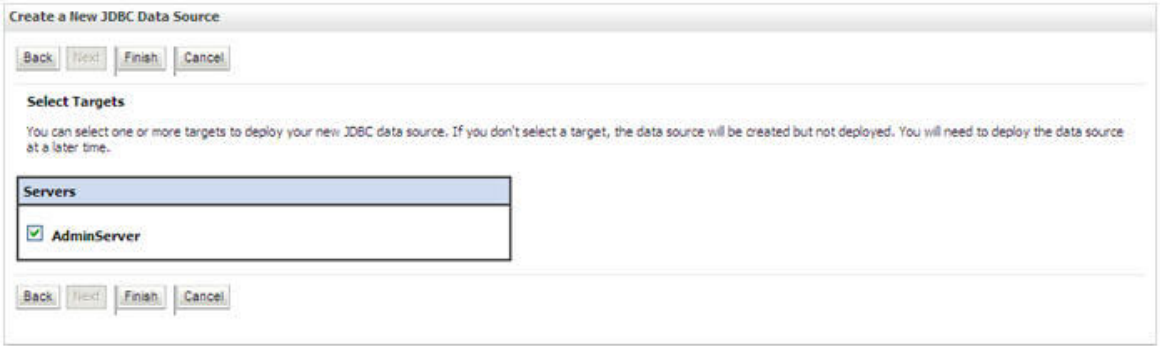
11. Verify the details and click **Test Configuration** and test the configuration settings. A confirmation message is displayed stating "Connection test succeeded."
12. Click **Finish**. The created "Data Source" is displayed in the list of Data Sources.

Note:

- "User ID" is the Oracle user ID that is created for the respective "Information Domain".
- "User ID" to be specified for data source with "FICMASTER" as "JNDI" name should be the Oracle user ID created for the "configuration schema".

13. Select the new Data Source and click the ***Targets*** tab.

Figure B–15 Select Targets

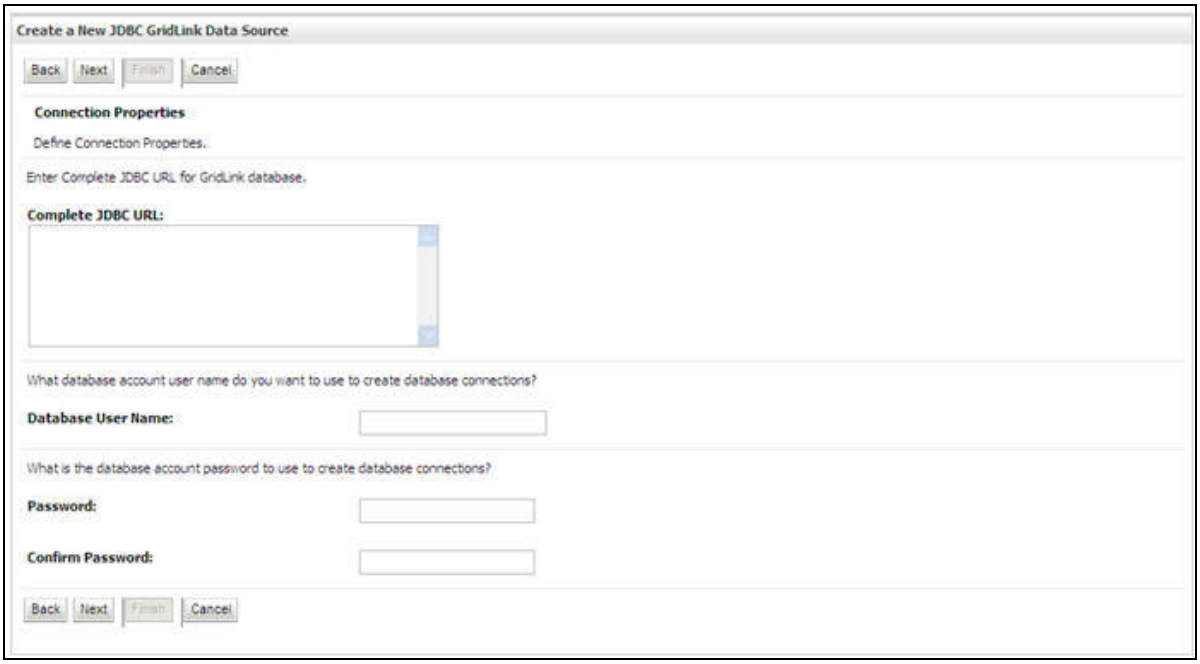


14. Select the **AdminServer** option and click **Finish**.

Creating GridLink Data Source

If you have selected the option, **New** > **GridLink Data Source** while creating the "Data Source", you can directly specify the JDBC URL as indicated.

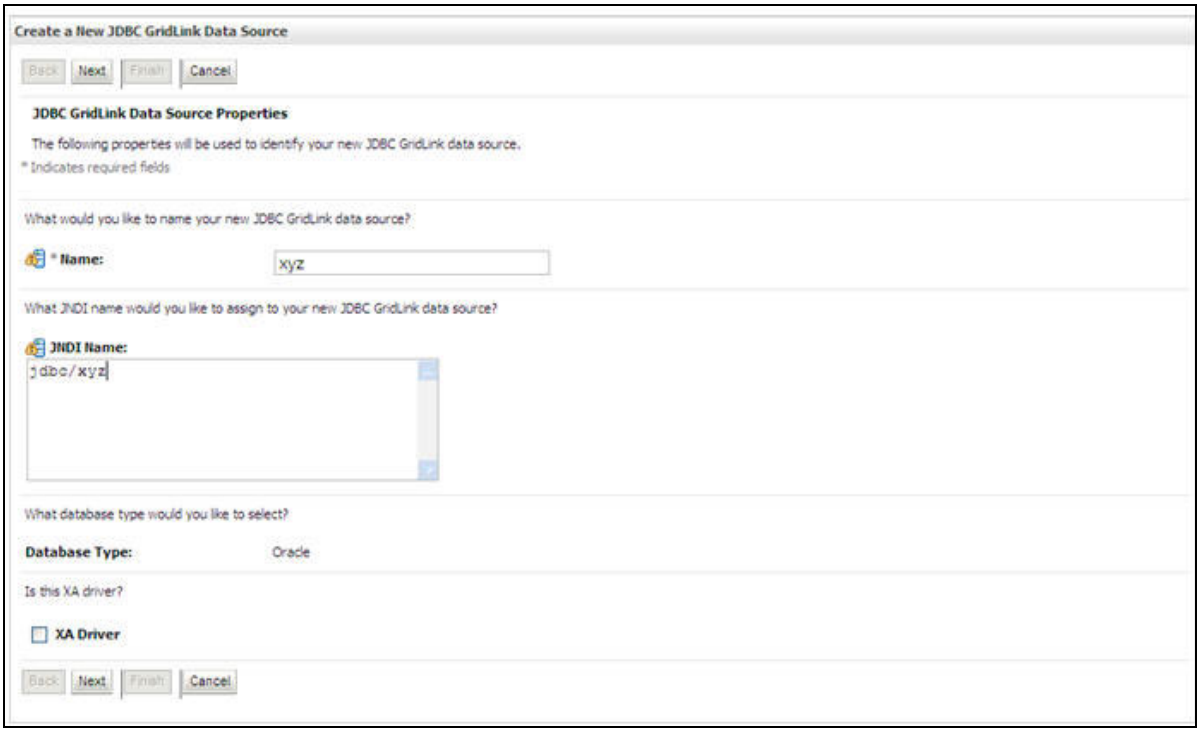
Figure B–7 *Create a New JDBC GridLinkData Source*



1. Enter Data Source **Name**, and **JNDI Name**.

Ensure that the "JNDI Name" field is specified in the format "jdbc/infodomname" and the **XA Driver** checkbox is not selected. Click **Next**.

Figure B–8 *JDBC GridLinkData Source- Connection Properties*



2. Specify **Complete JDBC URL**, **Database User Name**, and **Password**. Click **Finish**. The created "Data Source" is displayed in the list of Data Sources.

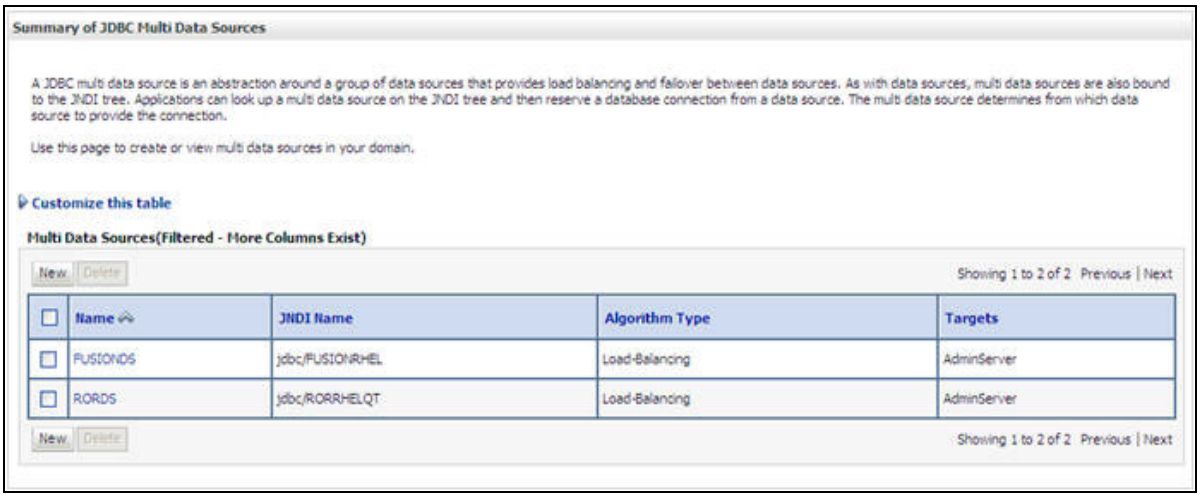
Configuring Multi Data Sources

A JDBC multi data source is an abstraction around a group of data sources that provides load balancing and failover between data sources. As with data sources, multi data sources are also bound to the JNDI tree. Applications can look up a multi data source on the JNDI tree and then reserve a database connection from a data source. The multi data source determines from which data source to provide the connection.

When the database used is **Oracle RAC (Real Application Clusters)** which allows Oracle Database to run across a set of clustered servers, then group of data sources can be created for instances running on a set of clustered servers and a JDBC multi data source can be created so that applications can look up a multi data source on the JNDI tree to reserve database connection. If a clustered server fails, Oracle continues running on the remaining servers.

1. Open WebLogic Admin Console in the browser window: `http://<ipaddress>:<administrative console port>/console`. (https if SSL is enabled). The ***Login*** window is displayed.
2. Login with the "User ID" that has admin rights.
3. In the LHS menu (Domain Structure), select **Services** > **JDBC** > **Multi Data Sources**. The ***Summary of JDBC Multi Data Sources*** window is displayed.

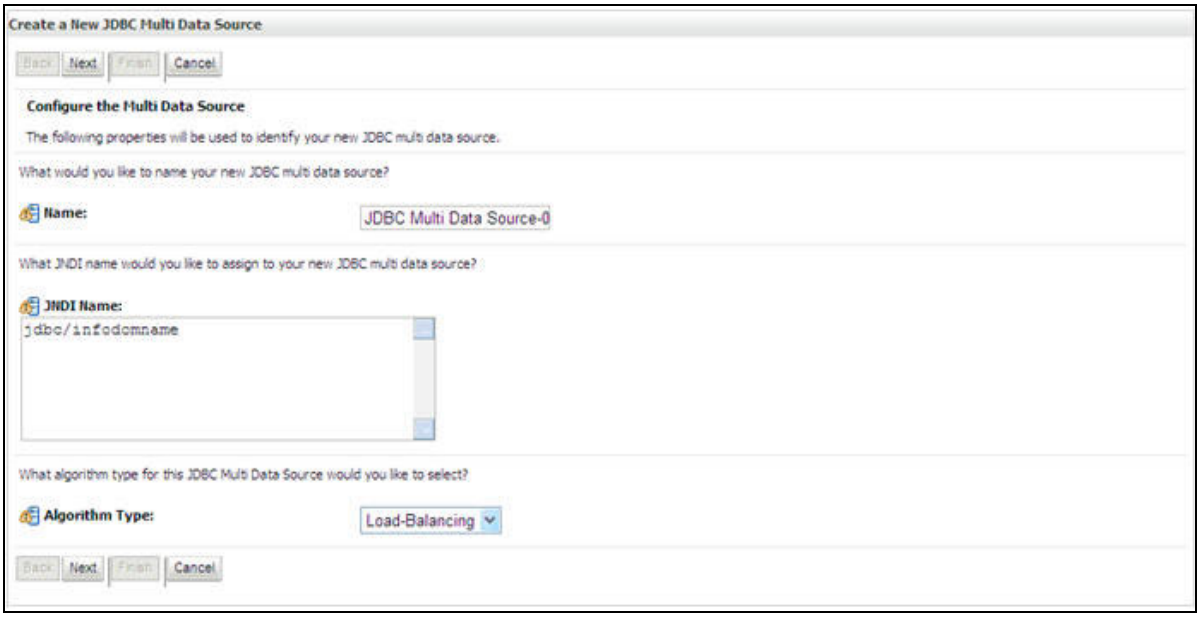
Figure B–9 Summary of JDBC Multi Data Sources



4. Click **New**. The ***New JDBC Multi Data Source*** window is displayed.

Note: Ensure that the Data Sources which needs to be added to new JDBC Multi Data Source has been created.

Figure B–10 Configure the Multi Data Source

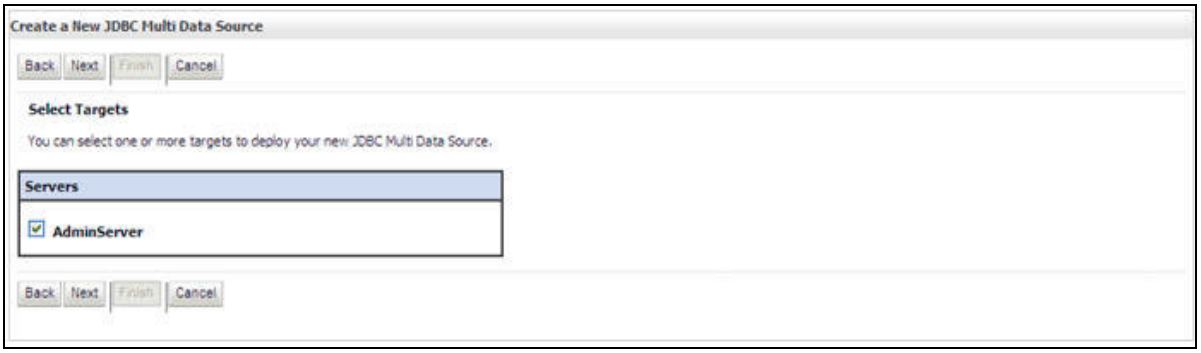


5. Enter the JDBC Source **Name**, **JNDI name**, and select the **Algorithm Type** from the drop-down list. Click **Next**.

Note:

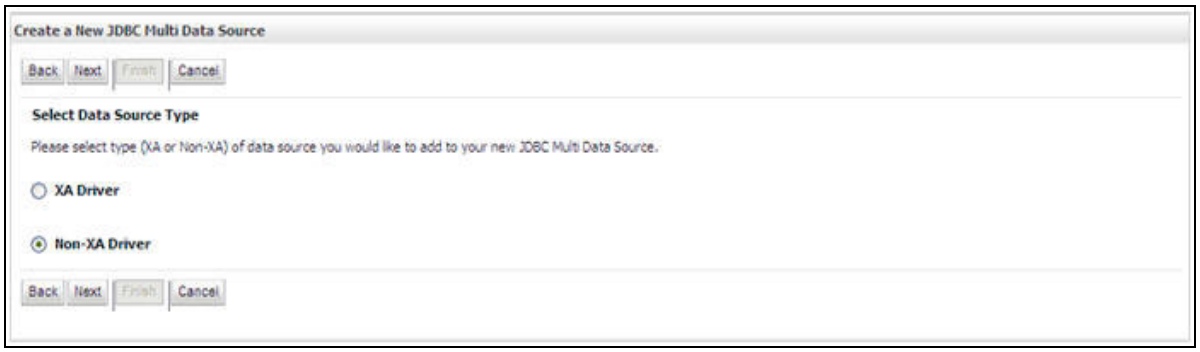
- The JNDI Name has to be specified in the format `jdbc/infodomname`.
- JNDI Name of the Data Sources that will be added to new JDBC Multi data source should be different from the JNDI name specified during Multi Data Source.
- Same steps needs to be followed to create a mandatory data source pointing to the "configuration schema" of infrastructure with jdbc/FICMASTER as JNDI name for Data Source.
- JNDI Name provided in multi data source should be the same name that will be mentioned in the `web.xml` file of OFSAAI Application.
- You can select the **Algorithm Type** as **Load-Balancing**.

Figure 2–11 Select Targets



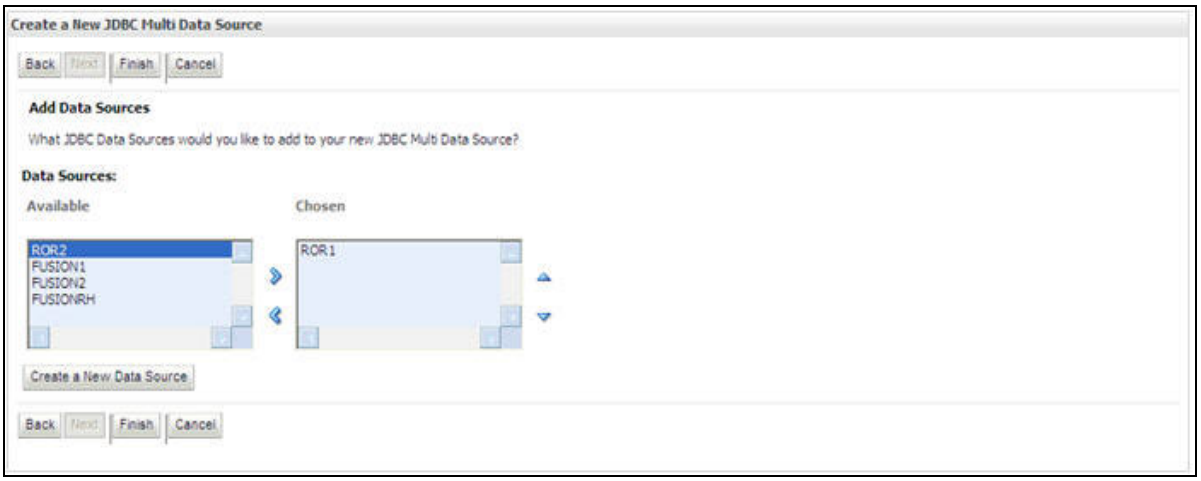
6. Select the **AdminServer** check box and click **Next**.

Figure 2–12 Select Data Source Type



7. Select the type of data source which will be added to new JDBC Multi Data Source. Click **Next**.

Figure B–13 Add Data Sources



8. Map the required Data Source from the Available Data Sources. Click **Finish**.

   The New JDBC Multi Data Source is created with added data sources.

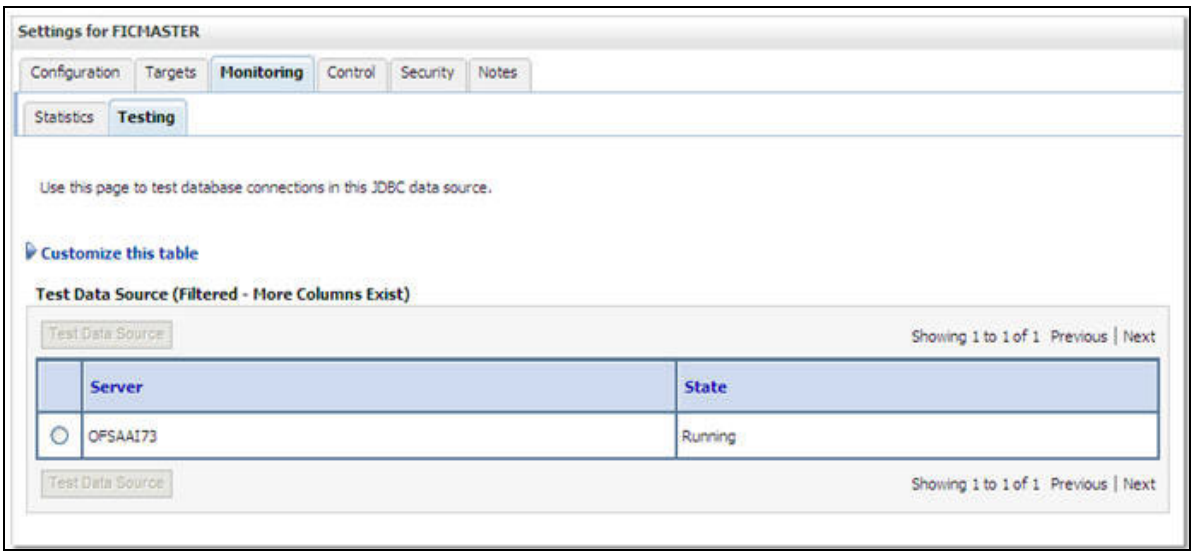
Configuring Advanced Settings for Data Source

Perform the following steps for advanced settings for Data Source:

1. Click the new Data Source from the Summary of JDBC Data Sources window. The ***Settings for <Data Source Name>*** window is displayed.
2. Select the **Connection Pooling** tab given under Configuration.
3. Go to the **Advanced** option at the bottom of the window, and check the **Test Connection of Reserve** checkbox (Enables Weblogic Server to test a connection before giving it to a client).

   To verify if the data source is valid, select "Data Source name". For example, FICMASTER.

Figure B–14 Settings for <Data Source Name>



4. Select the server and click **Test Data Source**.

   A message is displayed indicating that the test was successful.
5. Once the "Data Source" is created successfully, the following messages are displayed:
   - All changes have been activated. No restart is necessary.
   - Settings updated successfully.

   If not, follow the preceding steps to recreate the data source.

Defining JDBC Connection Pooling

To define the JDBC connection pooling, ensure that you have created JDBC Provider and Data source to access the data from the database.

1. Click the newly created Data Source $DATA_SOURCE$ and navigate to the path ***Home >Summary of Services: JDBC >Summary of JDBC Data Sources >JDBC Data Source-<INFODDOM_NAME>***
2. Set the values for **Initial Capacity** to 10, **Maximum Capacity** to 100, **Capacity Increment** by 1, **Statement Cache Type** to LRU, and **Statement Cache Size** to 10.

3. Click **Save**.

Configuring Resource Reference in Tomcat Application Server

This section is applicable only when the Web Application Server type is Tomcat.

This section covers the following topics:

- Creating Data Source
- Defining JDBC Connection Pooling
- Configuring Class Loader for Apache Tomcat

Copy the Oracle JDBC driver file, `ojdbc<version>.jar` from `<Oracle Home>/jdbc/lib` and place it in `<Tomcat Home>/lib`.

> **Note:** Refer Appendix J for identifying the correct `ojdbc<version>.jar` version to be copied.

Creating Data Source

To create "data source" for Infrastructure application, navigate to `<Tomcat Home>/conf` and edit the following block of text by replacing the actual values in `server.xml`.

> **Note:** The User-IDs for configuration/ atomic schemas have the prefix of setupinfo depending on the value set for `PREFIX_SCHEMA_NAME` in `<<APP Pack>>_SCHEMA_IN.XML` file of Schema Creator Utility.
>
> For example: if the value set for `PREFIX_SCHEMA_NAME` is DEV and the schema name was mentioned as `ofsaaconf`, then the actual schema created in the database would be `DEV_ofsaaconf`.

```
<Context path ="/<context name>" docBase="<Tomcat Installation
Directory>/webapps/<context name>" debug="0" reloadable="true"
crossContext="true">

<Resource auth="Container"

    name="jdbc/FICMASTER"

    type="javax.sql.DataSource"

    driverClassName="oracle.jdbc.driver.OracleDriver"

    username="<user id for the configuration schema>"

    password="<password for the above user id>"

    url="jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"

    maxTotal="100"

    maxIdle="30"

    maxWaitMillis="10000"/>

<Resource auth="Container"
```

```
    name="jdbc/< INFORMATION DOMAIN NAME >"
type="javax.sql.DataSource"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    username="<user id for the atomic schema>"
    password="<password for the above user id>"
    url="jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"
    maxTotal="100"
    maxIdle="30"
    maxWaitMillis="10000"/>
</Context>
```

Note:

- The <Resource> tag must be repeated for each Information Domain created.
- After the preceding configuration, the "WAR" file has to be created and deployed in Tomcat.

Defining JDBC Connection Pooling

To define the JDBC connection pooling, do the following:

1. Copy `$ORACLE_HOME/jdbc/lib/ojdbc<version>.jar` to the path `$TOMCAT_DIRECTORY/lib/.`

   Note: Refer Appendix J for identifying the correct ojdbc`<version>`.jar version to be copied.

2. Edit the `server.xml` present under the path `$TOMCAT_DIRECTORY/conf/` with the following changes, which is required for connection pooling.

```
<Context path="/ $CONTEXTNAME$" docBase=" $APP_DEPLOYED_PATH$ " debug="0"
reloadable="true" crossContext="true">
    <Resource auth="Container"
    name="jdbc/ $INFODOM_NAME$"
    type="javax.sql.DataSource"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    username=" $ATOMICSCHEMA_USERNAME$"
    password="$ATOMICSCHEMA_PASSWORD$"
    url="$JDBC_CONNECTION_URL"
    maxTotal="100"
    maxIdle="30"
    maxWaitMillis="10000"
    removeAbandoned="true" removeAbandonedTimeout="60"
```

```
    logAbandoned="true"/>
</Context>
```

Note the following:

Note:

- $APP_DEPLOYED_PATH$ should be replaced by OFSAAI application deployed path.
- $INFODOM_NAME$ should be replaced by Infodom Name.
- $ATOMICSCHEMA_USERNAME$ should be replaced by Atomic schema database user name.
- $ATOMICSCHEMA_PASSWORD$ should be replaced by Atomic schema database password.
- $JDBC_CONNECTION_URL should be replaced by JDBC connection string jdbc:Oracle:thin:<IP>:<PORT>:<SID>. For example, jdbc:oracle:thin 10.80.50.53:1521:soluint
- The User-IDs for configuration/ atomic schemas have the prefix of setupinfo depending on the value set for PREFIX_SCHEMA_NAME in <<APP Pack>>_SCHEMA_IN.XML file of Schema Creator Utility. For example: if the value set for PREFIX_SCHEMA_NAME is DEV and the schema name was mentioned as ofsaaconf, then the actual schema created in the database would be DEV_ofsaaconf.

Configuring Class Loader for Apache Tomcat

1. Edit the server.xml available in $TOMCAT_HOME/conf/ folder.
2. Add tag <Loader delegate="true" /> within the <Context> tag, above the <Resource> tag. This is applicable only when the web application server is Apache Tomcat 8.

Note: This configuration is required if Apache Tomcat version is 8.

C

Creating and Deploying EAR/ WAR File

This section covers the following topics:

Creating EAR/WAR File

To create EAR/WAR File, follow these steps:

1. Navigate to the `$FIC_WEB_HOME` directory on the OFSAA Installed server.
2. Execute `./ant.sh` to trigger the creation of EAR/ WAR file.
3. On completion of the EAR files creation, the "BUILD SUCCESSFUL" and "Time taken" message is displayed and you will be returned to the prompt.

Figure C–1 Creating EAR/ WAR File

```
/scratch/ofsaaweb>cd /scratch/ofsaaweb/OFSA80/ficweb
/scratch/ofsaaweb/OFSA80/ficweb>
/scratch/ofsaaweb/OFSA80/ficweb>ls
ant.sh                      ficwebChecksum.sh
apache-ant-1.7.1            ficweb_InstalledChecksum.txt
application.xml             lib
build.xml                   MANIFEST.MF
conf                        mycertificates
ficweb_Build_CheckSum.txt   OFSALMINFO_FusionMenu.xml
ficwebCheckSum.log          unix
ficwebChecksum.properties   webroot
/scratch/ofsaaweb/OFSA80/ficweb>./ant.sh
executing "ant"
Buildfile: build.xml

createwar:
      [war] Building war: /scratch/ofsaaweb/OFSA80/ficweb/AAI80.war

createear:
      [ear] Building ear: /scratch/ofsaaweb/OFSA80/ficweb/AAI80.ear

BUILD SUCCESSFUL
Total time: 2 minutes 8 seconds
/scratch/ofsaaweb/OFSA80/ficweb>
```

4. The EAR/ WAR file - `<contextname>.ear/ .war` - is created.

Note: The `<contextname>` is the name given during installation. This process overwrites any existing version of EAR file that exists in the path.

In case of OFSAA configured on Tomcat installation, `<contextname>.war` is created.

ANT warning for `tools.jar` can be ignored while executing `./ant.sh`

Deploying EAR/WAR File

This section covers the following topics:

- Deploying EAR/WAR Files on WebSphere
- Deploying EAR/WAR files for WebLogic
- Deploying Tomcat WAR Files on Tomcat

Note: Ensure to clear the application cache prior to the deployment of Applications Pack Web Archive. This is applicable to all Web Servers (WebSphere, WebLogic, and Tomcat). For more information, refer Clearing Application Cache section.

For DB server version 18c, perform the following post deployment (EAR/WAR) steps:

1. Shutdown OFSAA services.
2. Update the `sqlnet.ora` file with the following parameters and verify the update to ensure no garbage characters and no spaces are there in the beginning or at the end.

   ```
   SQLNET.ALLOWED_LOGON_VERSION_CLIENT=8
   SQLNET.ALLOWED_LOGON_VERSION_SERVER=8
   ```

3. Restart the listener and database service.
4. Reset atomic user password on the database.

   The command should be run on the database Server as the SYSDBA account using the following command:

   ```
   alter user SCHEMA_USERNAME identified by SCHEMA_PASSWORD;
   ```

   The same password used initially can be used during the reset.
5. Restart OFSAA services and login as SYSADMN user and navigate to the Database Details.
6. Update the password using the Database Details User Interface and save it.
7. Start OFSAA services.

Deploying EAR/WAR Files on WebSphere

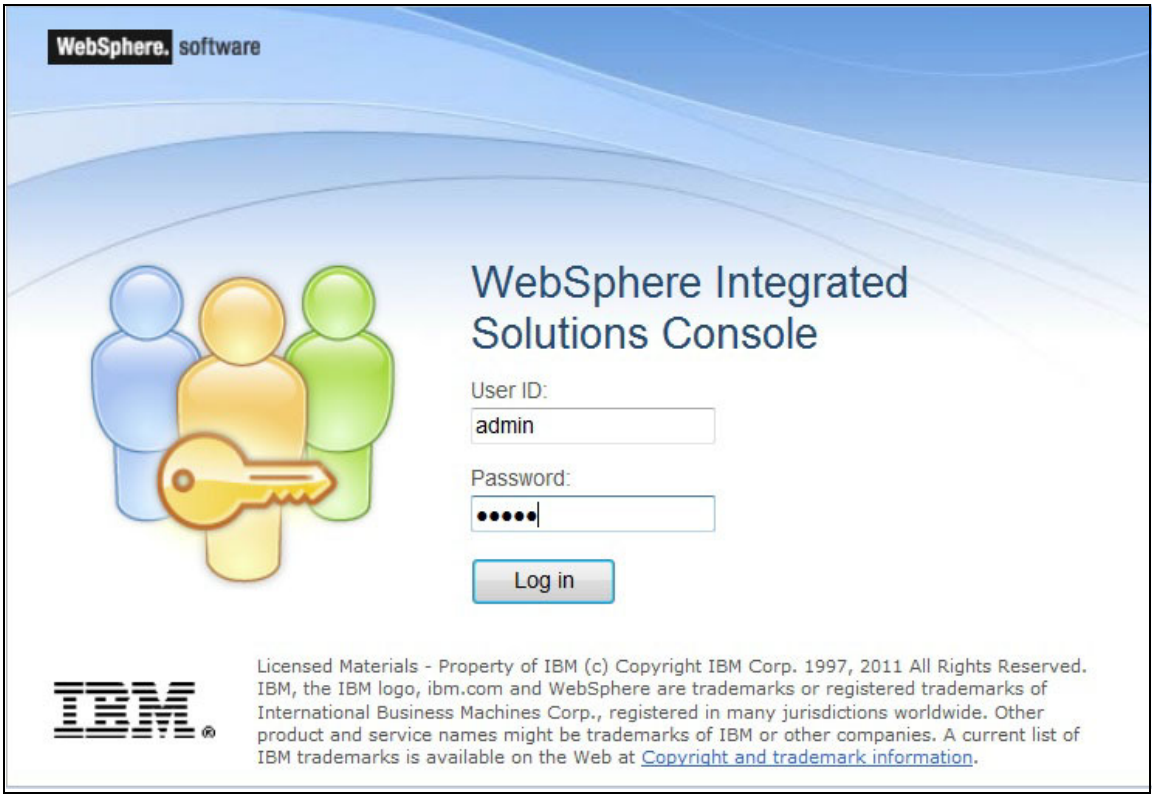
To deploy Infrastructure application in WebSphere:

1. Start WebSphere Profile by navigating to the path "/<Websphere_Installation_Directory>/IBM/WebSphere/AppServer/profiles/<Profile_Name>/bin/" and execute the command:

   ```
   ./startServer.sh server1
   ```

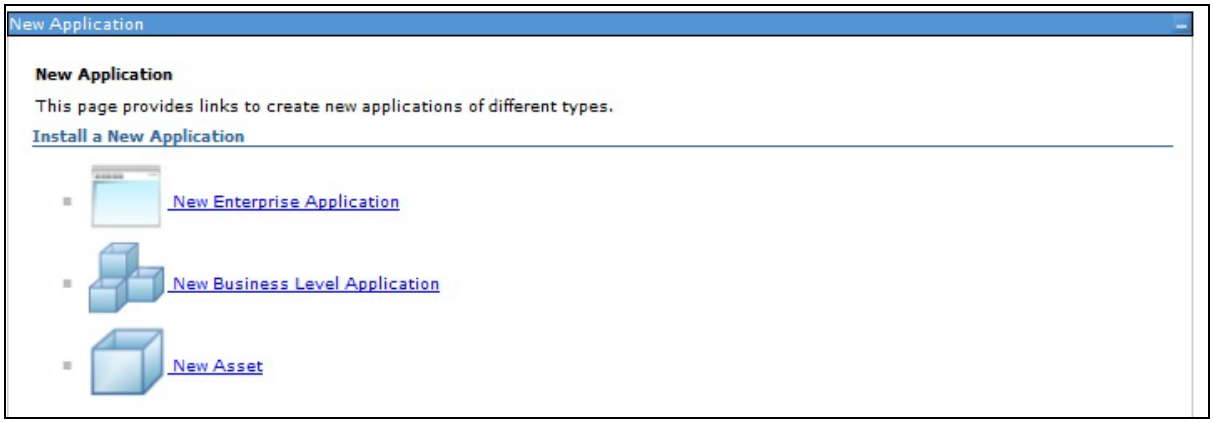
2. Open the following URL in the browser: `http://<ipaddress>:<Administrative Console Port>/ibm/console`. (https if SSL is enabled). The login window is displayed.

Figure C–2 Login Window



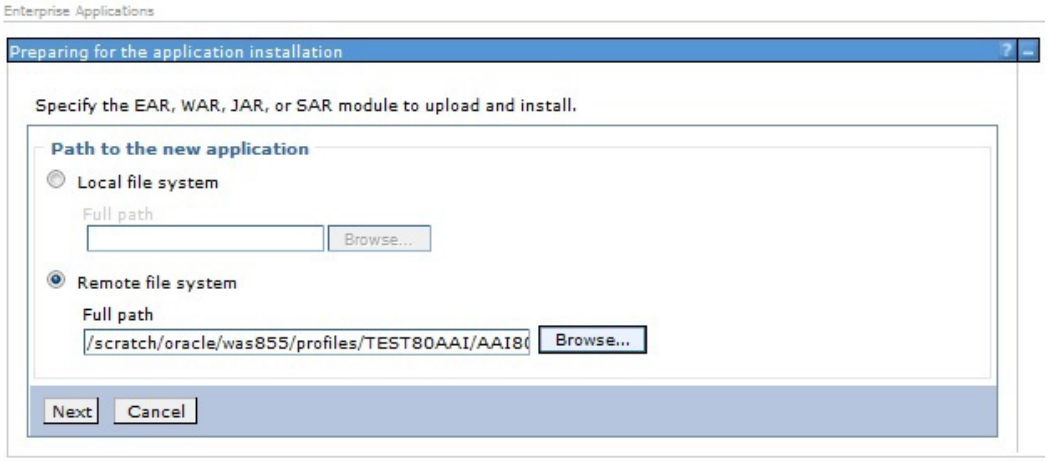
3. Enter the user credentials which has administrator rights and click **Log In**.
4. From the LHS menu, select **Applications** and click **New Application**. The ***New Application*** window is displayed.

Figure C–3 New Application



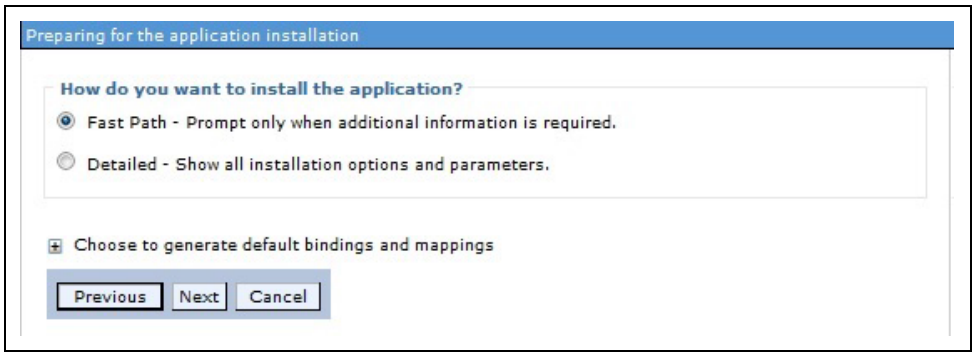
5. Click **New Enterprise Application**. The *Preparing for the application installation* window is displayed.

Figure C–4 Preparing for the application installation



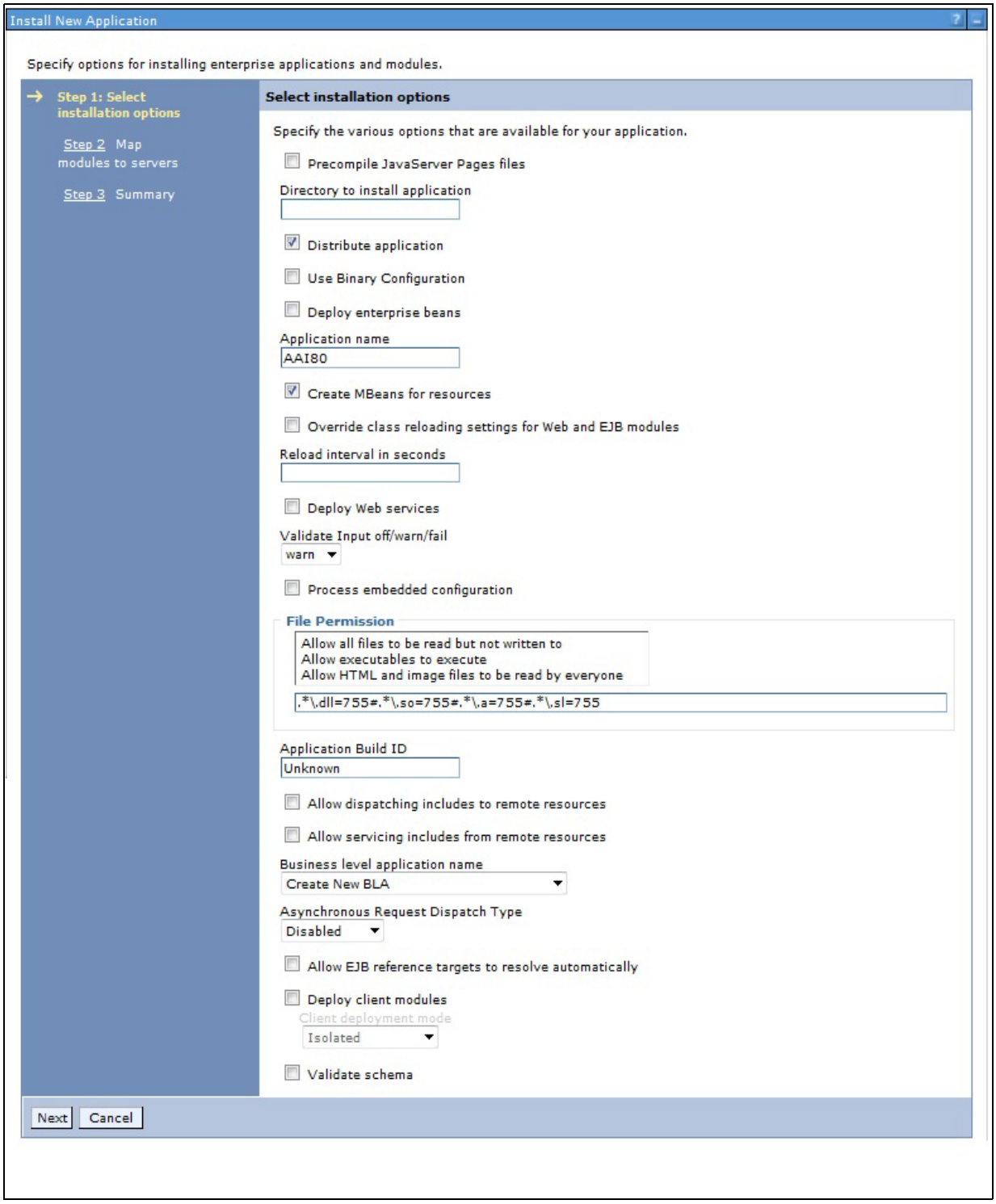
6. Select **Remote File System** and click **Browse**. Select the EAR file generated for OFSAAI to upload and install. Click **Next**.

Figure C–5 Installation Options



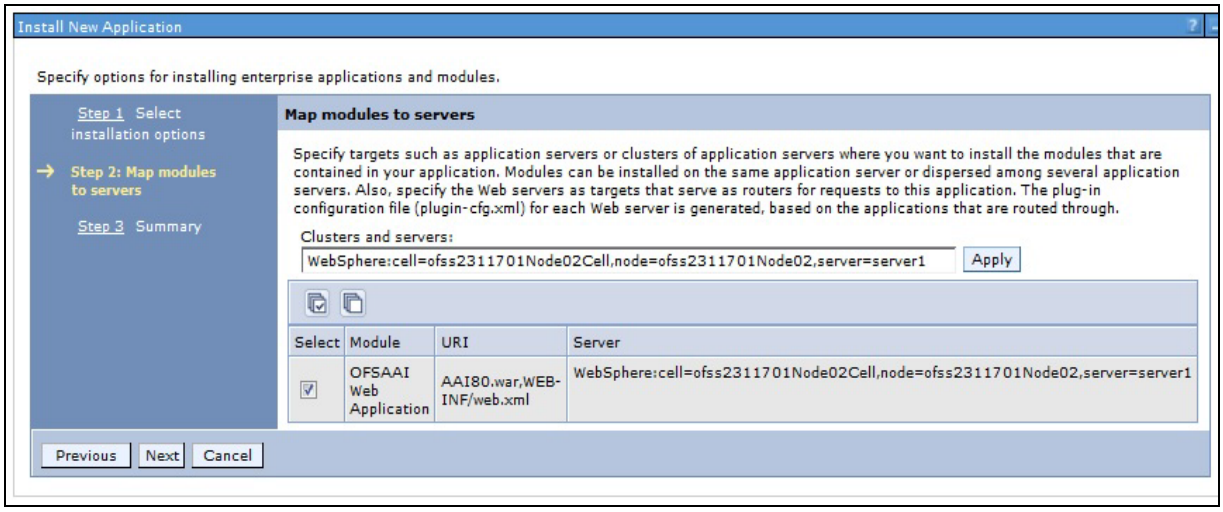
7. Select the **Fast Path** option and click **Next**. The *Install New Application* window is displayed.

Figure C–6 Install New Application



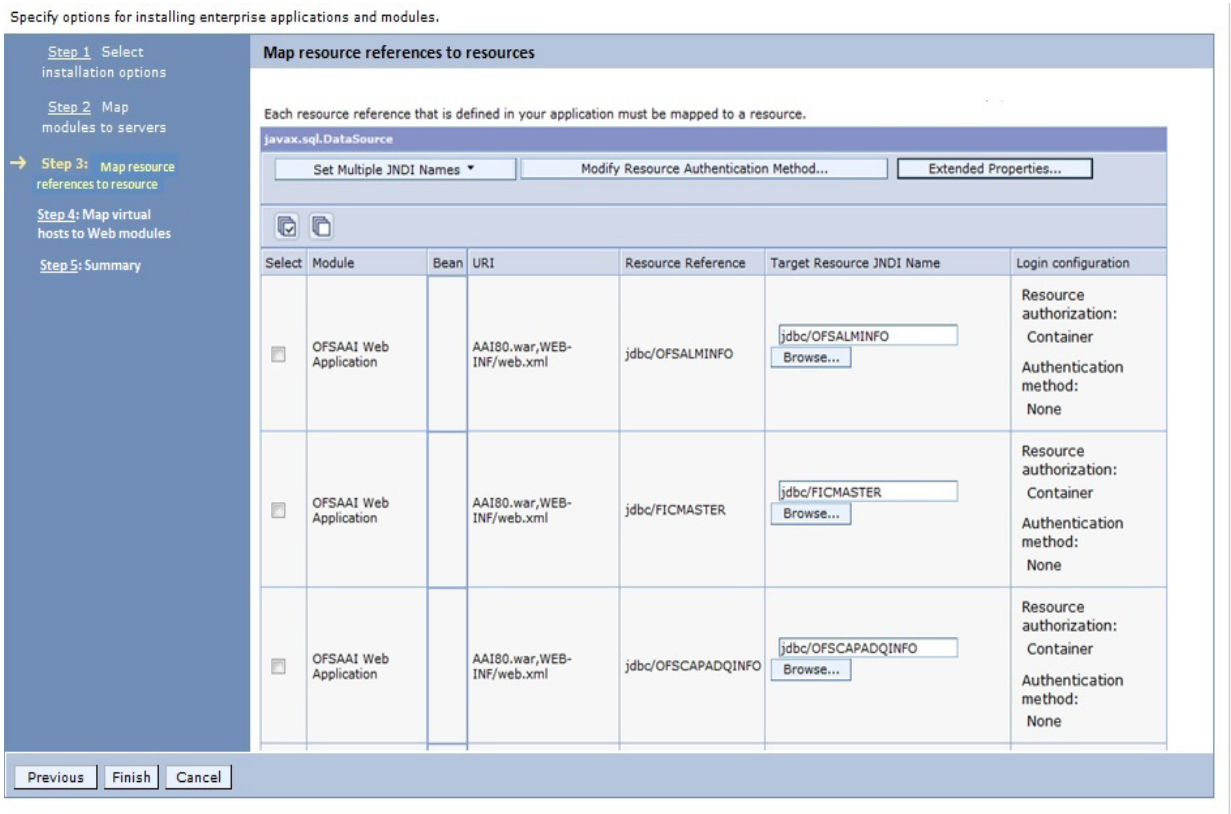
8. Enter the required information and click **Next**. The *Map Modules to Servers* window is displayed.

Figure C–7 Map Modules to Servers



9. Select the **Web Application** and click **Next**. The *Map Resource References to Resources* window is displayed.

Figure C–8 Map Resource References to Resources



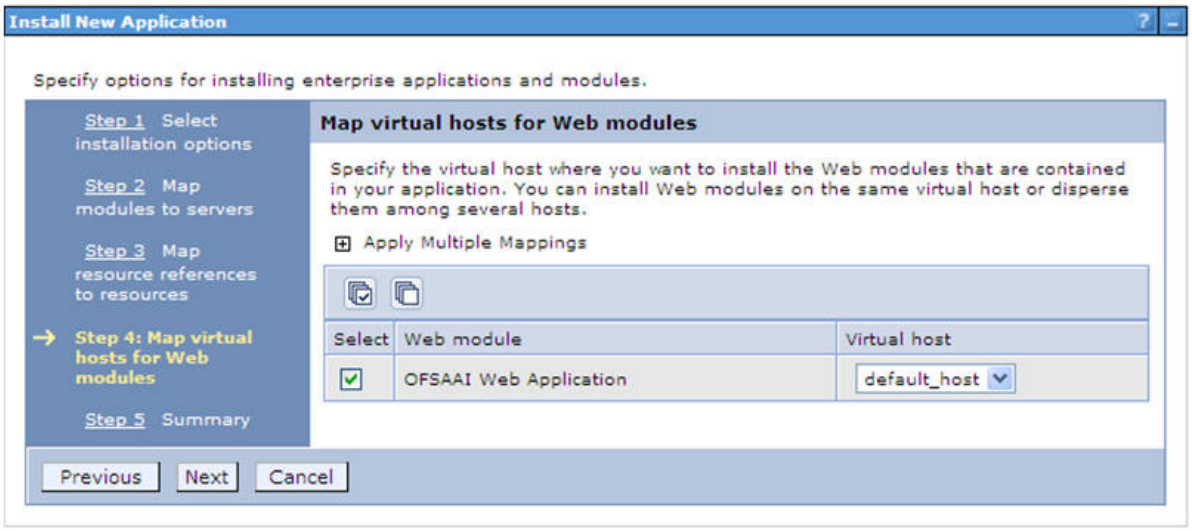
10. Map each resource defined in the application to a resource JNDI name defined earlier.

11. Click **Modify Resource Authentication Method** and specify the authentication method created earlier.

    You can specify "config" for FICMASTER resource or "atomic" for atomic resource as the authentication method.

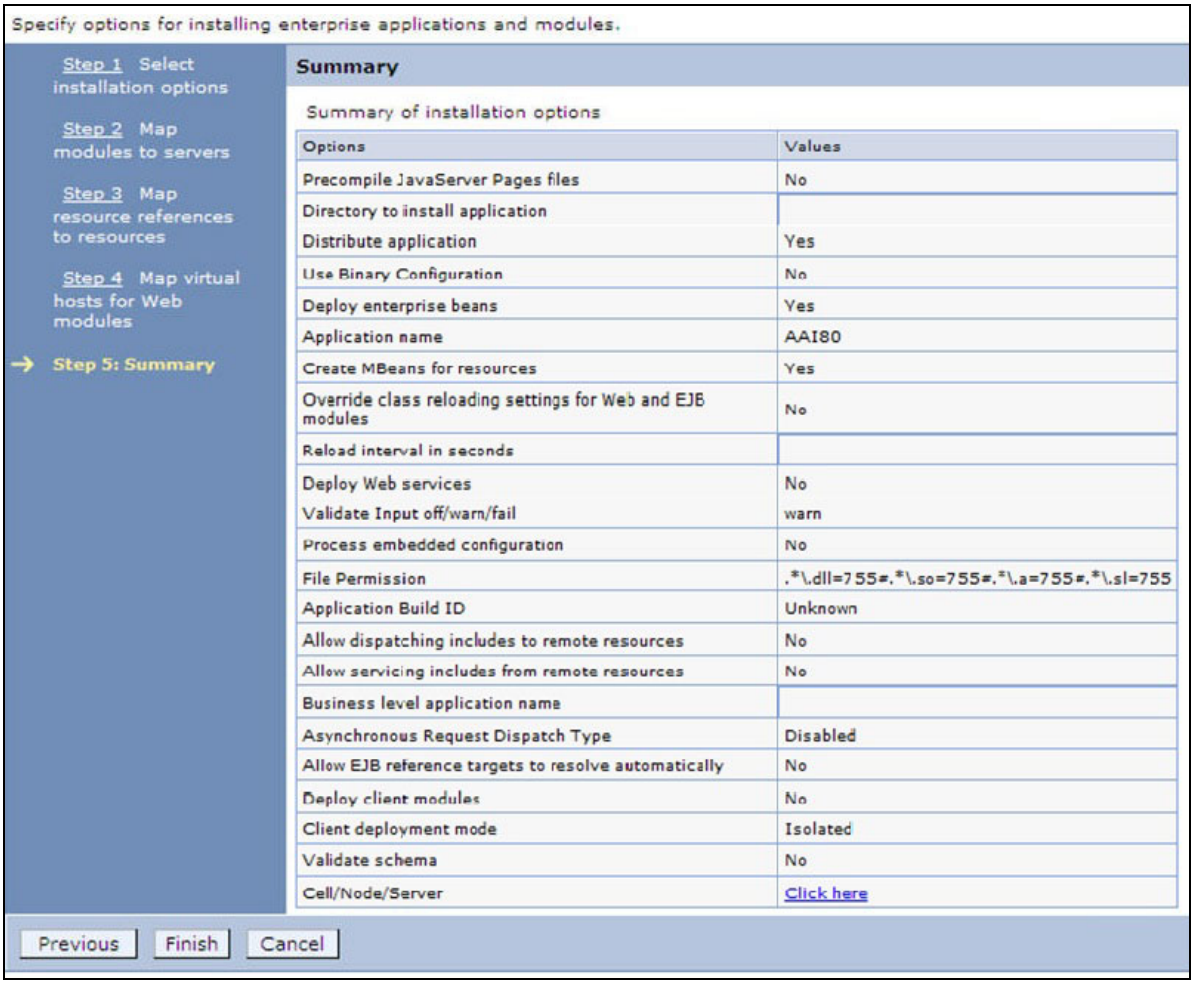
12. Select the **OFSAAI Web Application** check box and click **Next**. The ***Map Virtual hosts for Web Modules*** window is displayed.

Figure C–9 Map Virtual host for Web Modules



13. Select the **Web Application** check box and click **Next**. The ***Summary*** window is displayed.

Figure C–10 Summary



14. Click **Finish** and deploy the Infrastructure Application on WebSphere.

    On successful installation, a message is displayed.

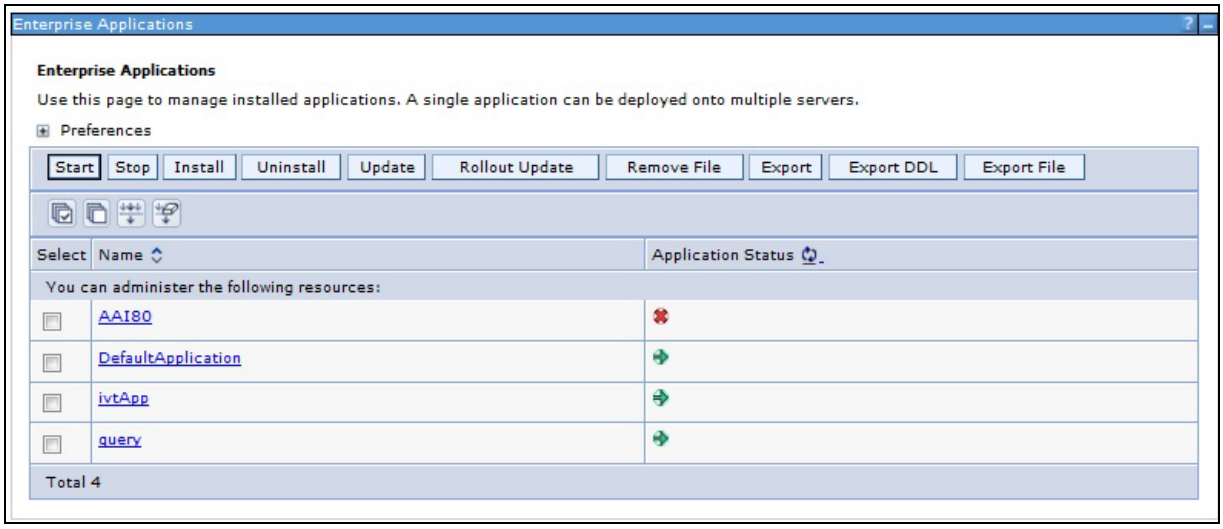
15. Click **Save** and save the master file configuration. The details are displayed in the ***Master File Configuration*** window.

Starting the Application

To start the application, follow these steps:

1. Expand **Applications** > **Application Type** > **WebSphere enterprise applications**. The ***Enterprise Applications*** window is displayed.

Figure C–11 Enterprise Application



2. Select the installed application and click **Start**.

Note:

- <profile name> is the profile name given while creating the WebSphere profile.
- <cell name > is the cell name given during profile creation.
- <contextname> is the context name given during installation.

Exploding EAR File

To explode EAR, follow these steps:

1. Create the "applications" folder under domain name. For example, "`/Bea/user_projects/domains/ <Domain _name>/applications`".
2. Create `<context_name>.ear` folder under "applications" folder.
3. Copy the `<$FIC_WEB_HOME/<context_name>.ear` file to `<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_name>.ear`.
4. Explode the `<context_name>.ear` file by executing the command:

   ```
   jar -xvf <context_name>.ear
   ```

5. Delete the `<context>.ear` and `<context>.war` files (recently created) `<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_name>.ear`.
6. Create a directory `<context_name>.war` under `<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context>.ear./<context>.war`
7. Copy `<$FIC_WEB_HOME/<context_name>.war` file to `<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_name>.ear/<context_name>.war`.

8. Explode the `<context_name>.war` file by executing the following command to get the directory structure:

   ```
   jar -xvf <context_name>.war
   ```

Deploying EAR/WAR files for WebLogic

Following are the steps for deploying Infrastructure application that would be created during installation:

1. Navigate to the path `<WebLogic Installation directory>/user_projects/domains/<domain name>/bin` in the machine in which WebLogic is installed.
2. Start WebLogic by executing the command:

   ```
   ./startWebLogic.sh -d64 file
   ```

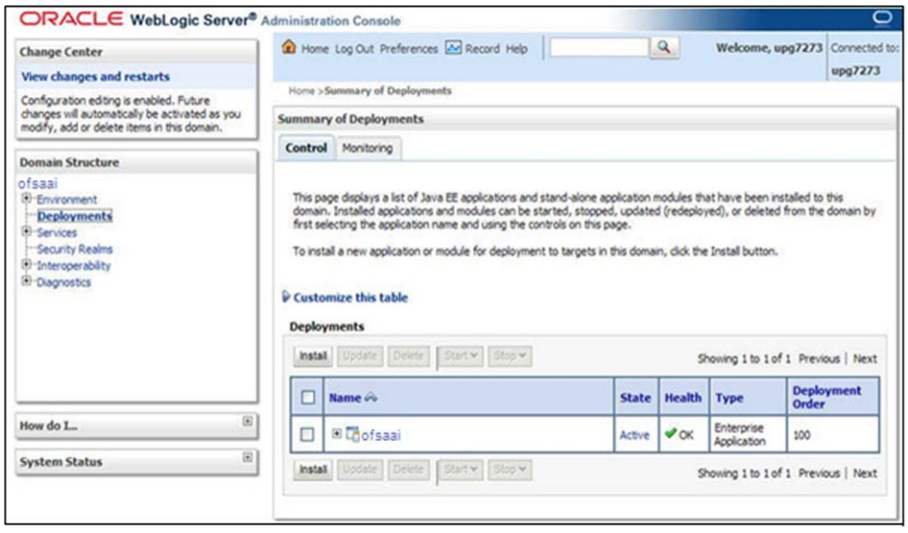
3. Open the URL in the browser window: `http://<ipaddress>:<admin server port>/console` (https if SSL is enabled). The ***Sign in*** window of the WebLogic Server Administration Console is displayed.

Note: Ensure that you have started Infrastructure Server by executing "`./startofsaai.sh`" as mentioned in *Starting/ Stopping Infrastructure Services* section.

---

4. Log on to the WebLogic Server by entering the user credentials having privileges to deploy the EAR file.
5. From the **Domain Structure** LHS menu, click **Deployments**. The ***Summary of Deployments*** window is displayed.

Figure C–12 Summary of Deployments



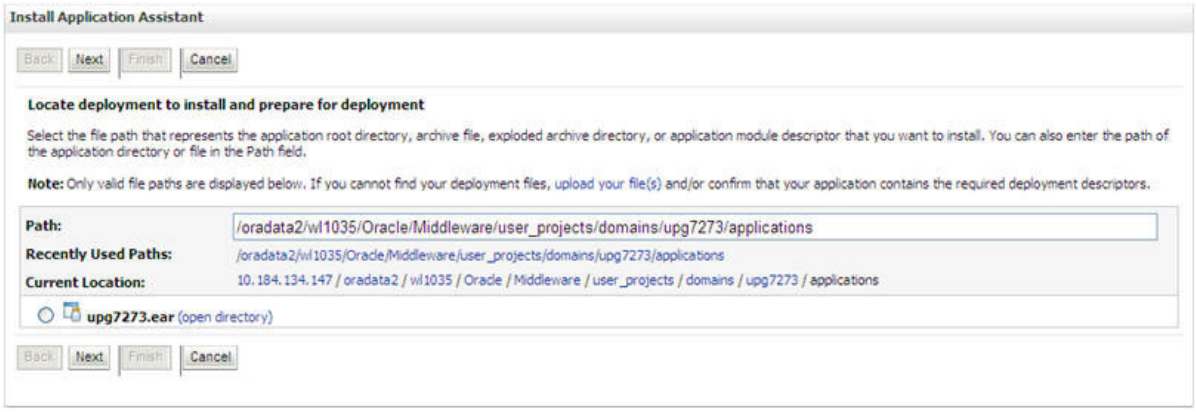
6. Click **Install**. The ***Install Application Assistant*** window is displayed.
7. Select the Exploded EAR directory after browsing to the directory where it is saved and click **Next**.

Installing Application

To install Application, follow these steps:

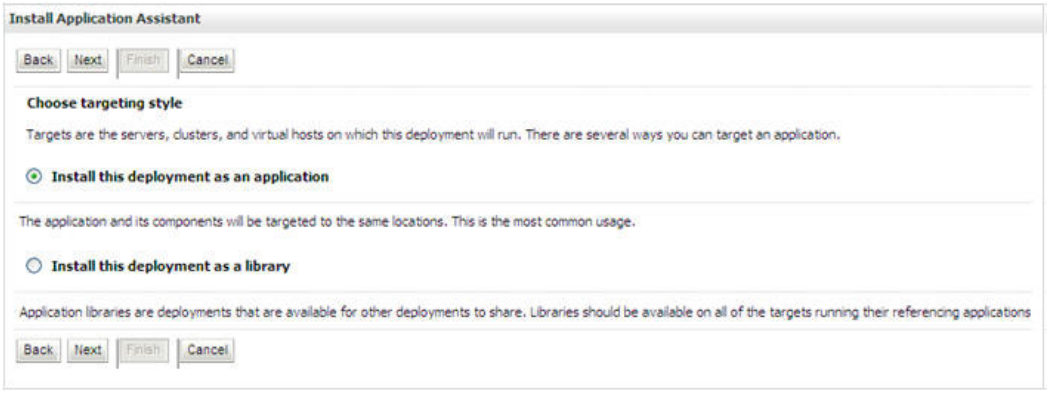
1. Open the Install Application Assistant.

Figure C–13 Install Application Assistant



2. Click **Next**.

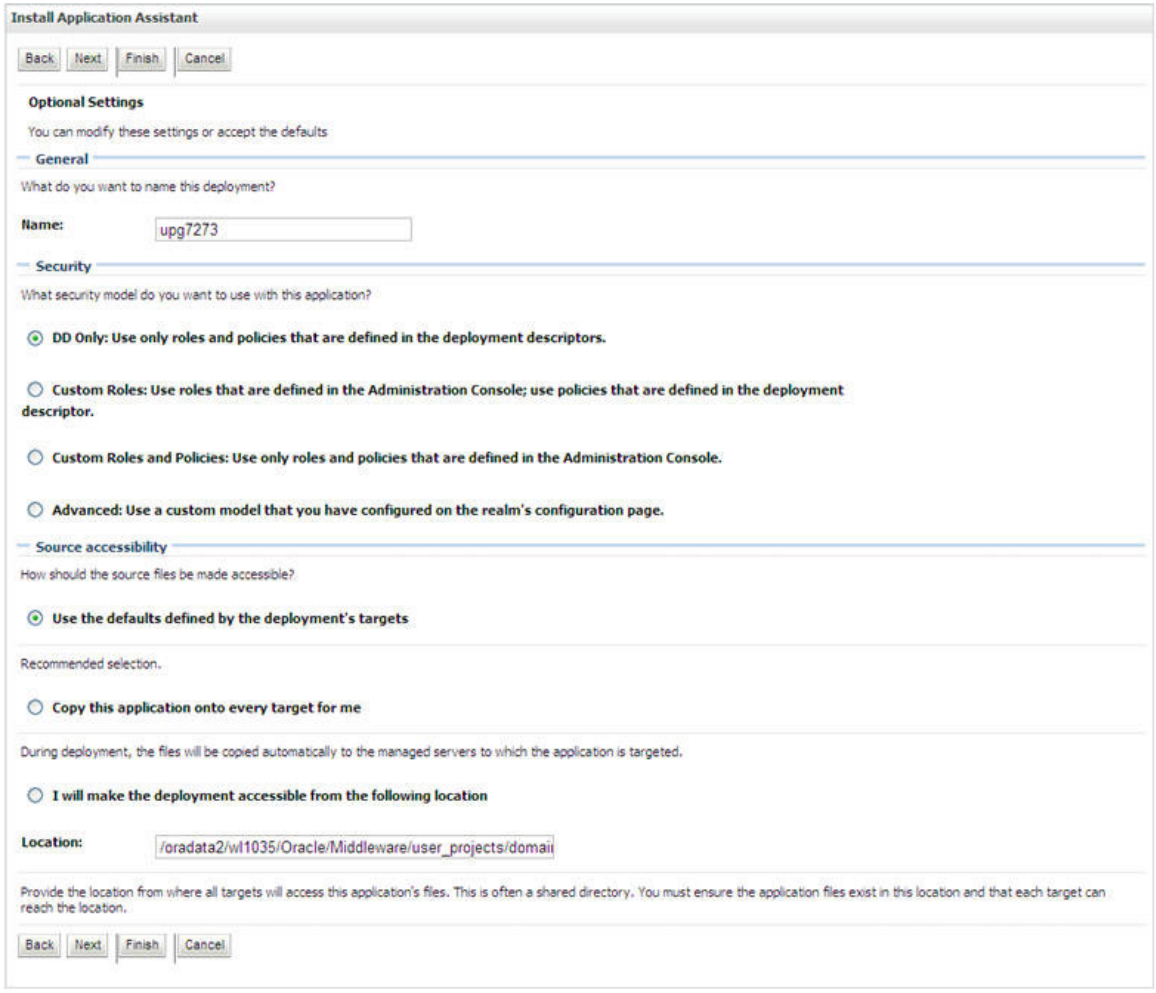
Figure C–14 Install Application Assistant



3. From the Choose targeting style section, select the **Install this deployment as an application** option and click **Next**.

   The ***Optional Settings*** window is displayed.

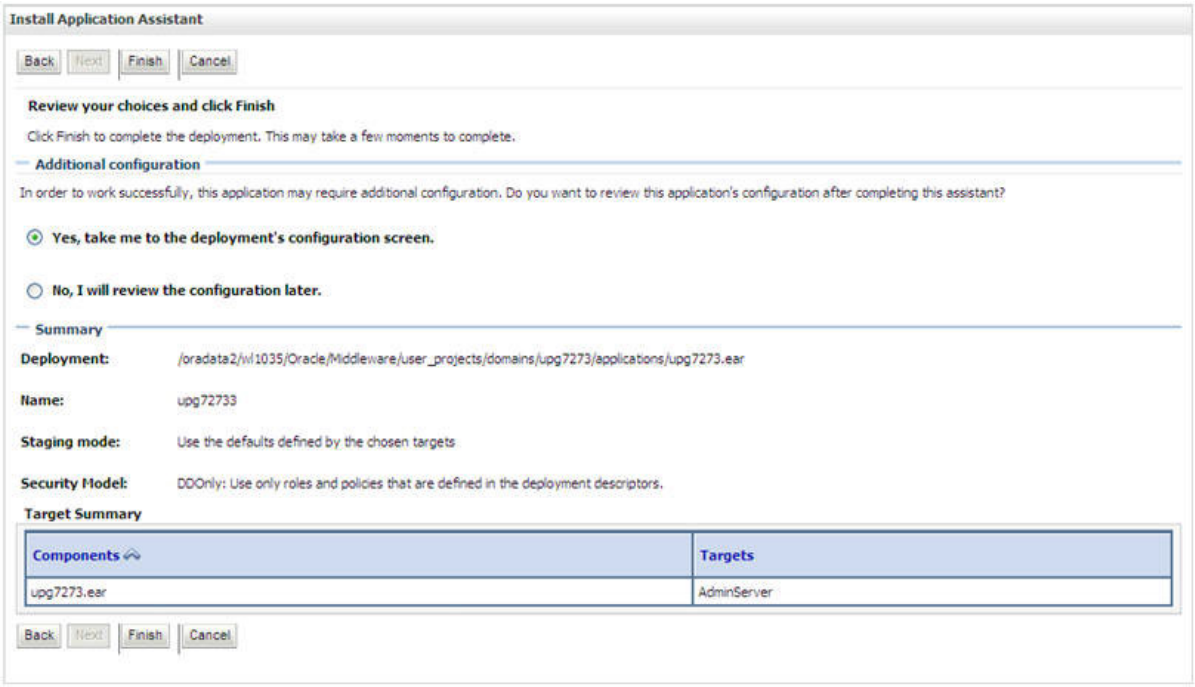
Figure C–15 Optional Settings



4. Enter a **Name** for the deployment if required.
5. Under the Security section, select the **DD only** option to specify that only roles and policies that are defined in the deployment descriptors should be used.
6. Select the **I will make the deployment available from the following location** option under the Source accessibility section.
7. Click **Next** to continue.

   The ***Deployment Summary*** window is displayed.

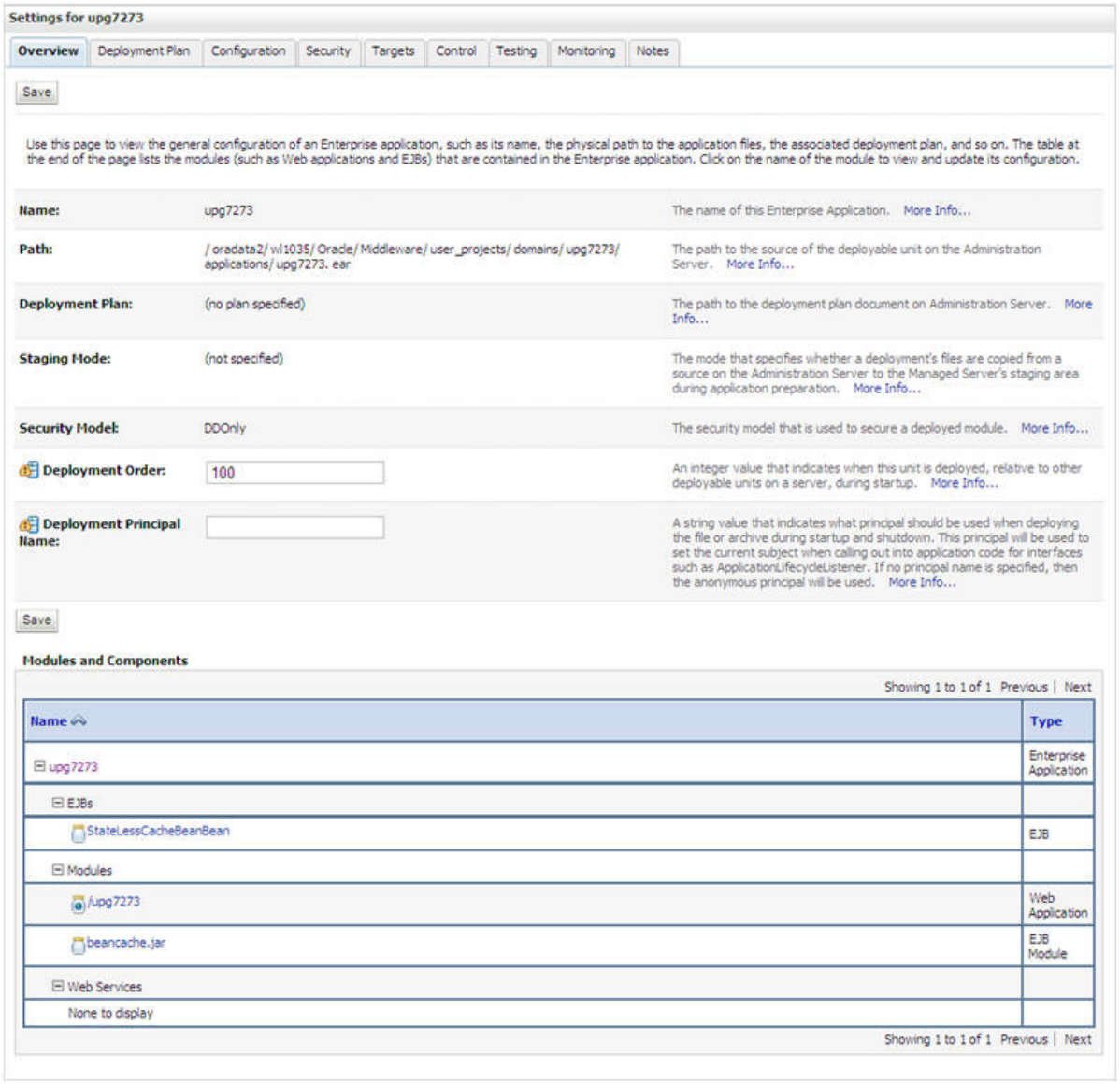
Figure C–16 Deployment Summary



8. Select the **Yes, take me to the deployment's configuration screen** option and click **Finish**.

   The ***Settings for <Deployment Name>*** window is displayed.

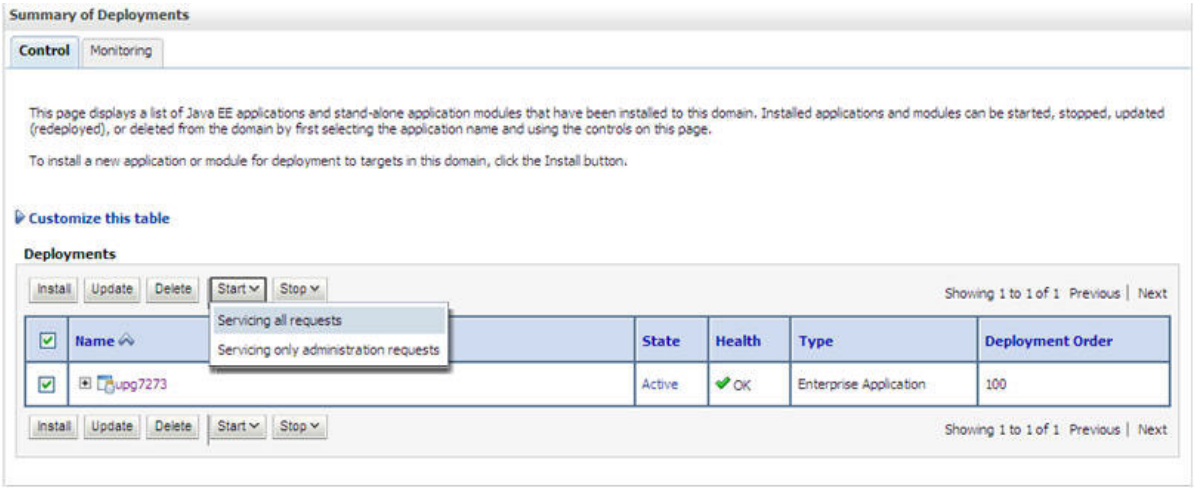
Figure C–17 Settings for <Deployment Name>



9. Review the general configuration details of the deployment. You can also update the configuration of the deployment in this window. In the *Overview* tab, you can view the complete deployment configuration.
10. Click **Save** to update the changes, if any.
11. From the LHS menu, click **Deployments**.

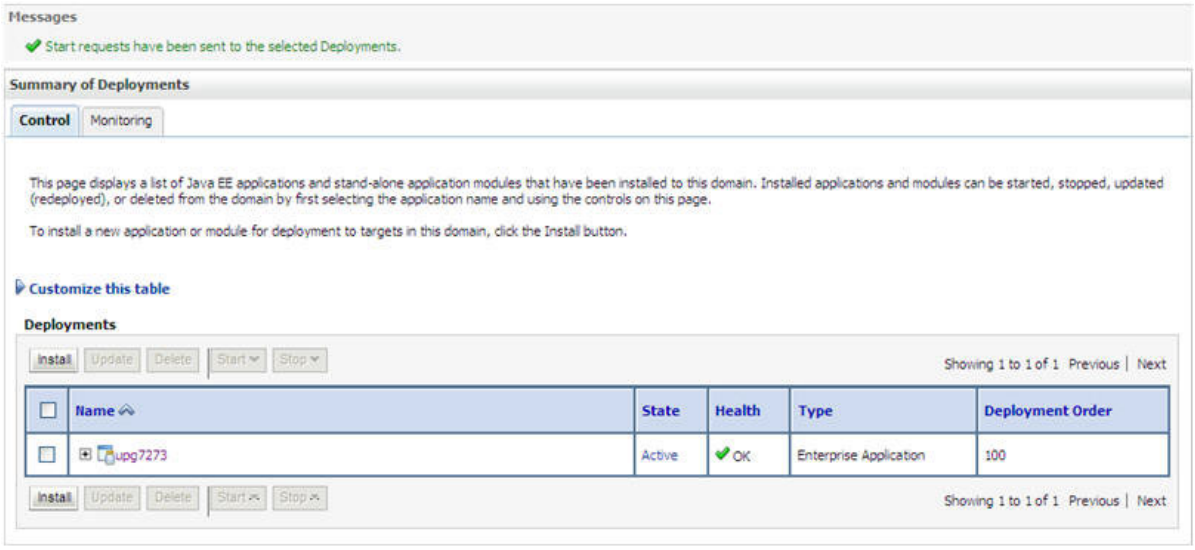
    The ***Summary of Deployments*** window is displayed.

Figure C–18 Summary of Deployments



12. Select the newly deployed Infrastructure application and click **Start** > **Servicing all requests**. Ensure that the Infrastructure server is up and running.

Figure C–19 Summary of Deployments



13. The **State** of the deployed application will be displayed as **Active** if started successfully.

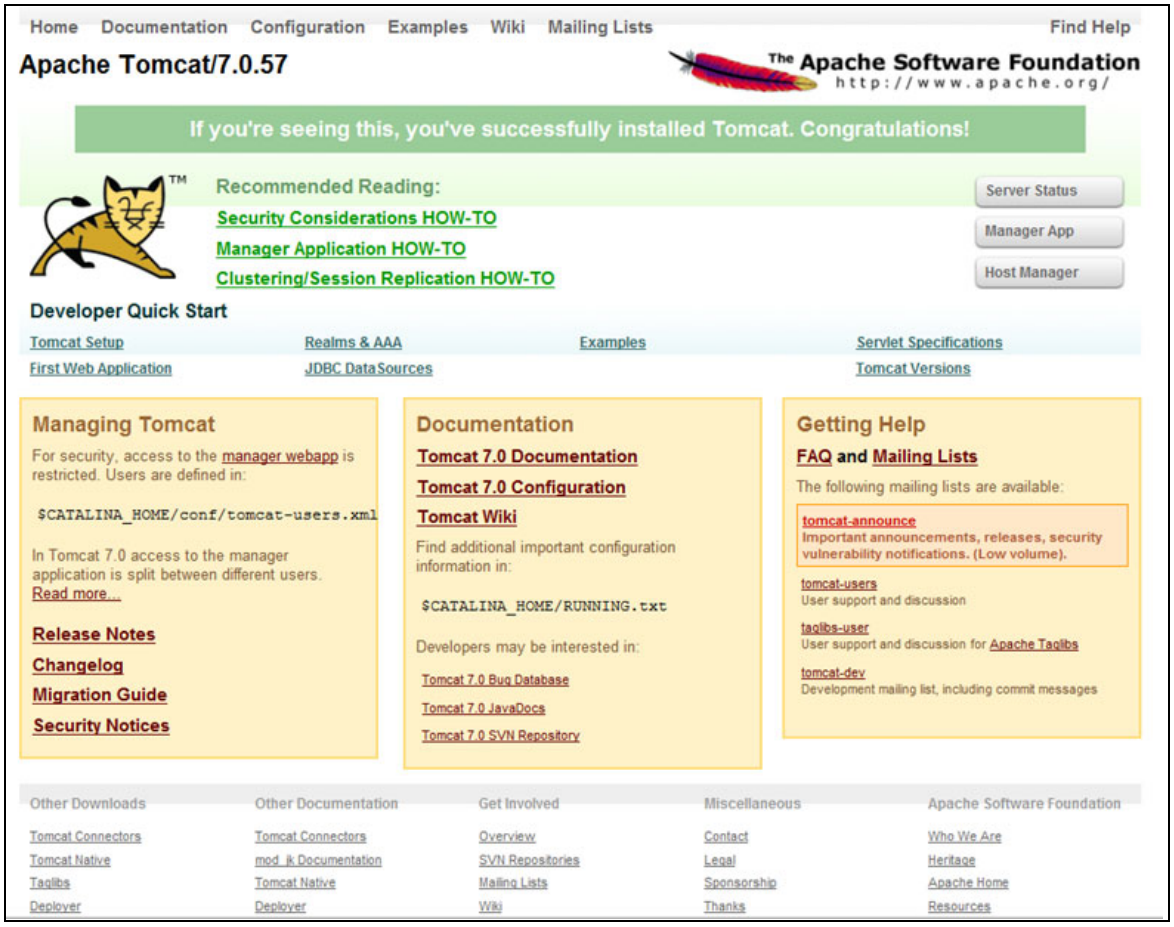
Deploying Tomcat WAR Files on Tomcat

Before deploying the WAR files, ensure that the previously deployed applications of Infrastructure are uninstalled. See ***Uninstalling Previously Deployed WAR Files in Tomcat*** for the procedure to uninstall the previously deployed Infrastructure war files.

On the machine that hosts Tomcat, follow these steps to deploy Infrastructure application:

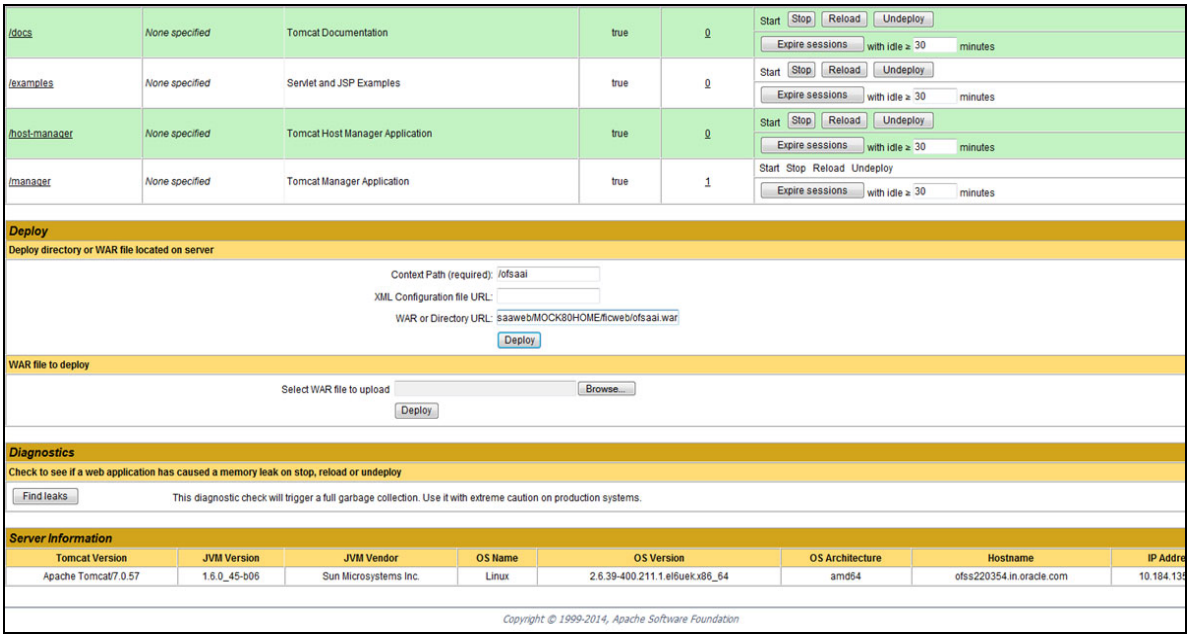
1. Copy the `<context-name>.war` from `$FIC_WEB_HOME/<context-name.war>` to `<Tomcat Installation Directory>/webapps/` directory.

Figure C–20 Tomcat Home window



2. Click **Manager App**. The ***Connect to*** dialog box is displayed.
3. Enter the **User Id** and **Password** that has admin rights and click **OK**. (For user creation in tomcat, see Tomcat User Administration. The ***Tomcat Web Application Manager*** window is displayed with the list of all the applications deployed.

Figure C–21 Tomcat Web Application Manager



4. In the ***Deploy*** section, enter the **Context Path** provided during the installation as "/<context-name>".
5. Enter the path where the `<context-name>.war` file resides (by default "`$FIC_WEB_HOME/<context-name.war>`") in the **WAR or Directory URL** field and click **Deploy**.
6. On successful application deployment, a confirmation message is displayed.

   Start the Tomcat server. Refer Starting/ Stopping Infrastructure Services for more details.

D

Additional Configuration

This section gives detailed information about the Additional Configuration regarding OFSAA Installation.

Additional Configuration Topics

This section covers the following topics:

Configuring FTP/SFTP

This section details about the configurations required for FTP/SFTP.

Adding FTP/SFTP Configuration for File Transfer

In OFSAA, certain modules require transfer of files from the web application server to the OFSAA server over SSH.

Follow these steps to ensure the OFSAA server recognizes the web application server during file transfers.

1. Log in to the web application server.
2. Type `sftp <user>@<OFSAA Server>`.
3. Specify **Yes** when prompted for permission.

   Are you sure you want to continue connecting (Yes/No)?

   This will add an entry into the "known_hosts" file.
4. A confirmation message is displayed:

   Permanently added <OFSAA Server> RSA) to the list of known hosts.

Setting Up SFTP Private Key

Log in to OFSAA Unix user using Putty tool, where you plan for installation and generate a pair of authentication keys using the `ssh-keygen` command. If required, set passphrase. Otherwise OFSAAI_SFTP_PASSPHRASE tag in the `OFSAAI_InstallConfig.xml` file should be set to NA.

To generate private key, enter the commands as shown:

```
ofsaapp@OFSASERVER:~> ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ofsaapp/.ssh/id_rsa):
Created directory '/home/ofsaapp/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ofsaapp/.ssh/id_rsa.
Your public key has been saved in /home/ofsaapp/.ssh/id_rsa.pub.
The key fingerprint is:
3e:4f:05:79:3a:9f:96:7c:3b:ad:e9:58:37:bc:37:e4
ofsaapp@OFSASERVER:~> cat /home/ofsaapp/.ssh/id_rsa.pub >>
/home/ofsaapp/.ssh/authorized_keys
```

In case, you are generating SFTP Private key for Hive server, append the content of `/home/ofsaapp/.ssh/id_rsa.pub` to Hiveserver authorized_keys file located at `$HOME_DIR_HIVE/.ssh` folder.

Ensure the following permissions exist for the given folders:

- Permission of `.ssh` should be 700
- Permission of `.ssh/authorized_keys` should be 640
- Permission of `.ssh/id_rsa` should be 400
- Permission of Unix user created should be 755

Configuration for Dimension and Hierarchy Management

These configuration changes are applicable when Dimension Management features provided in OFSAAI are used. You can open AMHMConfig.properties file present in the $FIC_WEB_HOME/webroot/conf directory to set the properties for the following:

This section includes the following topics:

Configuration for Dimension and Hierarchy Management has to be done only after the application/solution installation is done. The properties specific to Information Domain are:

- $INFODOM$=<Name of the Information Domain>
- $DIMENSION_ID$=<Dimension ID for which the property to be set>

Configure Member Deletion

This property should be set to allow the user to delete the Members for the Dimension.

Value	Code	Example
# Member Deletion Configuration - VALUE- Y/N	MEMBER_DEL-$INFODOM$-$DIMENSION_ID$=$VALUE$	MEMBER_DEL-ORAFUSION-1=Y

Configure Attribute Default Date Format

This property should be set to display the Default Date Format for Date type Attribute in Attributes window.

Value	Code	Example
# Attribute Default Date Format - DB_DATE_FORMAT:DD-MON-YYYY	ATTR_DEF_DATE_FORMAT-$INFODOM$=DB_DATE_FORMAT	ATTR_DEF_DATE_FORMAT-ORAFUSION=DD/MON/YYYY

Configure Members Reverse Population

This property should be set for reverse population of Members for the Dimensions in required Information Domains.

Value	Code	Example
# Members Reverse population - VALUE- Y/N	MEMBER_REVERSE_POP-$INFODOM$-$DIMENSION_ID$=$VALUE$	MEMBER_REVERSE_POP-ORAFUSION-1=Y

Configure Hierarchy Reverse Population

This property should be set for reverse population of Hierarchies for the Dimensions in required Information Domains.

Value	Code	Example
#Hierarchy Reverse population - VALUE- Y/N	HIERARCHY_REVERSE_POP-$INFODOM$-$DIMENSION_ID$=$VALUE$	HIERARCHY_REVERSE_POP-ORAFUSION-1=Y

Configure Maximum Levels allowed in Hierarchies

This property is required to set the maximum levels allowed to build the Hierarchies tree structure.

Value	Code	Example
#Hierarchy Maximum level allowed for the hierarchy in particular Information Domain - VALUE - Integer number	MAX_DEPTH-$INFODOM$=$VALUE$	MAX_DEPTH-FUSION=15

Hierarchies greater than 15 levels are not supported within OFSAA EPM applications (ALM, FTP, PFT, HM). If the hierarchy data contains more than 15 levels, OFSA_IDT_ROLLUP will not be populated. The number of hierarchy levels allowed for OFSAA EPM key dimensions must be less than or equal to 15.

If the Hierarchy Reverse Population setting is set to "Y" and more than 15 levels exist in the data, then following alert is displayed "The number of levels exceeds the limit".

If the maximum level allowed setting is set greater than 15 and Hierarchy Reverse Population is set to "Y", then following error is displayed "Error occurred in Reverse Populating the hierarchy".

Configure Node Limit for a Hierarchy Tree

This property is required to display the Hierarchy as a small or a large hierarchy. If the tree node limit exceeds the set limit, the Hierarchies are treated as large Hierarchy.

Value	Code	Example
#Tree node limit for the hierarchy - Values is Integer number	TREE_NODE_LIMIT=$VALUE$	TREE_NODE_LIMIT=30

Configuring Infrastructure Server Memory

The memory settings for Infrastructure Application Server, Tomcat, WebSphere, and WebLogic can be edited for customizing memory settings and garbage collector settings depending on the available hardware configuration as explained in the following section. These settings are base minimum and has to be incremented considering the deployment metrics into account. The increments are usually handled in multiples of 128 MB for heap and 64 MB for stack.

Configuring Infrastructure Application Server Memory Settings

You can configure the Infrastructure Application Memory settings as follows:

1. Locate `.profile` file.
2. Edit `X_ARGS` field in this file for customizing memory settings and garbage collector settings depends on the hardware configuration.

   This has a default value `X_ARGS="-Xms200m"`

   ```
   X_ARGS=" "$X_ARGS" $DELIM -Xmx2048m"
   ```

   Note: Modify `X_ARGS_APP` variable in the `.profile` file to customize Java Memory Settings for Model Upload based on the Data Model size.

   For Run and Rule executions, the following value is recommended:

   ```
   X_ARGS_RNEXE="-Xms1g -Xmx1g -XX:+UseAdaptiveSizePolicy
   -XX:MaxPermSize=512M -XX:+UseParallelOldGC
   -XX:+DisableExplicitGC"

   X_ARGS_RLEXE="-Xms1g -Xmx1g -XX:+UseAdaptiveSizePolicy
   -XX:MaxPermSize=512M -XX:+UseParallelOldGC
   -XX:+DisableExplicitGC"
   ```

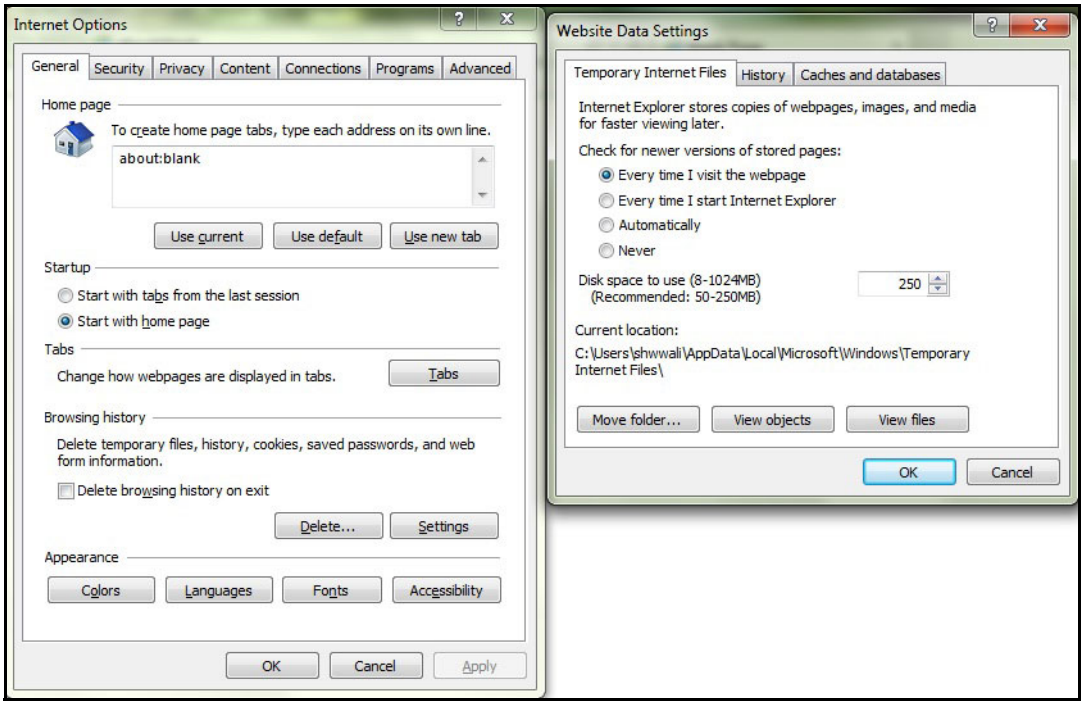
Configuring Internet Explorer Settings

Note: OFSAAI supports only default zoom setting in Internet Explorer, that is, 100%.
Cookies should be enabled.

The following browser settings must be specified at every client machine prior to accessing the Infrastructure application.

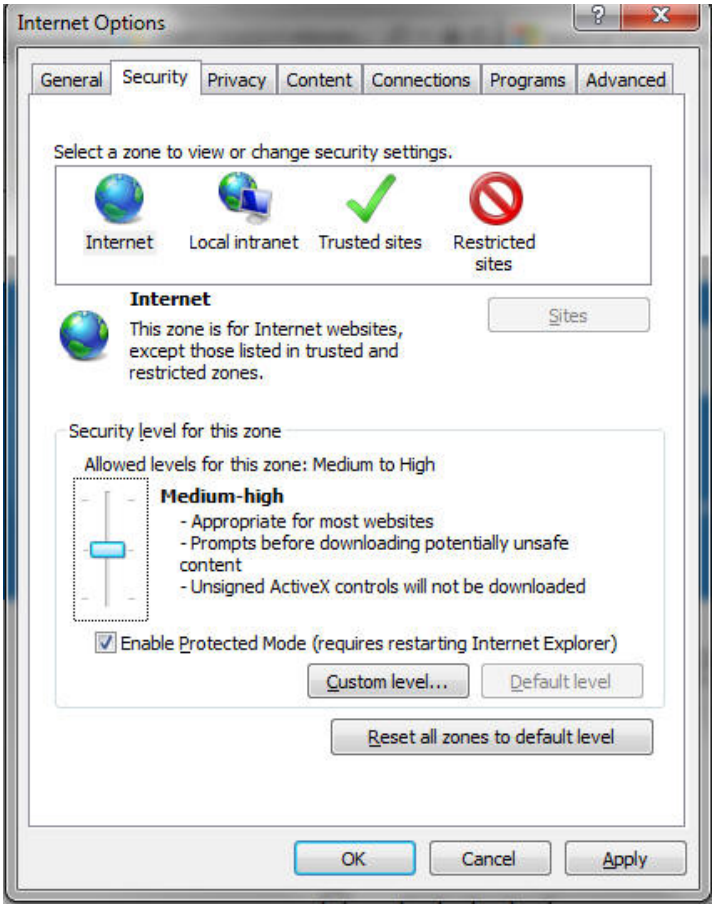
1. Open **Internet Explorer**. Select **Tools** > **Internet Options**. The ***Internet Options*** window is displayed.
2. Click **Settings**. The ***Settings*** window is displayed.
3. Select the **Every time I Visit the webpage** option and click **OK**.

Figure D–1 Internet Options



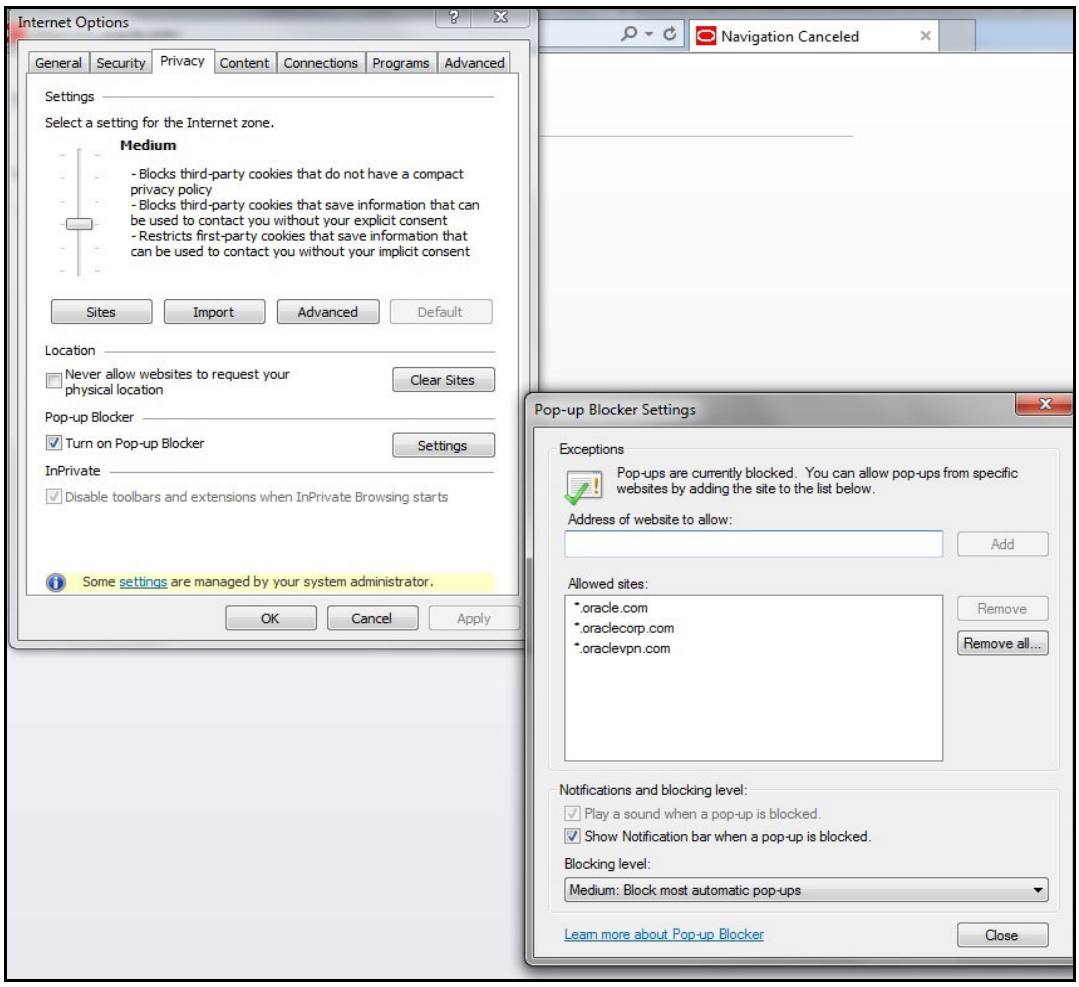
4. In the ***Internet Options*** window, select the **Security** tab and select the **Internet option** under **Select a zone to view or change the security settings**.
5. Click **Default Level** under **Security level for this zone**.

Figure D–2 INTERNET Options-Security tab



6. Click **Apply** to save.
7. In the ***Internet Options*** window, select the **Privacy** tab and select the **Turn on Pop-up Blocker** option under **Pop-up Blocker** settings.

Figure D–3 Internet Options-Popup Blocker Settings



8. Click **Settings**. The ***Pop-up Blocker Settings*** window is displayed.
9. Enter the URL of the OFSAA Application in the **Address of website to allow:** field.
10. Click **Add**. The OFSAA URL is displayed in the **Allowed sites** section.
11. Click **Close.**
12. Click **OK** in the ***Internet Options*** window.

Retrieving Patch Information

To identify the list of patches installed on your OFSAA setup, follow these steps:

1. Log in to the OFSAA application as a user with Object AdminAdvanced Role.
2. Navigate to **Object Administration** tab, expand **Utilities** and click **Patch Information**.
3. The window displays the list of patches installed on the OFSAA setup across Applications/ Platform.

Setting OLAP Data Server Configuration

This section is applicable if you are using the OLAP feature of OFSAAI.

The following parameters must be set to ensure that the system limitations are not exceeded at any stage. The values for these OS parameters should be specified based on the expected load at each implementation site.

For example:

Process Memory Limit

Max Thread Stack Size

Max Number of Threads per Process

- **Sort Buffer settings**: This must be set at the Essbase application level appropriate to the anticipated load.
- **Shutdown and Restart:** During shutdown of OFSAAI Server that has an instance of Data Services that is communicating with an OLAP Data Server, it is imperative to ensure that the cleanup of the old instance is completed on the OLAP Data Server before restarting the OFSAAI Server. Pause for a period of time based on the load the system was subjected to, before restarting the Data Services subsystem.

Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance

For information on this section, see ***OFS Analytical Applications Infrastructure Administration User Guide*** in OTN.

Executing OFSAAI Setup Information Fetching Tool

Executing the `SetupInfo.jar` file available in the `FIC_HOME` path will help you retrieve the related information about the OFSAAI Set up such as Operating System Name and Version, Database Type and Version, OFSAAI architecture, Log file locations and so on.

To execute `SetupInfo.jar` in console, follow these steps:

1. Navigate to the path `$FIC_HOME`.
2. Enter the command:

```
java -jar SetupInfo.jar
```

After execution, the output file location is displayed in the console.

Executing Encryption Changer

For more information on Encryption Changer, see Key Management section in OFSAAI Administration Guide.

Setting Infrastructure LDAP Configuration

For more information on LDAP configuration, see OFSAAI Administration Guide.

Configuring OFSAAI Web Services

Web Services in OFSAAI is meant for exposing a web service to "asynchronously" or "synchronously" execute requested tasks offered by OFSAAI. The following

configuration steps are to be done only if you are using the Web Services feature of OFSAAI.

Configuring `DynamicWSConfig.xml` File

For each third party web service that needs to be accessed using the OFSAAI Web services framework and the operations to be invoked, corresponding entries are to be made in the `DynamicWSConfig.xml` template file.

The variable `<WebServer>` denotes any one of the application server, that is, WebSphere, WebLogic, or Tomcat.

The `DynamicWSConfig.xml` file will be available in the `<OFSAAI Installation Directory>/EXEWebService/ <WebServer>/ROOT/conf` directory. This file can be placed in any directory that is accessible by the application and this location must be specified in the `web.xml file`, as `WSCONFIGFILE` parameter.

The `DynamicWSConfig.xml` template file will be in `<WebServer Deployment Path>/EXEWebService.ear/EXEWebService.war/conf` directory.

This template is as follows:

```
<XML>
<WEBSERVICES>
<WEBSERVICE CODE="$CODE"
ENDPOINT="$ENDPOINT" TARGETNAMESPACE="$TARGETNAMESPACE"
XMLNS_XSD="$XMLNS_XSD" ENCODINGSTYLE="$ENCODINGSTYLE"
SERVICENAME="$SERVICENAME" PORTTYPENAME="$PORTTYPENAME"
SESSION_MAINTAIN_PROPERTY="$SESSION_MAINTAIN_PROPERTY"
USERNAME="$USERNAME"
PASSWORD="$PASSWORD" STYLE="$WEBSERVICESTYLE"
STUBIMPLEMENTATION="$STUBIMPLEMENTATION">
<OPERATION CODE="$CODE"
NAME="$NAME"
SOAPACTION="$SOAPACTION"
STYLE="$STYLE"
PACKAGENAME="$PACKAGENAME">
<INPUT ORDER="$ORDER"
PARAMNAME="$PARAMNAME"
ARGTYPE="$ARGTYPE"
CLASSNAME="$CLASSNAME"/>
<OUTPUT PARAMNAME="$PARAMNAME"
RETURNTYPE="$RETURNTYPE"
CLASSNAME="$CLASSNAME"/>
</OPERATION>
</WEBSERVICE>
```

```
</WEBSERVICES>

</XML>
```

The DynamicWSConfig.xml has the placeholders as shown in the following table. These have to be updated depending on the web service chosen and the mode of accessing it. For each Web service to be accessed, the entire webservice tag in the DynamicWSConfig.xml file must be repeated. The placeholders tabulated as follows should be set in accordance to the parameters published in the third party wsdl files (webservices) to be accessed. The stub class specified must implement the "com.iflex.Oracle Reveleus.execution.webservice.EXEWebIF" interface.

Attributes of WEBSERVICE tag

Table D–1 WEBSERVICE tag Attributes

Placeholder	Description
$CODE	Unique number within the xml file and cannot be 999 or 0.
$ENDPOINT	soap: address location in the wsdl: service name tag of the wsdl file.
$TARGETNAMESPACE	The attribute value for the targetNamespace of the wsdl: definitions tag.
$XMLNS_XSD	The attribute value for the xmlns:s of the wsdl:definitions tag
$ENCODINGSTYLE	The attribute value for the xmlns:soapenc of the wsdl:definitions tag.
$SERVICENAME	Name of the service found under the wsdl:service name tag of the wsdl file.
$PORTTYPENAME	wsdl port type name as mentioned in the wsdl file.
$SESSION_MAINTAIN_PROPERTY	This could be given as "" also.
$USERNAME	User name to access the web services. Enter "" if no user name is required.
$PASSWORD	Password to access the web services. Enter "" if no password is required.
$WEBSERVICESTYLE	This can take either "rpc" in case of DII mode of invoking web services or "stub" in case of static mode. This is a mandatory parameter.
$STUBIMPLEMENTATION	Fully qualified class name (package name.classname).

Attributes of OPERATION tag

Ensure that the OPERATION tag attributes are repeated for each of the OPERATION tags.

Table D–2 OPERATION tag Attributes

Placeholder	Description
$CODE	Should be unique within the Webservice tag.
$NAME	The name of the Function that is to be called by the wsdl file.
$SOAPACTION	The URL for the Operation to access. This is associated with the Operation tag of the wsdl file.

Table D–2 (Cont.) OPERATION tag Attributes

Placeholder	Description
$STYLE	This can take "rpc" if the web services invoking is in DII mode or "stub" if it is in static mode. This is a mandatory parameter.
$PACKAGENAME	Represents the JAXB package of input object.

Attributes of INPUT tag

Table D–3 INPUT tag Attributes

Placeholder	Description
$ORDER	The sequential number of the INPUT tag. Should start from 0. This is in line with the input order of the arguments that the API accepts which is called by this operation.
$PARAMNAME	Input parameter name to be called by the wsdl file.
$ARGTYPE	Input Parameter Data Type. If the input argument type is complex object, specify $ARGTYPE as "xmlstring".
$CLASSNAME	Represents class name of input object parameter.

Attributes of OUTPUT tag

Table D–4 OUTPUT tag Attributes

Placeholder	Description
$PARAMNAME	Output parameter name to be returned by the web service.
$RETURNTYPE	Output parameter Data Type. If the web service response is a complex object, then specify $RETURNTYPE as "object".
$CLASSNAME	Represents class name of output object parameter.

Adding web.xml Entries

1. This step is optional and required only if the web application server used is Tomcat. In case of any other application server, skip and proceed with next step.

   Navigate to $FIC_HOME/webroot/WEB-INF/ and edit the web.xml file. Set parameter value DOCSERVICEAPP to EXEWebServiceAXIS.

2. Navigate to <OFSAAI Installation Directory>/EXEWebService/<WebServer>/ROOT/WEB-INF/ and edit the web.xml file as follows:

Note: In case of Java 7 when WebLogic is used as web application server, replace following line of <OFSAAI Installation Directory>/EXEWebService/Weblogic/ROOT/WEB-INF/web.xml file

```
<?xml version='1.0' encoding='UTF-8'?>
<web-app id="WebApp_ID" version="3.0"
xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd"
metadata-complete="true">
```

with

```
<?xml version='1.0' encoding='UTF-8'?>
<web-app xmlns="http://java.sun.com/xml/ns/j2ee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
```

Configuring WSConfig File

The WSCONFIG file (DynamicWSConfig.xml) is available in the <WebServer Deployment Path>/ EXEWebService.ear/EXEWebService.war/conf directory. This file can be placed in any directory that is accessible by the application.

The path where the WSCONFIG file is placed must be specified in place of $WSCONFIGFILELOCATION$in the following block of text in web.xml.

```
<context-param>
<description>WebServices Configuration File</description>
<param-name>WSCONFIGFILE</param-name>
<param-value>$WSCONFIGFILELOCATION$</param-value>
<!--Specify the Location of DynamicWSConFig.xml-->
</context-param>
```

Configuring Proxy Settings

Replace the following <param-value> given in bold in the following block of text in web.xml file, with appropriate values.

If no values are required, leave the <param-value> blank.

```
<context-param>
   <description>http Proxy Host</description>
   <param-name>http.proxyHost</param-name>
   <param-value>$PROXYHOST$</param-value>
   <!-- Specify the IP address or hostname of the http proxy server-->
</context-param>
<context-param>
   <description>http Proxy Port</description>
```

```
    <param-name>http.proxyPort</param-name>
    <param-value>$PROXYPORT$</param-value>
    <!--Port Number for the Proxy Server-->
</context-param>
<context-param>
    <description>http proxy UserName</description>
    <param-name>http.proxyUserName</param-name>
    <param-value>$PROXYUSERNAME$</param-value>
    <!-- User ID To get authenticated by proxy server-->
</context-param>
<context-param>
    <description>http proxy Password</description>
    <param-name>http.proxyPassword</param-name>
    <param-value>$PROXYPASSWORD$</param-value>
    <!-- User Password To get authenticated by proxy server-->
</context-param>
<context-param>
    <description>http non-ProxyHosts</description>
    <param-name>http.nonProxyHosts</param-name>
    <param-value>$NONPROXYHOST$</param-value>
    <!--Hosts for which the proxy settings should get by-passed (Note:
    Separate them by "|" symbol) -->
</context-param>
```

Configuring OFSAAI Home Entry

This entry should point to the Application layer / Web layer of the OFSAAI installation and should be accessible.

Replace `$FIC_HOME$` in the following block of text in `web.xml` with `<WebServer Deployment Path>/EXEWebService.ear/EXEWebService.war`.

```
<context-param>
    <description>OFSAAI Web Home</description>
    <param-name>FIC_HOME</param-name>
    <param-value>$FIC_HOME$</param-value>
    <!--OFSAAI Installation Folder-->
</context-param>
<context-param>
    <description>OFSAAI Web Home</description>
    <param-name>FIC_PHYSICAL_HOME</param-name>
    <param-value>$FIC_HOME$</param-value>
```

```
    <!--OFSAAI Installation Folder-->
</context-param>
```

Configuring DynamicWSConfig.xml File

For each third party web service that needs to be accessed using the OFSAAI Web services framework, and the operation to be invoked, make corresponding entries into this file. This file is to be placed in the location that is specified in the `web.xml`, as `WSCONFIGFILE` parameter.

Deploying OFSAAI Web Services

You can deploy OFSAAI Web Services separately if you had not configured OFSAAI Web Services as part of the installation.

1. Complete the manual configuration of OFSAAI Web Services.
2. Navigate to `<OFSAAI Installation Directory>/EXEWebService/<WebServer>` and execute the command:

   `./ant.sh`

   This will trigger the EAR/WAR file creation, which is required for the deployment.
3. Deploy the generated `EXEWebService.EAR/EXEWebService.WAR` file into the WebServer.

If you have already configured OFSAAI Web Services as part of the installation, deploy the generated `EXEWebService.EAR/ EXEWebService.WAR` file into the OFSAAI Deployment area in WebServer profile.

Enabling Parallel Execution of DML statements

A configuration file, `OracleDB.conf` has been introduced to accommodate any configurable parameter related to operations on oracle database. If you do not want to set a parameter to a specific value, then the respective parameter entry can be removed/commented off form the `OracleDB.conf` file that resides in the path `$FIC_DB_HOME/conf`.

As of now, the `OracleDB.conf` file has only one parameter namely `CNF_DEGREE_OF_PARALLELISM`. This parameter indicates the degree of parallelism to be used for a DML operation if parallel DML is explicitly enabled in the session with the ENABLE PARALLEL DML clause of the ALTER SESSION statement. The default mode of a session is DISABLE PARALLEL DML. If CNF_DEGREE_OF_PARALLELISM is not set, then the default degree, as decided by Oracle will be used.

Configuring Message Details in Forms Designer

You can configure the Message Details in Forms Designer under Data Entry Forms and Queries module by updating the details of mail server in the `NotificationConfig.cfg` file that resides in the path `$FIC_APP_HOME/common/FICServer/conf`.

Ensure that the "authorized User details" for whom you need to configure the Message details are included in ***Administration > Security Management > User Administrator > User Maintenance*** window.

Update the following parameters in the "NotificationConfig.cfg" file:

Table D–5 NotificationConfig.cfg File Attributes

Parameter	Description
SMTP_SERVER_IP	Specify the hostname or IP address of SMTP Server.
SMTP_DEBUG_MODE	To run SMTP service in Debug mode, set value to 'true', otherwise set value to 'false'.
SMTP_AUTHORIZATION	Set to 'true' if SMTP server requires the client to be authenticated, otherwise set to 'false'.
SMTP_USERNAME	Username required for logging into SMTP server, if authentication is not required use a dummy value.
SMTP_PASSWORD	Password required for logging into SMTP server, if authentication is not required use a dummy value.
SMTP_MAILID	If the Messages has to go from a Particular ID that ID need to be added. Exchange server forces you set a valid ID that is there in the exchange server. (Based on Security settings)

Clearing Application Cache

This is applicable to all Web Servers (that is, WebSphere, WebLogic, and Tomcat).

Prior to the deployment of Infrastructure or Application Service Packs / One-off patches, navigate to the following path depending on the WebServer configured and clear the cache:

- **Tomcat**: <Tomcat installation folder>/work/Catalina/localhost/<Application name>/org/apache/jsp
- **WebLogic**: <Weblogic installation location>/domains/<Domain name>/servers/<Server name>/tmp/_WL_user/<Application name>/qaelce/jsp_servlet
- **WebSphere**: <Websphere installation directory>/AppServer/profiles/<Profile name>/temp/<Node name>/server1/<Application name>/<.war file name>

Configuring Password Changes

This section explains about how to modify the OFSAA Infrastructure Config Schema and Atomic Schema passwords.

Modifying OFSAA Infrastructure Config Schema Password

To change the Config Schema password, perform the following steps:

1. Change the Config schema User Password in the database.
2. Delete the $FIC_HOME/conf/Reveleus.SEC file.
3. Shutdown the OFSAAI App service:

   ```
   cd $FIC_APP_HOME/common/FICServer/bin
   ./stopofsaai.sh
   ```

4. Start the Infrastructure Server in foreground directly on the server or through X-Windows software using the command:

   ```
   ./startofsaai.sh
   ```

5. At the prompt, enter System Password. Enter the "new Config schema" password. The service will start and initialize itself if it is able to successfully connect to the DB.
6. If you are using Apache Tomcat as Web server, update the `<Context> -> Resource` tag details in `Server.xml` file from the `$CATALINA_HOME/conf` directory. For Tomcat, both Config Schema (FICMASTER resource) and Atomic Schema (<INFODOM_NAME> resource) exist.

   If you are using WebSphere as Web server:

   a. Login to the WebSphere Administration Console, from the left side menu.
   b. Navigate to ***Resources >JDBC >Data Sources***. A list of data sources will be populated on the right side.
   c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources will need to be modified).

   If you are using WebLogic as Web server:

   a. Login to the WebLogic Administration Console, from the left side menu
   b. Under Domain Structure list box, expand the appropriate Domain and navigate to ***Services > JDBC >Data Sources***. A list of data sources will be populated on the right side.
   c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
7. Post successful startup of the service, if required, the Infrastructure server may be shut down and restarted in the background using nohup mode.

Modifying OFSAA Infrastructure Atomic Schema Password

To change the Atomic Schema password, perform the following steps:

1. Change the Atomic schema User Password in the database.
2. Login to the application from the browser using SYSADMN account or any user id, which has System Administrator role mapped.
3. Navigate to ***System Configuration > Database Details*** window. Modify the password as explained in the following steps:

   a. From the ***Database Master*** window, select the connection whose password you want to modify and click button from the toolbar.
   a. Click button corresponding to the **Alias Name**. The ***Alias Details*** window is displayed.
   b. Modify the password in the **Auth String** field.
4. If you are using Apache Tomcat as Web server, update the `<Context> -> Resource` tag details in `Server.xml` file from the `$CATALINA_HOME/conf` directory. For Tomcat, both Config Schema (FICMASTER resource) and Atomic Schema (<INFODOM_NAME> resource) exist.

   If you are using WebSphere as Web server:

   a. Login to the WebSphere Administration Console, from the left side menu.
   b. Navigate to ***Resources >JDBC >Data Sources***. A list of data sources will be populated on the right side.

c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources will need to be modified).

If you are using WebLogic as Web server:

a. Login to the WebLogic Administration Console, from the left side menu

b. Under ***Domain Structure*** list box, expand the appropriate Domain and navigate to ***Services > JDBC >Data Sources***. A list of data sources will be populated on the right side.

c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).

5. Restart the OFSAAI services.

Configuring Java Virtual Machine

While running several database intensive tasks in parallel, fetching the database connection from connection pool may face an error. To ensure no such error is encountered, add the line `securerandom.source=file:/dev/./urandom` in the **`java.security`** configuration file available in `$JAVA_HOME/jre/lib/security/ path`.

This needs to be configured on all the machines or virtual machines where the OFSAAI database components (ficdb layer) are installed.

Configuring Internal Service (Document Upload/ Download)

This step can be ignored if it has already been configured as part of any previous IR /ML installation.

The Document Upload /Download feature has undergone a change and can now be configured to use Internal service for document upload / download instead of the earlier ExeWebService.

To facilitate Internal service for document upload/ download, perform the following configurations:

1. Create the folders **download**, **upload**, **TempDocument** and **Temp** in the local path of Web application server and provide **Read/Write** permission.
   - To find the exact location, execute the following query in CONFIG schema:

     ```
     select localpath from web_server_info
     ```

   - To create folders with Read/Write permission, execute the command:

     ```
     mkdir -m 777 download upload TempDocument Temp
     ```

2. Create **DocStorage** folder in the FTPSHARE location of APP tier and provide **Read/Write** permission.
   - To find the exact location, execute the query in CONFIG schema:

     ```
     select ftpdrive from app_server_info
     ```

   - To create folder with Read/Write permission, execute the command:

     ```
     mkdir -m 777 DocStorage
     ```

E

Grants for Atomic/ Config Schema

This section mentions about the various grants required for the CONFIG, ATOMIC schemas.

This section discusses the following sections:

- Configuring Grants for Atomic Schema
- Configuring Grants for Config Schema
- Configuring Grants for Config Schema Entities for Atomic Users

Configuring Grants for Atomic Schema

Atomic Schema creation requires certain grants for object creation. This can be located in `$FIC_HOME/privileges_atomic_user.sql file`.

The following are the Grants for Atomic Schema:

```
grant create SESSION to &database_username
/
grant create PROCEDURE to &database_username
/
grant create SEQUENCE to &database_username
/
grant create TABLE to &database_username
/
grant create TRIGGER to &database_username
/
grant create VIEW to &database_username
/
grant create MATERIALIZED VIEW to &database_username
/
grant select on SYS.V_$PARAMETER to &database_username
/
grant create SYNONYM to &database_username
/
```

Note: If you intend to use Oracle OLAP feature, execute the following grant on all ATOMIC schema (s):

```
grant olap_user to &database_username
```

Configuring Grants for Config Schema

Config Schema creation requires certain grants for object creation. This can be located in `$FIC_HOME/privileges_config_user.sql` file.

The following are the Grants for Config Schema:

```
grant create SESSION to &database_username
/
grant create PROCEDURE to &database_username
/
grant create SEQUENCE to &database_username
/
grant create TABLE to &database_username
/
grant create TRIGGER to &database_username
/
grant create VIEW to &database_username
/
grant create MATERIALIZED VIEW to &database_username
/
grant select on SYS.V_$PARAMETER to &database_username
/
grant create SYNONYM to &database_username
/
```

F

Configuring Application Pack XML Files

This section explains configuration of <<App Pack>>_PACK.xml and <<App_ Pack>>_SCHEMA_IN.xml files.

This section includes the following topics:

Configuring <<APP Pack>>_PACK.xml File

The `<<APP PACK>>_PACK.xml` file holds details on the various OFSAA products that are packaged in a particular Application Pack.

The following table gives details about the various tags/ parameters available in the file and the values that need to be updated. Prior to installing the OFSAA Application Pack in SILENT mode, it is mandatory to update this file.

Table F–1 <<APP PACK>>_PACK.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
APP_PACK_ID	Unique Application Pack Identifier	Y	Unique Seeded Value	DO NOT modify this value.
APP_PACK_ NAME	Unique Application Pack Name	Y	Unique Seeded Value	DO NOT modify this value.
APP_PACK_ DESCRIPTION	Unique Application Pack Description	Y	Unique Seeded Value	DO NOT modify this value.
VERSION	Unique release version	Y	Unique Seeded Value	DO NOT modify this value.
APP	Unique Application Entries	Y	Unique Seeded Value	DO NOT remove these tags.
APP_ID	Unique Application Identifier	Y	Unique Seeded Value	DO NOT modify this value.

Table F–1 <<APP PACK>>_PACK.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
APP_ID/ PREREQ	Prerequisite Application/ Product	Y	Unique Seeded Value	For most applications Infrastructure would be the prerequisite set. For certain other applications, an appropriate Application ID would be set. DO NOT modify this value.
APP_ID/ DEF_ SEL_FLAG	Default Selected Flag	Y	Default - YES	In all Application Packs, Infrastructure would have this value set to "YES". DO NOT modify this value.
APP_ID/ ENABLE	Enable Application/ Product	YES if installing in SILENT mode.	Default - YES for Infrastructure NO for Others Permissible - YES or NO	Set this attribute-value to YES against every APP_ ID which is licensed and should be enabled for use. Note: Application/ Product once enabled cannot be disabled. However, Application/ Product not enabled during installation can be enabled later through the Administration UI.
APP_NAME	Unique Application/ Product Name	Y	Unique Seeded Value	DO NOT modify this value.
APP_ DESCRIPTION	Unique Application/ Product Name	Y	Unique Seeded Value	DO NOT modify this value.
VERSION	Unique release version	Y	Unique Seeded Value	DO NOT modify this value.

Configuring <<APP Pack>>_SCHEMA_IN.xml File

Creating database schemas, objects within schemas and assigning appropriate grants are the primary steps in the installation process of OFSAA Applications. The `<<APP PACK>>_SCHEMA_IN.xml` file contains details on the various application schemas that should be created prior to the Application Pack installation.

The following table gives details about the various tags/ parameters available in the file and the values that need to be updated. Prior to executing the schema creator utility, it is mandatory to update this file.

Table F–2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<APP_PACK_ ID>	Seeded unique ID for the OFSAA Application Pack	Y	Seeded	DO NOT modify this value.
<JDBC_URL>	Enter the JDBC URL **Note**: You can enter RAC/ NON-RAC enabled database connectivity URL.	Y	Example, jdbc:oracle:thin:@<DBSERVER IP/HOST>:<PORT>:<SID> or jdbc:oracle:thin:@//[HOST][:PORT]/SERVICE or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(port=[PORT]))(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(PORT=[PORT]))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=[SERVICE]))) For example, jdbc:oracle:thin:@//dbhost.server.com:1521/service1 or jdbc:oracle:thin:@//dbshost.server.com:1521/scan-1 or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost1.server.com)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost2.server.com)(PORT=1521))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=service1)))	Ensure to add an entry (with SID/ SERVICE NAME) in the tnsnames.ora file on the OFSAA server. The entry should match with the SID/ SERVICE NAME used in the JDBC URL.
<JDBC_ DRIVER>	By default this driver name is seeded. **Note**: Do not edit this attribute value.	Y	Example, oracle.jdbc.driver.OracleDriver	Only JDBC Thin Driver is supported. DO NOT modify this value.
<HOST>	Enter the Hostname/ IP Address of the system on which you are installing the OFSAA components.	Y	Host Name/ IP Address	

Table F–2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SETUPINFO>/ PREFIX_ SCHEMA_ NAME	Identifies if the value specified in <SETUPINFO>/ NAME attribute should be prefixed to the schema name.	N	YES or NO	Default value is YES.
<SETUPINFO>/ NAME	Enter the acronym for the type of implementation. This information will be displayed in the OFSAA Home Page. **Note:** On executing the schema creator utility, this value will be prefixed with each schema name. For example: dev_ ofsaaconf, uat_ofsaaatm.	Y	Accepts strings with a minimum length of two and maximum of four. Example, DEV, SIT, PROD	This name would appear in the OFSAA Landing Page as "Connected To: xxxx" The schemas being created would get this prefix. For E.g. dev_ ofsaaconf, uat_ofsaaconf etc.
<PASSWORD>/ DEFAULT*	Enter the password if you want to set a default password for all schemas. **Note:** You also need to set APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	
<PASSWORD>/ APPLYSAMEFORALL	Enter as Y if you want to apply the password specified in DEFAULT attribute for all the schemas. If you enter as N, you need to provide individual passwords for all schemas. **Note:** In case you have entered Y in APPLYSAMEFORALL attribute and also have specified individual passwords for all the schemas, then the specified individual passwords will take precedence.	Y	Default - N Permissible - Y or N	Note: Setting this attribute value is mandatory, If DEFAULT attribute is set.

Table F–2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ TYPE	The different types of schemas that are supported in this release are ATOMIC, CONFIG, SANDBOX, and ADDON. By default, the schemas types are seeded based on the Application Pack. **Note:** Do not edit this attribute value.	Y	ATOMIC/CONFIG/SANDBOX/ADDON Note: SANDBOX AND ADDON schemas are not applicable for OFS ALM Application Pack.	Only One CONFIG schema can exist in the file. This schema identifies as the CONFIGURATION schema that holds the OFSAA setup details and other metadata information. Multiple ATOMIC/ SANDBOX/ ADDON schemas can exist in the file. ATOMIC schema refers to the Information Domain schema. SANDBOX schema refers to the SANDBOX schema. ADDON schema refers to other miscellaneous schema (not applicable for this Application Pack).
<SCHEMA>/ NAME	By default, the schemas names are seeded based on the Application Pack. You can edit the schema names if required. **Note:** The Schema Name will have a prefix of the SETUPINFO/ NAME attribute. SCHEMA NAME must be same for all the ATOMIC Schemas of applications within an Application Pack.	Y	The permissible length is 15 characters and only alphanumeric characters allowed. No special characters allowed except underscore '_'.	SETUPINFO/ NAME attribute value would be prefixed to the schema name being created. For E.g. if name is set as 'ofsaaatm' and setupinfo as 'uat' then schema being created would be 'uat_ ofsaaatm'. NAME should be same where APP_GRP=1 for all SCHEMA tags (Not applicable for this Application Pack).
<SCHEMA>/ PASSWORD	Enter the password of the schema to be created. **Note:** If this attribute is left blank, then the password specified in the <PASSWORD>/DEFAULT attribute is applied as the Schema Password.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	Note: You need to mandatorily enter the password if you have set the <PASSWORD>/ APPLYSAMEFORALL attribute as N.
<SCHEMA>/ APP_ID	By default, the Application ID is seeded based on the Application Pack. **Note:** Do not edit this attribute value.	Y	Unique Seeded Value	Identifies the Application/ Product for which the schema is being created. DO NOT modify this value.

Table F–2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ DEFAULTTABLESPACE	Enter the available default tablespace for DB User. **Note:** If this attribute is left blank, then USERS is set as the default tablespace.	N	Default - USERS Permissible - Any existing valid tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ TEMPTABLESPACE	Enter the available temporary tablespace for the DB User. Note: If this attribute is left blank, then TEMP is set as the default tablespace.	N	Default - TEMP Permissible - Any existing valid temporary tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ QUOTA	Enter the quota to be set on DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace	N	Example, 600M/m 20G/g UNLIMITED/unlimited	Modify this value to grant the specified quota on the mentioned tablespace to the user.
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute.	N	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed.	
<ADV_SEC_ OPTIONS>/	Parent tag to hold Advance Security Options.	N		Uncomment the tag and edit if you want to add security options. For example, TDE and Data Redact. For details, see the example following the table.
<ADV_SEC_ OPTIONS>/TDE	Tag to enable/disable TDE.	N	Default is FALSE. To enable TDE, set this to TRUE.	Ensure this tag is not commented if you have uncommented <ADV_ SEC_OPTIONS>
<ADV_SEC_ OPTIONS>/ DATA_ REDACT	Tag to enable/disable Data Redaction feature.	N	Default is FALSE. To enable DATA_REDACT, set this to TRUE	Ensure this tag is not commented if you have uncommented <ADV_ SEC_OPTIONS>

Table F–2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<TABLESPACES>	Parent tag to hold <TABLESPACE> elements	N	NA	Uncomment the tag and edit. ONLY if tablespaces are to be created as part of the installation. For details, see the example following the table. Note: When TDE is TRUE in ADV_SEC_OPTIONS, then it is mandatory for the <TABLESPACES> tag to be present in the xml file.
<TABLESPACE>/ NAME	Logical Name of tablespace to be created.	Y		Name if specified should be referred in the <SCHEMA DEFAULTTABLESPACE= "##NAME##"> attribute. Note the ## syntax.
<TABLESPACE>/ VALUE	Physical Name of the tablespace to be created	Y	NA	Value if specified will be the actual name of the TABLESPACE.
<TABLESPACE>/ DATAFILE	Specifies the location of the data file on the server	Y	NA	Enter the absolute path of the file to be created.
<TABLESPACE>/ AUTOEXTEND	Specifies if the tablespace should be extensible or have a hard limit	Y	ON or OFF	Set to ON to ensure that the tablespace does not run out of space when full.
<TABLESPACE>/ ENCRYPT	Specifies if the tablespace(s) should be encrypted using TDE.	Y	ON or OFF	Set to ON to ensure that the tablespaces when created are encrypted using TDE.

Note: Encryption of tablespaces requires to enabling Transparent Data Encryption (TDE) on the Database Server.

Example: (The following snippet shows that TDE is enabled and hence the tablespace has been shown with encryption ON.)

```
<ADV_SEC_OPTIONS>

<OPTION NAME="TDE" VALUE="TRUE"/>

<OPTION NAME="DATA_REDACT" VALUE="FALSE" />

</ADV_SEC_OPTIONS>

<TABLESPACES>

<TABLESPACE NAME="OFS_AAI_TBSP_1" VALUE="TS_USERS1"
DATAFILE="<HOME_
DIR>/ora12c/app/oracle/oradata/OFSPQA12CDB/ts_users1.dbf"
SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />

<TABLESPACE NAME="OFS_AAI_TBSP_2" VALUE="TS_USERS2"
DATAFILE="<HOME_
DIR>/ora12c/app/oracle/oradata/OFSPQA12CDB/ts_users2.dbf"
SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />

</TABLESPACES>

<SCHEMAS>

<SCHEMA TYPE="CONFIG" NAME="ofsaaconf" PASSWORD=""
APP_ID="OFS_AAI" DEFAULTTABLESPACE="##OFS_AAI_TBSP_
1##" TEMPTABLESPACE="TEMP" QUOTA="unlimited"/>

<SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD=""
APP_ID="OFS_AAAI" DEFAULTTABLESPACE="##OFS_AAI_TBSP_
2##" TEMPTABLESPACE="TEMP" QUOTA="unlimited"
INFODOM="OFSAAAIINFO"/>

</SCHEMAS>
```

G

OBIEE Upgrade

Repository and Catalog upgrade Steps

Repository Upgrade

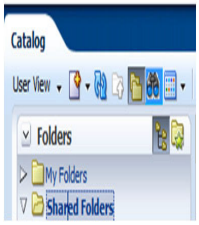
- Install OBIEE Client version 11.1.1.9.0 onto your desktop
- Open the 11.1.1.7.1 repository in the OBIEE Administration client version 11.1.1.9.0
- Run a consistency check (to check if any errors/warnings)
- Save the repository

The above steps will auto-update the repository to 11.1.1.9 version

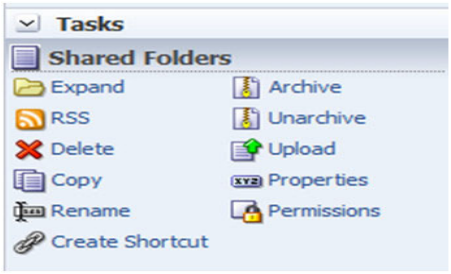
Catalog Upgrade

Unarchive the catalog folders provided as part of Code drop

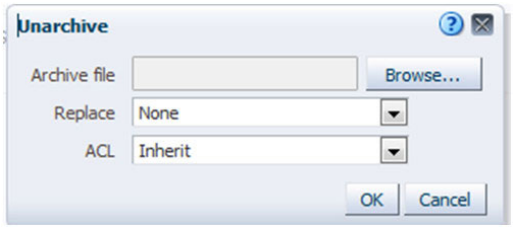
1. Open the presentation services link for OBIEE setup version 11.1.1.9.0
2. Click on "Catalog" link [top right side]
3. Click on "Shared Folders", in the left side pane



4. Click on "Unarchive" option provided at the bottom of same left pane



5. Provide the catalog path in the pop up window. Do not change the other options[unless required. Details on options(Replace and ACL) are provided below], and click on OK.



Replace

It is used to specify if and how to replace an existing folder or object with the same name. Following options are available:

All — Select this option to replace any existing folders or objects with the same names as folders or objects included in the archive file that you are uploading.

Old — Select this option to replace folders or objects except those folders or objects that exist, unless they are older than the source.

None — Select this option to add any new folders or objects, but preserve any existing folders or objects.

Force — Select this option to add and replace all folders or objects.

ACL

It is used to specify how the folders or objects are assigned permissions using Access Control Lists (ACLs) when unarchived. Following options are available:

Inherit — Inherits the folder or object's permissions (ACL) from its new parent folder.

Preserve — Preserves the folder or object's permissions (ACL) as it was in the original, mapping accounts as necessary.

Create — Preserves the folder or object's permissions (ACL) as it was in the original, creating and mapping accounts as necessary.

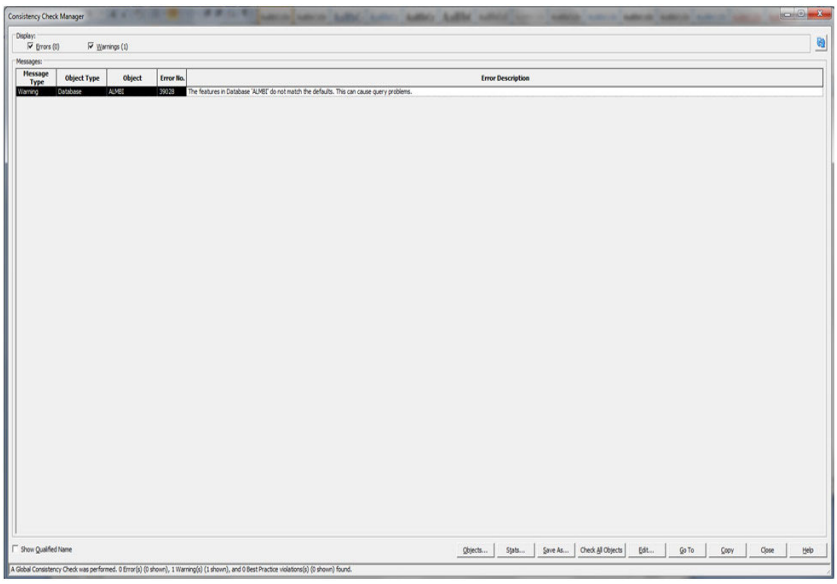
This will unarchive the catalog folder under “Shared Folders”/”shared” folder. Repeat the steps, incase of multiple catalog folders if needed to be copied.

Note: All the catalog folders should be under “Shared Folders”/”shared”

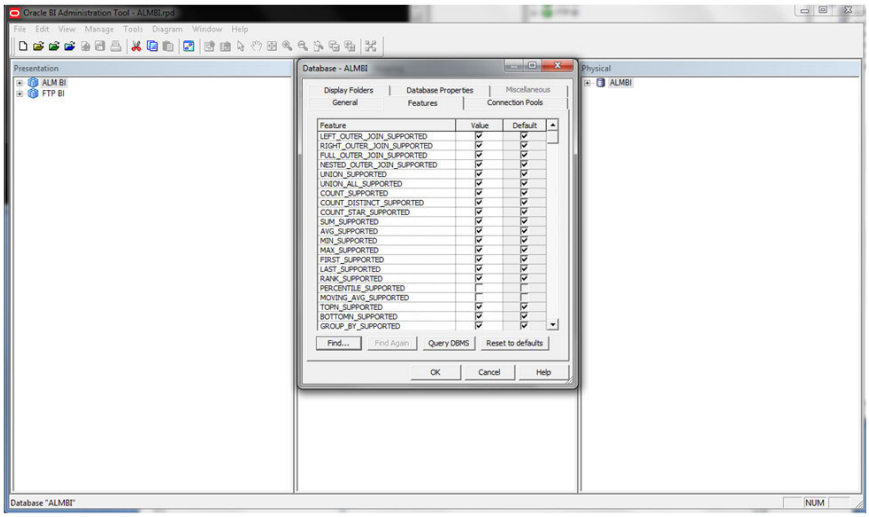
The dashboards will now be accessible in OBIEE ver 11.1.1.9

Post RPD Upgrade Steps

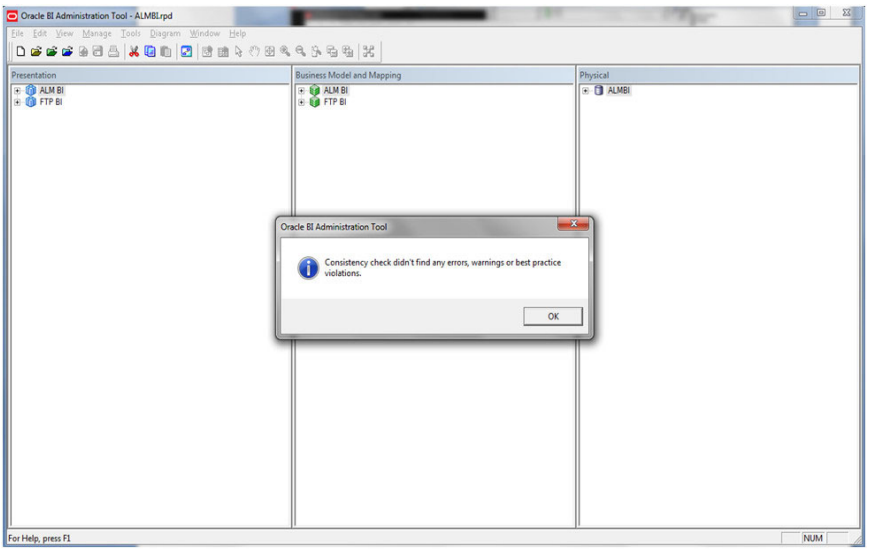
1. Check Global Consistency, that is, click Ctrl+k
2. Click on the below warning.



3. Click on Reset for default values and then click OK.



4. Save the RPD.
5. Check for Global Consistency. There should not be any warning.


Oracle BI Administration Tool - ALMBI.rpd
File Edit View Manage Tools Diagram Window Help
Presentation
ALM BI
FTP BI
Business Model and Mapping
ALM BI
FTP BI
Physical
ALMBI
Oracle BI Administration Tool
Consistency check didn't find any errors, warnings or best practice violations.
OK
For Help, press F1
NUM

H

Migrating Excel Upload Functionality

This section provides detailed instructions to migrate excel upload functionality.

Prerequisites

The following are the prerequisites for migration.

- Data model in ATOMIC schemas should be same on the source and target setups.
- OFS AAI (platform) patch level version should be same on the source and target setups.
- PL/SQL Developer to connect and query the database.
- WinSCP to connect and access server file system.

Migrating Excel Upload

To migrate, follow these steps:

1. Open PL/SQL Developer and logon to the source setup's configuration (CONFIG) schema by entering the appropriate username and password.
2. In a new SQL window, query the data of table `EXCEL_MAPPING_MASTER`.
3. Open a new session in PL/SQL developer and logon to the target setup's configuration (CONFIG) schema by entering the appropriate username and password.
4. Insert the records from Step 1 in to this table.
5. In `V_INFODOM` column of `EXCEL_MAPPING_MASTER` table, update the infodom name with the target infodom name.

   Note: If all the mappings can work out of the single target Infodom, update same Infodom value across all rows. If only few mappings will work out of the target infodom, update the infodom value for selective records. Excel upload mappings will work only if the target infodom has same data model entities as used in the mappings defined on source setup.

6. Update `V_CREATED_BY` column with the name of any user present in the target setup that has appropriate roles to perform Excel Upload tasks.

Note: It is mandatory to update values for V_INFODOM and V_CREATED_BY columns.

7. Open WinSCP and login a new session by entering the host name, port number, user name and password to access the source setup.
8. Navigate to the folder referred as FTPSHARE.
9. Copy the excel-entity mapping xml file(s) which are located in this folder according to their folder structure on to your desktop. For example: /ftpshare /STAGE/ExcelUpload/$SOURCE_INFODOM_NAME/$EXCEL_FILE_NAME.xml

Note: Actual file name of Excel Sheet is mentioned in the V_EXCEL_NAME column of EXCEL_MAPPING_MASTER table.

10. Copy the excel templates (.xls/ .xlsx) file(s) which are located in this folder according to their folder structure on to your desktop. For example: /ftpshare/STAGE/ExcelUpload/TEMPLATE/*.xls or *.xlsx

Note: .xls/.xlsx files should be copied to the path as per the local path given in your webserverinfo table of config schema. Ignore this step if files are not present at the location.

11. Log into a new session in WinSCP by entering the host name, port number, user name and password to access the target setup.
12. Copy the XML file(s) from Step 3 to the following location in the target setup. For example: /ftpshare/STAGE/ExcelUpload/$TARGET_INFODOM_NAME/$EXCEL_FILE_NAME.xml.

Note: $TARGET_INFODOM_NAME should be target setup infodom in which you have uploaded the appropriate data model and the name should be same as the V_INFODOM column value updated in EXCEL_MAPPING_MASTER table.

13. Copy the xls/ xlsx file(s) from Step 3 to the following location in target setup. For example: /ftpshare/STAGE/ExcelUpload/TEMPLATE/*.xls or *.xlsx.

Note: Ignore this step if files are not present at the location.

Configuring OFSAAI_InstallConfig.xml File

This section gives details about the OFSAAI_InstallConfig.xml file.

Configuring OFSAAI_InstallConfig.xml file

To configure the OFSAAI_InstallConfig.xml file, follow these steps.

1. Navigate to OFS_ALM_PACK/OFS_AAI/conf/ directory.
2. Open the file OFSAAI_InstallConfig.xml in text editor.
3. Configure the OFSAAI_InstallConfig.xml as mentioned in the below Table.

   You must manually set the InteractionVariable parameter values as mentioned in the table. If a value is not applicable, enter NA and ensure that the value is not entered as NULL.

Table I–1 OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
<Layer name="GENERAL">		
InteractionGroup name="WebServerType"		
WEBAPPSERVERTYPE	Identifies the web application server on which the OFSAA Infrastructure web components would be deployed. The following numeric value should be set depending on the type: • Apache Tomcat = 1 • IBM WebSphere Application Server = 2 • Oracle WebLogic Server = 3 For example, <InteractionVariable name="WEBAPPSERVERTYPE">3</InteractionVariable>	Yes
InteractionGroup name="OFSAA Infrastructure Server Details"		
DBSERVER_IP	Identifies the hostname or IP address of the system on which the Database Engine is hosted. **Note**: For RAC Database, the value should be NA. For example, <InteractionVariable name="DBSERVER_IP">14.15.16.17</InteractionVariable> or <InteractionVariable name="DBSERVER_IP">dbhost.server.com</InteractionVariable>	Yes
InteractionGroup name="Database Details"		

Table I–1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
ORACLE_ SID/SERVICE_ NAME	Identifies the Oracle DB Instance SID or SERVICE_NAME **Note**: The Oracle_SID value should be exactly the same as it is mentioned in JDBC_URL. For example, `<InteractionVariable name="ORACLE_SID/SERVICE_ NAME">ofsaser</InteractionVariable>`	Yes
ABS_DRIVER_PATH	Identifies the directory where the JDBC driver (`ojdbc<version>.jar`) exists. This would typically be the `$ORACLE_HOME/jdbc/lib` For example, `<InteractionVariable name="ABS_DRIVER_ PATH">">/oradata6/revwb7/oracle </InteractionVariable>` **Note**: Refer Appendix O for identifying the correct "ojdbc<version>.jar" version to be copied.	Yes
InteractionGroup name="OLAP Detail"		
OLAP_SERVER_ IMPLEMENTATION	Identifies if the OFSAA Infrastructure OLAP component needs to be configured depending on whether you intend to use the OLAP feature. The following numeric value should be set depending on the choice: • YES - 1 • NO - 0	No
Note: If value for `OLAP_SERVER_IMPLEMENTATION` is set to **1**, it checks for following environment variables are set in.profile: `ARBORPATH, HYPERION_HOME` and `ESSBASEPATH`.		
InteractionGroup name="SFTP Details"		
SFTP_ENABLE	Identifies if the SFTP (Secure File Transfer Protocol) feature is to be enabled. The following numeric value should be set depending on the choice: • For SFTP -1. • For FTP - 0	Yes
Note:The default value for SFTP_ENABLE is 1, which signifies that SFTP will be used. Oracle recommends using SFTP instead of FTP because SFTP is considered more secure. However, a client may choose to ignore this recommendation and to use FTP by setting SFTP_ENABLE to 0. You can change this selection later by using the OFSAAI administration interface. Set SFTP_ENABLE to -1 to configure ftpshare and weblocal path as local path mounted for OFSAAI server.		
FILE_TRANSFER_PORT	Identifies the port used for the file transfer service. The default value specified is 22 (SFTP). Specify default value as 21 (FTP) if SFTP_ENABLE is 0. Alternatively, this value can be any Port configured by System Administrators to support SFTP/FTP. For example, `<InteractionVariable name="FILE_TRANSFER_ PORT">21</InteractionVariable>`	Yes
InteractionGroup name="Locale Detail"		
LOCALE	Identifies the locale information to be used during the installation. This release of the OFSAA Infrastructure supports only US English. For example, `<InteractionVariable name="LOCALE">en_ US</InteractionVariable>`	Yes
InteractionGroup name="OFSAA Infrastructure Communicating ports" **Note:** The following ports are used internally by the various OFSAA Infrastructure services. The default values mentioned are set in the installation. If you intend to specify a different value, update the parameter value accordingly and ensure this port value is in the range of 1025 to 65535 and the respective port is enabled.		
JAVAPORT	`9999`	Yes

Table I–1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
NATIVEPORT	6666	Yes
AGENTPORT	6510	Yes
ICCPORT	6507	Yes
ICCNATIVEPORT	6509	Yes
OLAPPORT	10101	Yes
MSGPORT	6501	Yes
ROUTERPORT	6500	Yes
AMPORT	6505	Yes
InteractionGroup name="Web Details" **Note:** If value for HTTPS_ENABLE is set to 1, ensure you have a valid certificate available from a trusted CA and the same is configured on your web application server.		
HTTPS_ENABLE	Identifies if the UI should be accessed using HTTP or HTTPS scheme. The default value set is **0**. The following numeric value should be set depending on the choice: • YES - 1 • NO - 0 For example, `<InteractionVariable name="HTTPS_ENABLE">0</InteractionVariable>`	Yes
WEB_SERVER_IP	Identifies the HTTP Server IP/ Hostname or Web Application Server IP/ Hostname, to be used for accessing the UI. This IP would typically be the HTTP Server IP. If no separate HTTP Server is available, the value should be Web Application Server IP/Hostname. For example, `<InteractionVariable name="WEB_SERVER_IP">10.11.12.13</InteractionVariable>` or `<InteractionVariable name="WEB_SERVER_IP">myweb.server.com</InteractionVariable>`	No
WEB_SERVER_PORT	Identifies the Web Server Port. This would typically be **80** for non SSL and **443** for SSL. If no separate HTTP Server exists, the value should be the port configured for Web Server. **Note**: The port value will not be accepted as 80 if `HTTPS_ENABLE` is 1 and as 443, if `HTTPS_ENABLE` is 0. For example, <InteractionVariable name="WEB_SERVER_PORT">80</InteractionVariable>	No
CONTEXT_NAME	Identifies the web application context name which will be used to built the URL to access the OFSAA applications. The context name can be identified from a URL as follows: `<scheme>://<host>:<port>/<context-name>/login.jsp` Sample URL: `https://myweb:443/ofsaadev/login.jsp` For example, `<InteractionVariable name="CONTEXT_NAME">ofsaadev</InteractionVariable>`	Yes

Table I–1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
WEBAPP_CONTEXT_PATH	Identifies the absolute path of the exploded .ear file on the web application server. For Tomcat, specify the Tomcat directory path till /webapps, such as `/oradata6/revwb7/tomcat/webapps/`. For WebSphere, enter the WebSphere path as <WebSphere profile directory>/installedApps/ <NodeCellName>. For example, `/data2/test//WebSphere/AppServer/profiles/<Profile_Name>/installedApps/aix-imfNode01Cell`. Where aix-imf is Host name. For WebLogic, provide the WebLogic home directory path as `/<WebLogic home directory path>/bea/wlserver_10.3` **Note:** For WebLogic, value specified for this attribute is ignored and value provided against attribute WEBLOGIC_DOMAIN_HOME is considered.	Yes
WEB_LOCAL_PATH	Identifies the absolute path to any directory on the web application server that can hold temporary files being uploaded as part of the applications usage. Note: In case of a clustered deployment, ensure this path and directory is same on all the nodes.	Yes
InteractionGroup name="Weblogic Setup Details"		
WEBLOGIC_DOMAIN_HOME	Identifies the WebLogic Domain Home. For example, <InteractionVariable name="WEBLOGIC_DOMAIN_ HOME">/home/weblogic/bea/user_ projects/domains/mydomain </InteractionVariable>	Yes Specify the value only if WEBSERVERTYPE is set as 3 (WebLogic)
InteractionGroup name="OFSAAI FTP Details"		
OFSAAI_FTPSHARE_PATH	Identifies the absolute path to the directory identified as file system stage area. **Note**: • The directory should exist on the same system on which the OFSAA Infrastructure is being installed (can be on a separate mount). • The user mentioned in the following APP_SFTP_USER_ID parameter should have RWX permission on the directory. For example, <InteractionVariable name="APP_FTPSHARE_PATH">">/oradata6/revwb7/ftpshare</InteractionVariable>	Yes
OFSAAI_SFTP_USER_ID	Identifies the user who has RWX permissions on the directory identified under the preceding parameter APP_FTPSHARE_PATH.	Yes
OFSAAI_SFTP_PRIVATE_KEY	Identifies the SFTP private key for OFSAAI. For example, <InteractionVariable name="OFSAAI_SFTP_PRIVATE_KEY">/home/ofsaapp/.ssh/id_rsa</InteractionVariable> By default, the value is NA, which indicates password will be prompted for the user <OFSAAI_SFTP_USER_ ID> for authentication. For more information on generating SFTP Private key, see the Setting Up SFTP Private Key section.	No

Table I–1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
OFSAAI_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for OFSAAI. For example, InteractionVariable name="OFSAAI_SFTP_PASSPHRASE">enter a pass phrase here</InteractionVariable> By default, the value is NA. If OFSAAI_SFTP_PRIVATE_KEY value is given and this is kept as NA, then it is assumed as empty passphrase.	No
InteractionGroup name="Hive Details" The default value set for the interaction variables under this group is set as NA. These are required only for Hive Configuration.		
HIVE_SERVER_PORT	Identifies the port used for the file transfer service. The default value set is 22 (SFTP). Set this value as 21 for FTP. For example, InteractionVariable name="HIVE_SERVER_PORT">22</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SERVER_FTPDRIVE	Identifies the absolute path to the directory identified as file system stage area of HIVE server. For example, InteractionVariable name="HIVE_SERVER_FTPDRIVE">/scratch/ofsaa/ftpshare</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SERVER_FTP_USERID	Identifies the user who has RWX permissions on the directory identified under the preceding parameter HIVE_SERVER_FTPDRIVE. For example, InteractionVariable name="HIVE_SERVER_FTP_USERID">ofsaa</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SERVER_FTP_PROTOCOL	If the HIVE_SERVER_PORT is 21, then set value as FTP, else set it as SFTP. For example, InteractionVariable name="HIVE_SERVER_FTP_PROTOCOL">SFTP</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SFTP_PRIVATE_KEY	Identifies the SFTP private key for the HIVE server. For example, <InteractionVariable name="HIVE_SFTP_PRIVATE_KEY">/scratch/testuser/.ssh/id_rsa</InteractionVariable> By default, the value is NA, which indicates password will be prompted for the user <HIVE_SERVER_FTP_USERID> for authentication. For more information on generating SFTP Private key, see the Setting Up SFTP Private Key section.	Yes, only for HIVE Configuration
HIVE_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for HIVE. For example, <InteractionVariable name="HIVE_SFTP_ PASSPHRASE">NA</InteractionVariable> By default, the value is NA. If HIVE_SFTP_PRIVATE_KEY value is given and this is kept as NA, then it is assumed as empty passphrase.	Yes, only for HIVE Configuration

Setting Up SFTP Private Key

Log in to OFSAA Unix user using Putty tool, where you plan for installation and generate a pair of authentication keys using the ssh-keygen command. If required, set passphrase. Otherwise OFSAAI_SFTP_PASSPHRASE tag should be set to NA.

To generate private key, enter the commands as shown:

ssh-keygen -t rsa

Generating public/private rsa key pair.

Enter file in which to save the key (/home/ofsaapp/.ssh/id_rsa):

Created directory '/home/ofsaapp/.ssh'.

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /home/ofsaapp/.ssh/id_rsa.

Your public key has been saved in /home/ofsaapp/.ssh/id_rsa.pub.

The key fingerprint is:

3e:4f:05:79:3a:9f:96:7c:3b:ad:e9:58:37:bc:37:e4

ofsaapp@OFSASERVER:~> cat /home/ofsaapp/.ssh/id_rsa.pub >> /home/ofsaapp/.ssh/authorized_keys

Ensure the following permissions exist for the given folders:

- permissions of .ssh should be 700
- permissions of .ssh/authorized_keys should be 640
- permission of .ssh/id_rsa should be 400
- permission of Unix User created should be 755

J

JDBC Jar Files

The `ojdbc<version>.jar` file should be copied based on the Oracle Database version and the supported Java (JDK/JRE) version. See the following table for details:

Table J–1 JDBC Jar files version details

Oracle Database Version	JDK/JRE Version Supported	JDBC Jar files specific to the release
12.1 or 12cR1	JDK 8 and JDK 7	ojdbc7.jar for JDK 7 and JDK 8
11.2 or 11gR2	JDK 7 and JDK 8 supported in 11.2.0.3 and 11.2.0.4	ojdbc6.jar for JDK 8 and JDK 7

K

Removing OFSAA

This chapter includes the following sections:

Uninstalling OFSAA Infrastructure

This section will guide you through the necessary steps to uninstall the OFSAA Infrastructure product.

Before you start the uninstallation process, ensure that no open connections exist to the OFSAA Infrastructure Config and Atomic Schemas and Infrastructure services are brought down.

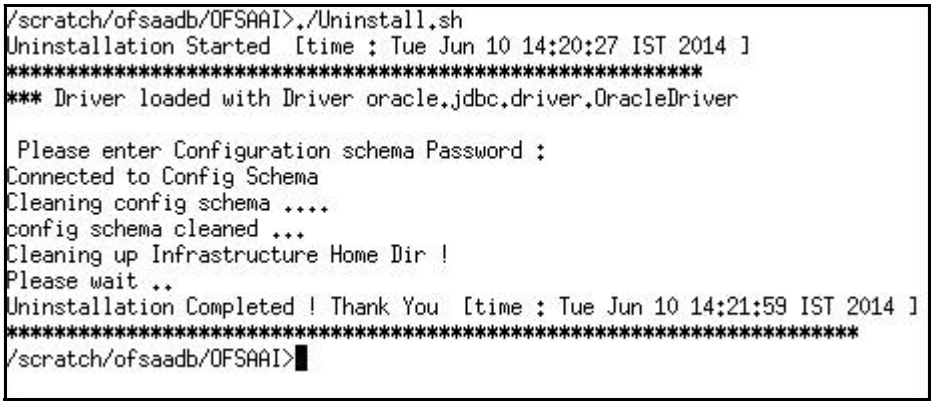
To uninstall OFSAA Infrastructure:

1. Log in to the system as non-root user.
2. Navigate to the `$FIC_HOME` directory and execute the command:

   ```
   ./Uninstall.sh
   ```

3. Enter the password for OFSAAI Configuration Schema when prompted as shown in the following figure.

Figure 2–15 Uninstalling OFSAA Infrastructure



Note:

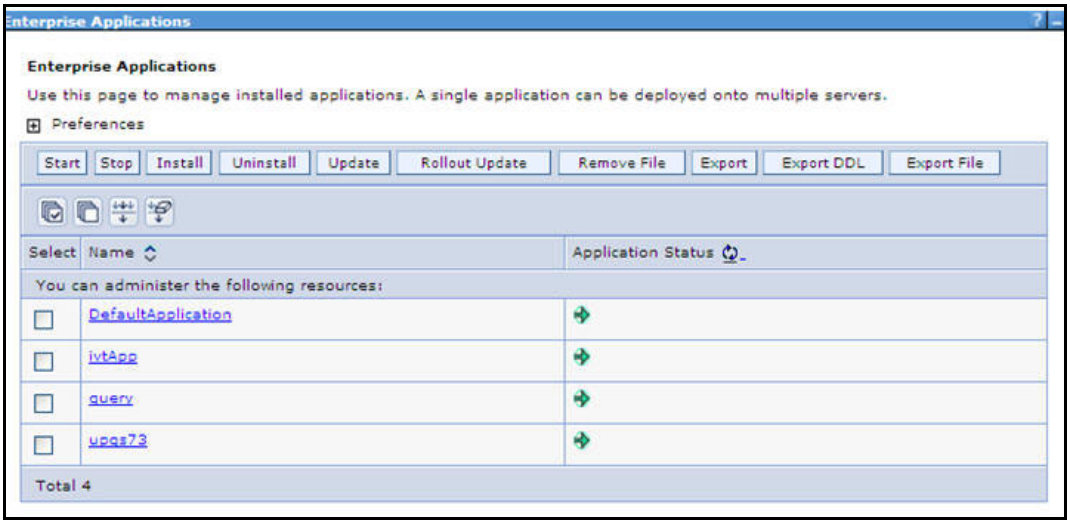
- Uninstallation does not remove the Infrastructure application from the Web Application Server. This has to be done manually.
- The entries in the `.profile` file will have to be removed manually.
- The files/ folders under the file system staging area (ftpshare) have to be deleted manually.
- All the Database objects from Atomic Schemas have to be dropped manually.

Uninstalling EAR Files in WebSphere

Following are the steps to uninstall any previously deployed application:

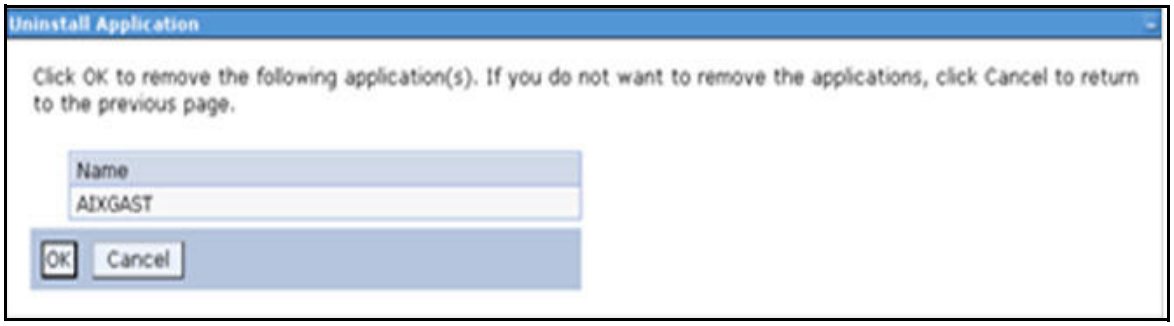
1. Open the URL in the browser window: `http://<ipaddress>:<Administrative Console Port>/ibm/console` (https if SSL is enabled). The ***Login*** window is displayed.
2. Login with the user id that has admin rights.
3. Expand Applications > Application Types > WebSphere enterprise applications from the LHS. The ***Enterprise Applications*** window is displayed with all the deployed applications.

Figure 2–16 Enterprise Applications



4. Select the checkbox adjacent to the application to be uninstalled and click **Stop**.
5. Click **Uninstall**. The ***Uninstall Application*** window is displayed.

Figure 2–17 Uninstall Application



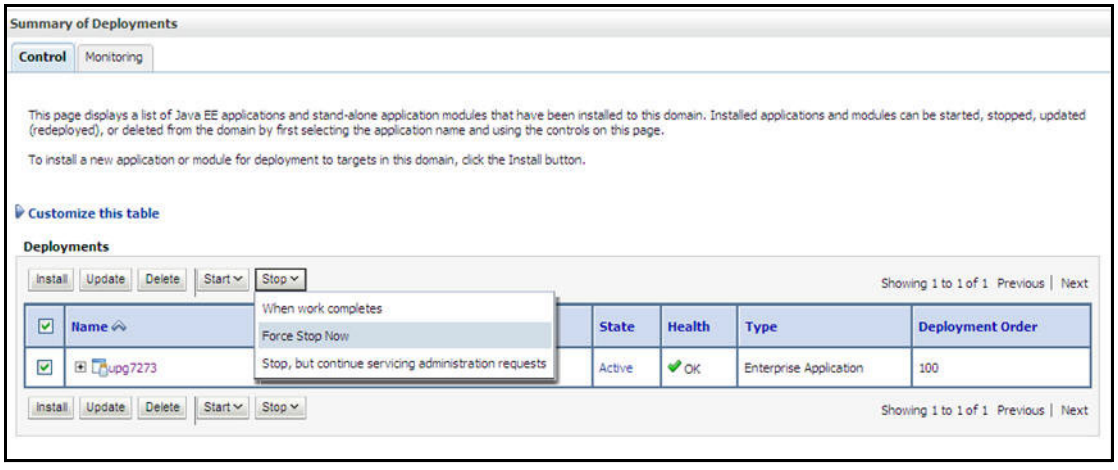
6. Click **OK** to confirm.
7. Click **Save** to save the master file configuration.

Uninstalling EAR Files in WebLogic

On the machine that hosts WebLogic, perform the following steps to uninstall any previously deployed application:

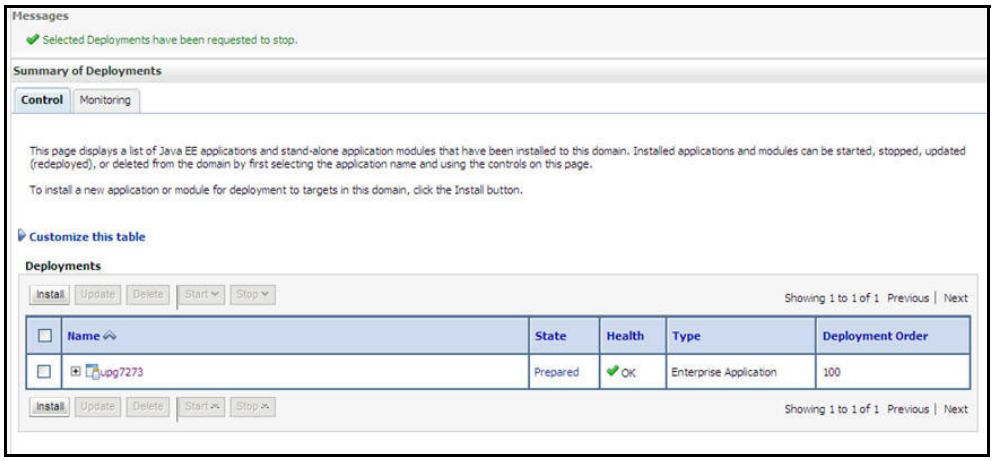
1. Open the URL in the browser window: `http://<ipaddress>:<admin server port>/console` (https if SSL is enabled). The ***Login*** window of the WebLogic Server Administration Console is displayed.
2. Login with the WebLogic user credentials having administrator privileges.
3. From the **Domain Structure** LHS menu, click **Deployments**. The ***Summary of Deployments*** window is displayed.

Figure 2–18 Summary of Deployments



4. Select the checkbox adjacent to the application to be uninstalled and click **Stop> Force Stop Now**.
5. Click **Yes** in the confirmation dialog to stop the selected deployment.

***Figure 2–19** Summary of Deployments- Messages*



6. Select the checkbox adjacent to the application and click **Delete** to delete the selected deployment.
7. Click **Yes** in the confirmation dialog to remove the selected deployment from the domain configuration.

Uninstalling WAR Files in Tomcat

On the machine that hosts Tomcat, perform the following steps to uninstall any previously deployed application:

1. Comment out Context path section from `server.xml` file in `$CATALINA_HOME/conf` directory to avoid conflict during undeploy and re-deploy of the WAR file.

   Place comment `<!-- -->` in between the context path section. For example:

```
<!--
<Context path ="/pr2test"
docBase="/home/perfuser/tomcat-7.0.19/webapps/pr2test" debug="0"
reloadable="true" crossContext="true">
<Resource auth="Container"
name="jdbc/PR2ATM"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username="pr2atm"
password="pr2atm"
url="jdbc:oracle:thin:@10.184.74.99:1521:PERFTEST"
maxTotal="100"
maxIdle="30"
maxWaitMillis="10000"/>
</Context>
-->
```

   Restart the Tomcat service by doing the following:

a. Login to the "Unix server" through a terminal emulator.

b. Navigate to `$catalina_home/bin` directory.

c. Stop the tomcat services using the command:

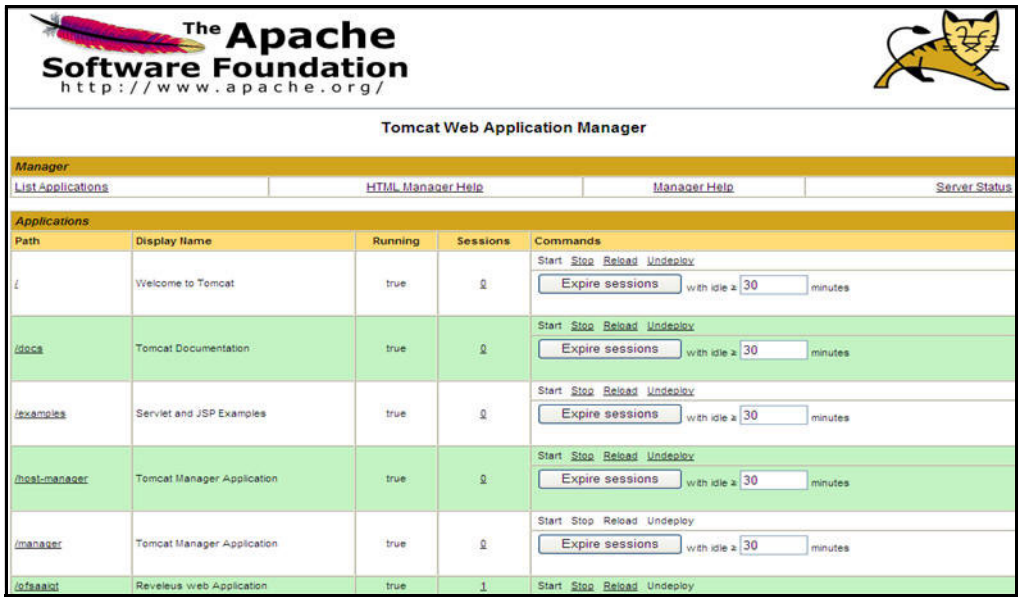
```
./shutdown.sh
```

d. Start the tomcat services using the command:

```
./startup.sh
```

2. Open the URL in a browser window: `http://<IP address>:<Tomcat server port>`. (https if SSL is enabled). The ***Tomcat home*** window is displayed.
3. Click the **Manager App.** The ***Connect to*** window is displayed.
4. Login with the user credentials having admin rights. The ***Tomcat Web Application Manager*** window is displayed with the list of all applications deployed in Tomcat.

Figure 2–20 Tomcat Web Application Manager



5. Click the **Undeploy** link against the deployed Infrastructure application. A confirmation message is displayed on the application /Infrastructure being uninstalled.

L

Upgrading an Existing OFSAA 8.0.x Java 7 Instance to Java 8

This section explains the configurations required to upgrade an existing OFSAA 8.0.x Java 7 instance to Java 8. It consists of the following topics:

Prerequisites

The following are the prerequisites for upgrading OFSAA 8.0.x Java 7 instance to Java 8:

- Java 8 should be installed on the OFSAA server and Web Application Server.

Upgrading OFSAA 8.0.x Java 7 instance to Java 8

To upgrade OFSAA 8.0.x Java 7 instance to Java 8, follow these steps:

1. Configure Web Application Server to Java 8. For more information, refer Configuring Web Application Server.
2. Configure the OFSAA instance to Java 8. For more information, refer OFSAA Generic Configurations. For a newly installed Web Application Server, refer Configuring OFSAA for New Web Application Server Installation
3. Restart the OFSAA services. For more information, refer the *Start/Stop Infrastructure Services* section in Appendix D
4. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR/WAR file, refer Appendix C.

Configuring Web Application Server

This section describes the changes to be made in the Web Application Server. Following are the two options to perform Web Application Server Configurations which are listed as follows:

- Upgrade the existing Web Application Server installation to Java 8
- Install a new instance of the Web Application Server with Java 8

This section consists of the following topics:

Upgrading Oracle WebLogic Server

Perform the following configurations to upgrade the existing WebLogic server instance to Java 8:

1. Navigate to `<WLS_HOME>/Middleware/Oracle_Home/wlserver.`
2. Edit the `product.properties` file. Set `JAVA_HOME, WLS_JAVA_HOME, JAVAHOME` properties to the new Java path and `java.vm.version` to the new Java version. For example,

   ```
   JAVA_HOME=/usr/java/jre1.8.0_45

   WLS_JAVA_HOME=/usr/java/jre1.8.0_45

   JAVAHOME=/usr/java/jre1.8.0_45

   java.vm.version=1.8.0_45
   ```

3. Navigate to `<WLS_HOME>/Middleware/Oracle_Home/user_projects/domains/<domain>/bin`. Update `SUN_JAVA_HOME, DEFAULT_JAVA_HOME, JAVA_HOME` in the `setDomainEnv.sh` file to point to the new Java path. For example,

   ```
   SUN_JAVA_HOME="/usr/java/jre1.8.0_45"

   DEFAULT_SUN_JAVA_HOME="/usr/java/jre1.8.0_45"

   JAVA_HOME="/usr/java/jre1.8.0_45"
   ```

4. Clear the Application cache. Navigate to the following path and delete the files:

   ```
   <Weblogic installation location>/domains/<Domain name>/servers/<Server name>/tmp/_WL_user/<Application name>/qaelce/jsp_servlet
   ```

If you wish to install a new instance of the Oracle WebLogic Server, follow these steps:

1. Install Oracle WebLogic Server 12.1.3.x on Java 8.
2. Perform the configurations for the newly installed WebLogic server. For more information refer Configuring Resource Reference in Weblogic Application Server.

Note: While creating WebLogic Domain, the Listen Port should be set same as that of the existing Domain.

Note down the new Domain path to perform OFSAA Configurations.

Upgrading Apache Tomcat Server

Perform the following configurations to upgrade the existing Apache Tomcat Server from Java 7 to Java 8:

1. Login to the Apache Tomcat Server as a non-root user.
2. Edit the user `.profile`. Update the value for `JAVA_HOME` from JRE 1.7 to JRE 1.8. For Example,

   ```
   JAVA_HOME=/usr/java/jre1.8.0_45
   ```

3. Clear the Application cache. Navigate to the following path and delete the files:

   ```
   <Tomcat installation folder>/work/Catalina/localhost/<Application name>/org/apache/jsp
   ```

If you wish to install a new instance of the Apache Tomcat Server, follow these steps:

1. Install Apache Tomcat Server 8 with Java 8.
2. Perform the configurations for the newly installed Tomcat server. For more information refer Configuring Resource Reference in Tomcat Application Server.

Note: Update the Connector Port in `/apache-tomcat-8.0.21/conf/server.xml` file to that of the existing Tomcat instance.

Note down the new deployment path to perform OFSAA Configurations.

OFSAA Generic Configurations

This section consists of the following topics:

- Configuring User .profile Settings
- Configuring Java 8

Configuring User `.profile` Settings

Perform the following configurations:

1. Log in to the OFSAA server as a non-root user.
2. Edit the user `.profile`. Update the value for PATH variable from JRE 1.7 to JRE 1.8. For example,

   ```
   PATH=/usr/java/jre1.8.0_45/jre
   ```

   ```
   JAVA_BIN=/usr/java/jre1.8.0_45/jre/bin
   ```

   ```
   LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/java/jre1.8.0_45/jre/lib/amd64/server
   ```

Configuring Java 8

1. If the Oracle Database version is 12c, copy `ojdbc7.jar` from `$ORACLE_HOME/jdbc/lib` to the following locations:
   - `$FIC_HOME/utility/OFSAAGenerateRepository/lib/`
   - `$FIC_HOME/realtime_processing/WebContent/WEB-INF/lib/`
   - `$FIC_HOME/ficdb/lib/`
   - `$FIC_HOME/ficapp/icc/lib/`
   - `$FIC_HOME/ficapp/common/FICServer/lib/`
   - `$FIC_HOME/FMStandalone/FormsManager/WEB-INF/lib/`
   - `$FIC_HOME/ficweb/webroot/WEB-INF/lib/`
   - `$FIC_HOME/ficdb/etl/classes/`

   Note: If `ojdbc6.jar` is already present in any of the aforementioned folders, you need to remove it.

2. If the Oracle Database version is 11g, copy `ojdbc6.jar` from `$ORACLE_HOME/jdbc/lib` to the following locations:
   - `$FIC_HOME/utility/OFSAAGenerateRepository/lib/`
   - `$FIC_HOME/realtime_processing/WebContent/WEB-INF/lib/`
   - `$FIC_HOME/ficdb/lib/`
   - `$FIC_HOME/ficapp/icc/lib/`
   - `$FIC_HOME/ficapp/common/FICServer/lib/`
   - `$FIC_HOME/FMStandalone/FormsManager/WEB-INF/lib/`
   - `$FIC_HOME/ficweb/webroot/WEB-INF/lib/`
   - `$FIC_HOME/ficdb/etl/classes/`

Configuring OFSAA for New Web Application Server Installation

This configuration is required only if you have freshly installed Oracle WebLogic 12.1.3 or Apache Tomcat Server 8.0. Follow these steps:

1. Modify the following parameters in the Configuration table present in the Config Schema with the new Domain Path in case of WebLogic or with the new deployment path in case of Tomcat:
   - `DeFiHome`
   - `REV_IMG_PATH`
   - `EMBEDDED_JSP_JS_PATH`
2. Log in to the OFSAA server as a non-root user.
3. Navigate to `$FIC_HOME/ficweb/webroot/WEB_INF` and update the following parameters in the `web.xml` file with the new Domain path in case of WebLogic or with the new deployment path in case of Tomcat:

- FIC_PHYSICAL_HOME_LOC
- FIC_HOME
- ICC_SERVLET_LOG_FILE

4. Navigate to $FIC_HOME/ficweb/webroot/conf and update the Domain path in case of WebLogic or with the new deployment path in case of Tomcat:
   - OFSAALogger.xml
   - MDBLogger.xml
   - RevLog4jConfig.xml
   - RFDLogger.xml
   - ExportLog4jConfig.xml
   - RFDLogger.xml
   - PR2Logger.xml

M

Configuring Work Manager in Web Application Servers

Process Modelling framework requires creation of Work Manager and mapping it to OFSAA instance. This configuration is required for WebSphere and WebLogic Web Application Server types.

This section covers the following topics:

- Configuring Work Manager in WebSphere Application Server
- Configuring Work Manager in WebLogic Application Server

Configuring Work Manager in WebSphere Application Server

This section is applicable only when the Web Application Server type is WebSphere.

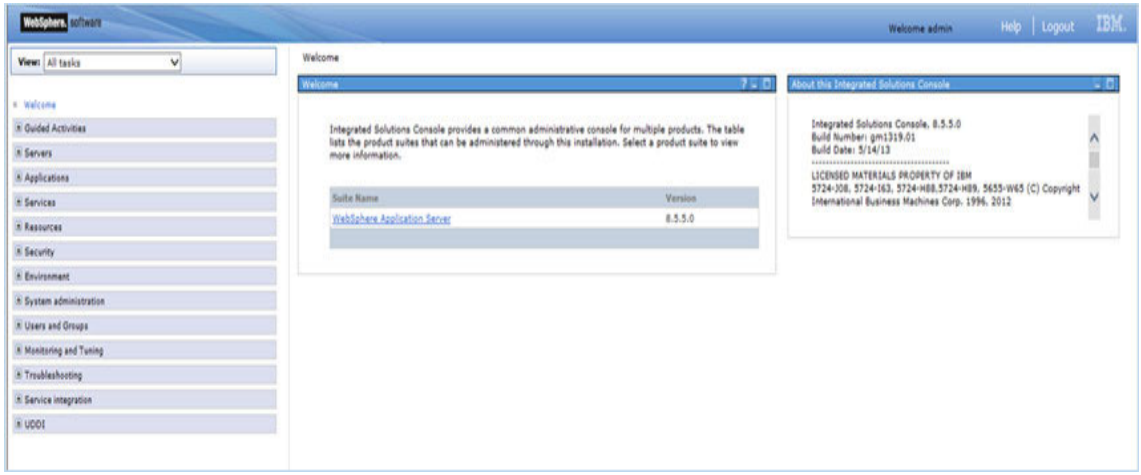
This section covers the following topics:

- Creating Work Manager
- Mapping Work Manager to OFSAA WebSphere Instance

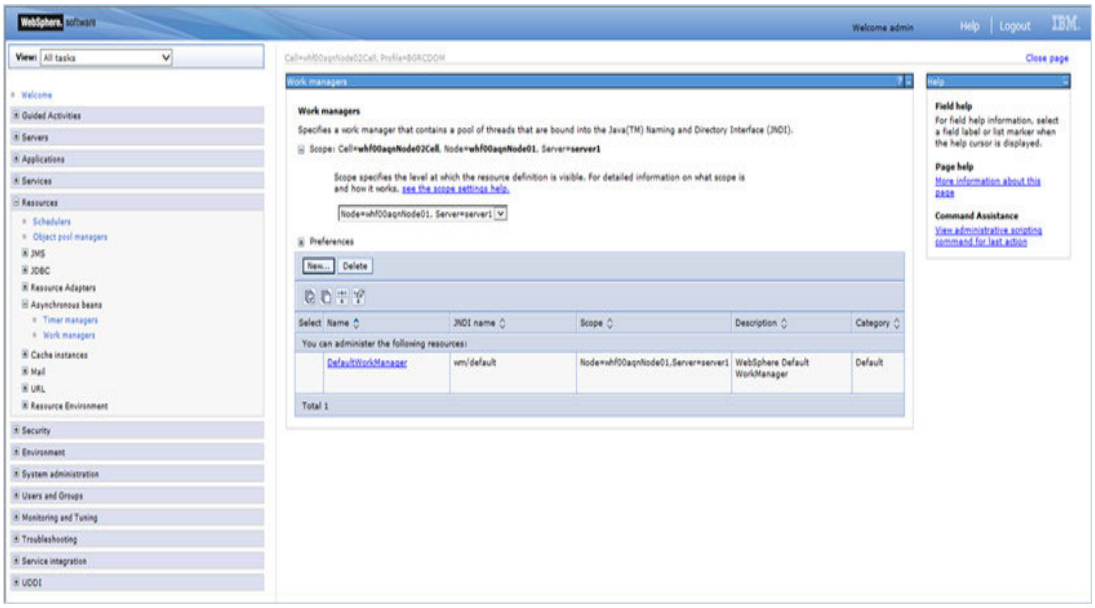
Creating Work Manager

1. Open the WebSphere admin console in the browser window: `http://<ipaddress>:<administrative console port>/ibm/console`. (https if SSL is enabled). The Login window is displayed

2. Login with the user id that has admin rights.



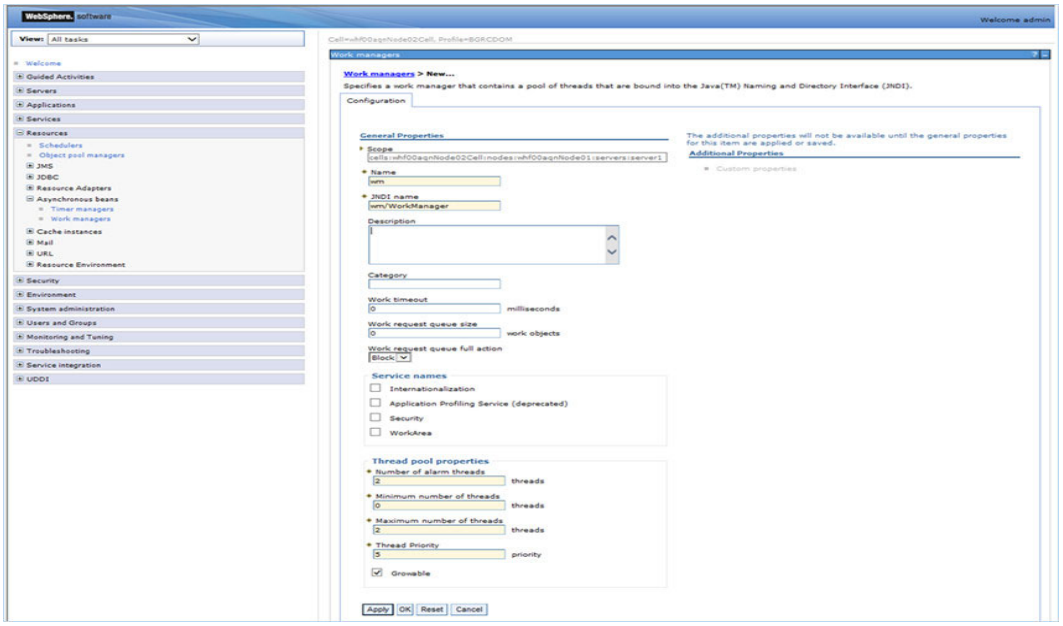
3. From the LHS menu, expand **Resources > Asynchronous beans** and select **Work Managers.**



4. Select the required **Scope** from the drop-down list.

   For example, Node=whf00aqnNode01, Server=server1.

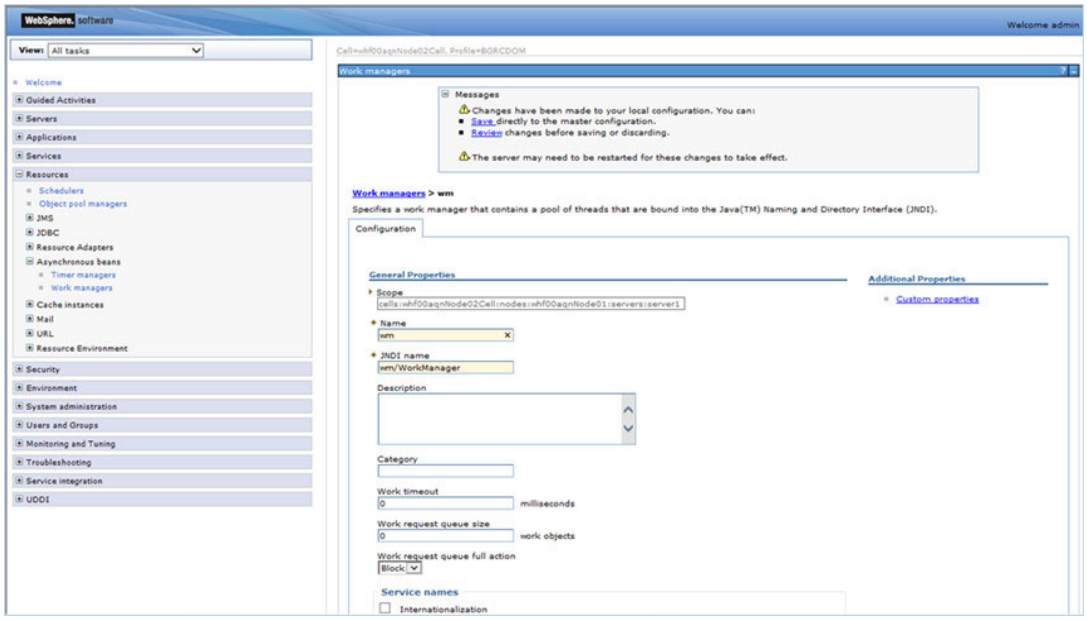
5. Click **New** in the Preferences section.



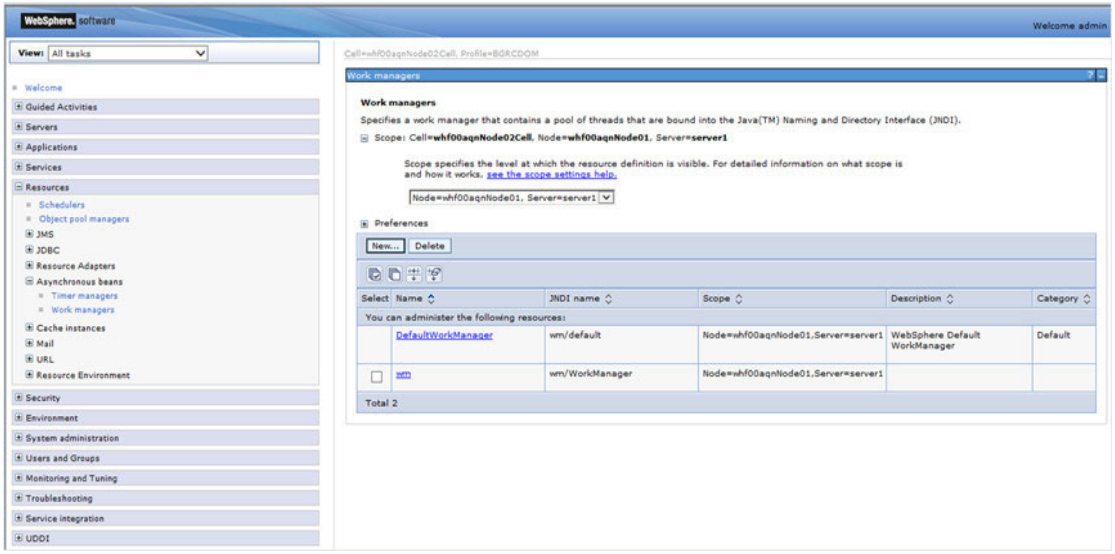
6. Enter the **Name** as ‘wm’ and **JNDI name** as ‘wm/WorkManager ‘ in the respective fields.

7. Enter the T**hread pool properties**.

8. Click **Apply**.



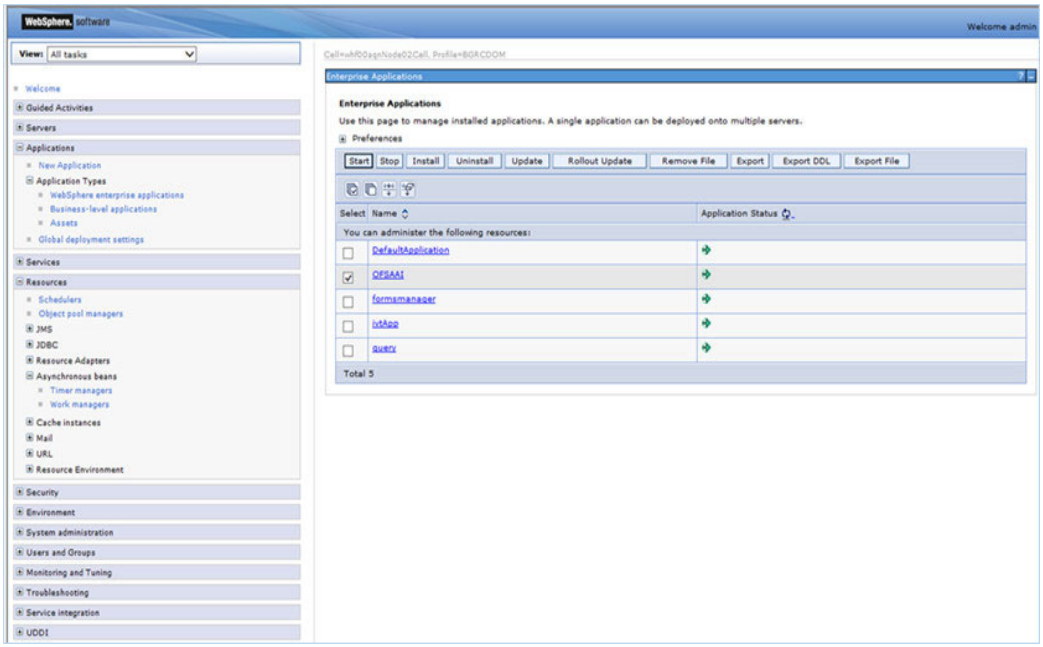
9. Click **Save**.



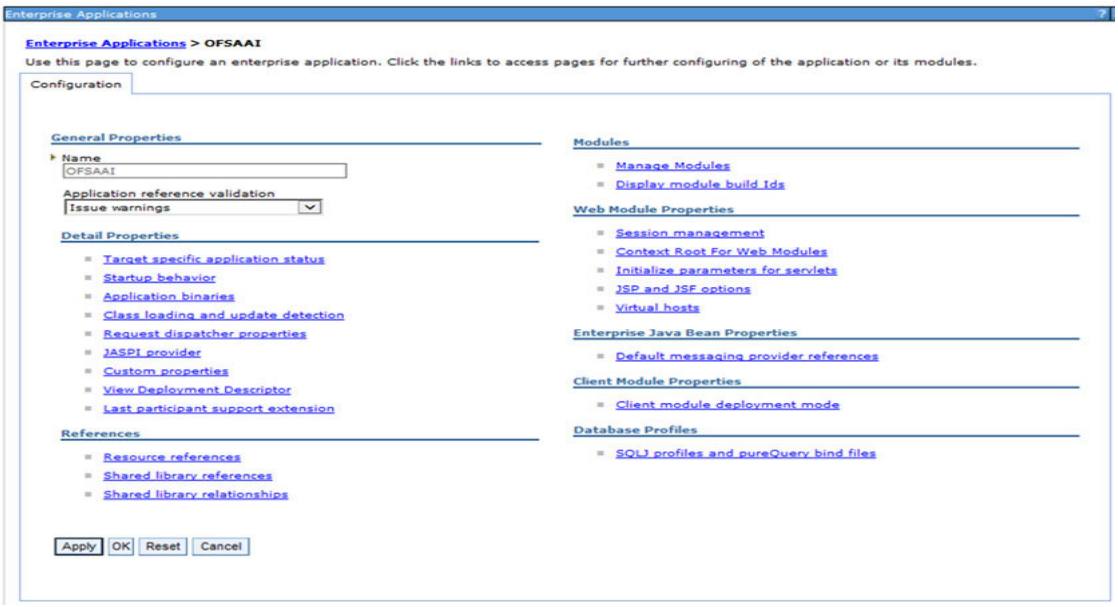
After creating work manager successfully, you have to map it to OFSAA instance.

Mapping Work Manager to OFSAA WebSphere Instance

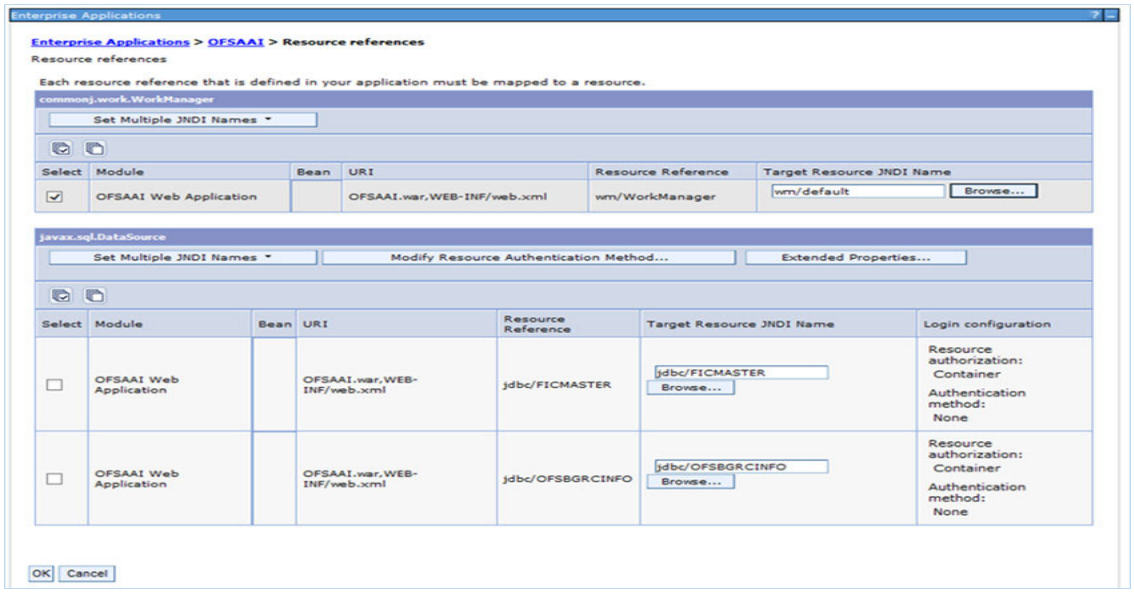
1. From the LHS menu, expand **Applications > Application Types** and select **WebSphere enterprise** applications.



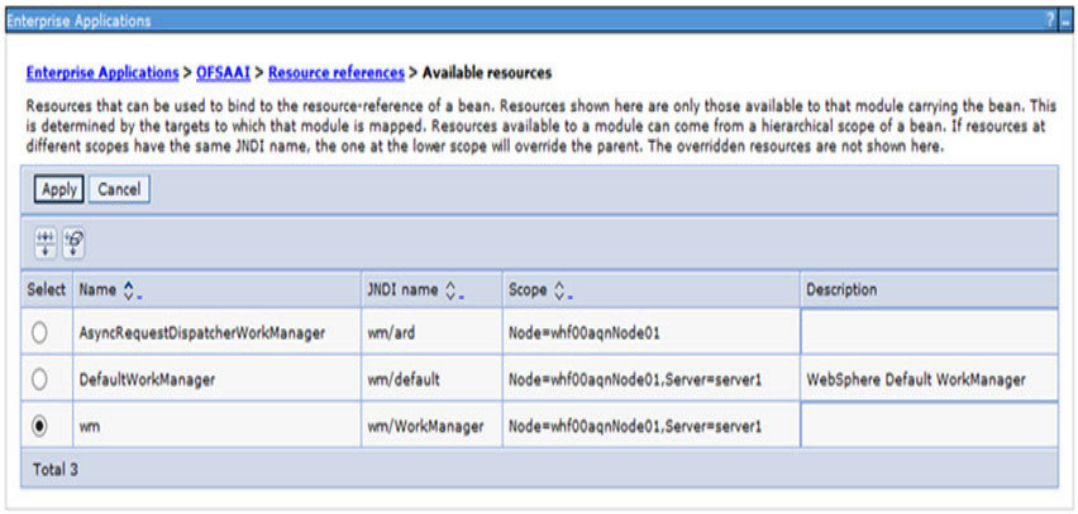
2. Click OFSAAI instance hyperlink.



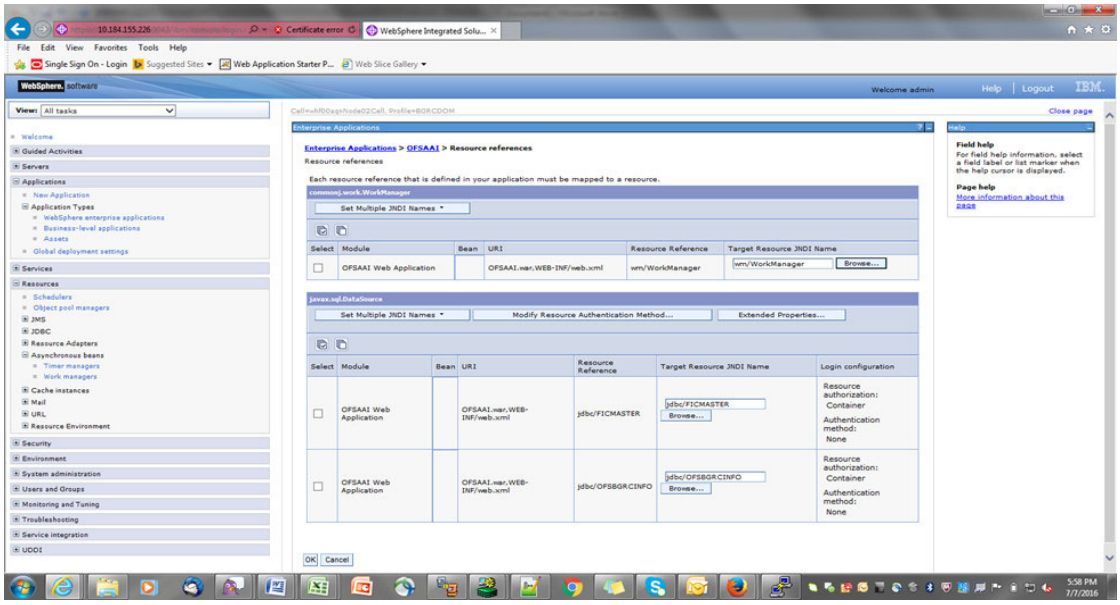
3. Click **Resource references** link under References section.



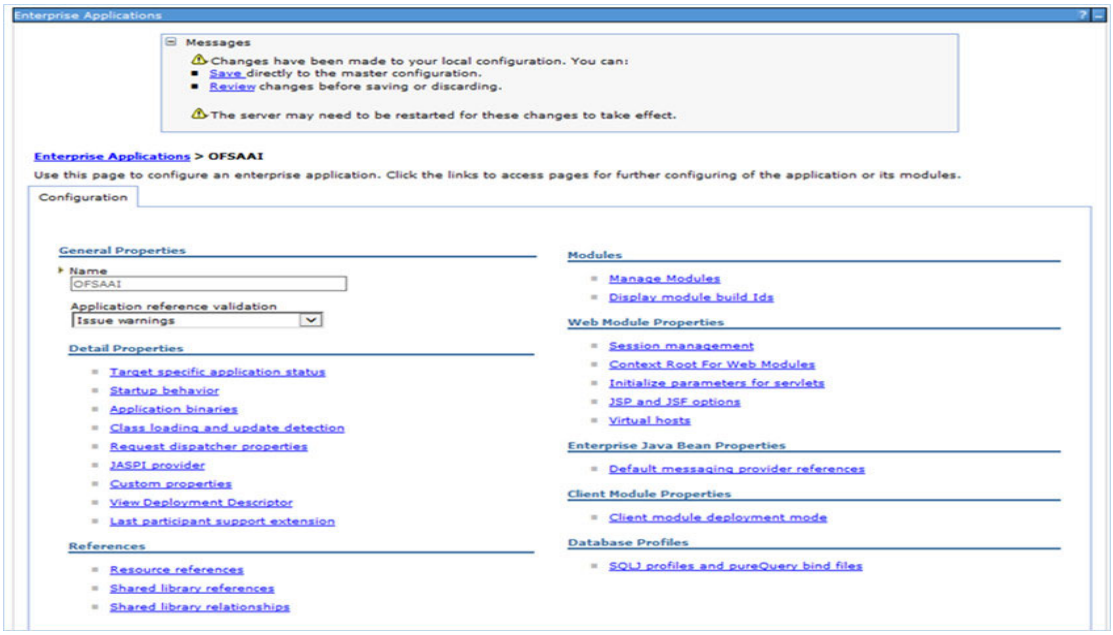
4. Click **Browse** corresponding to the Work Manager Resource Reference. The available resources are displayed.



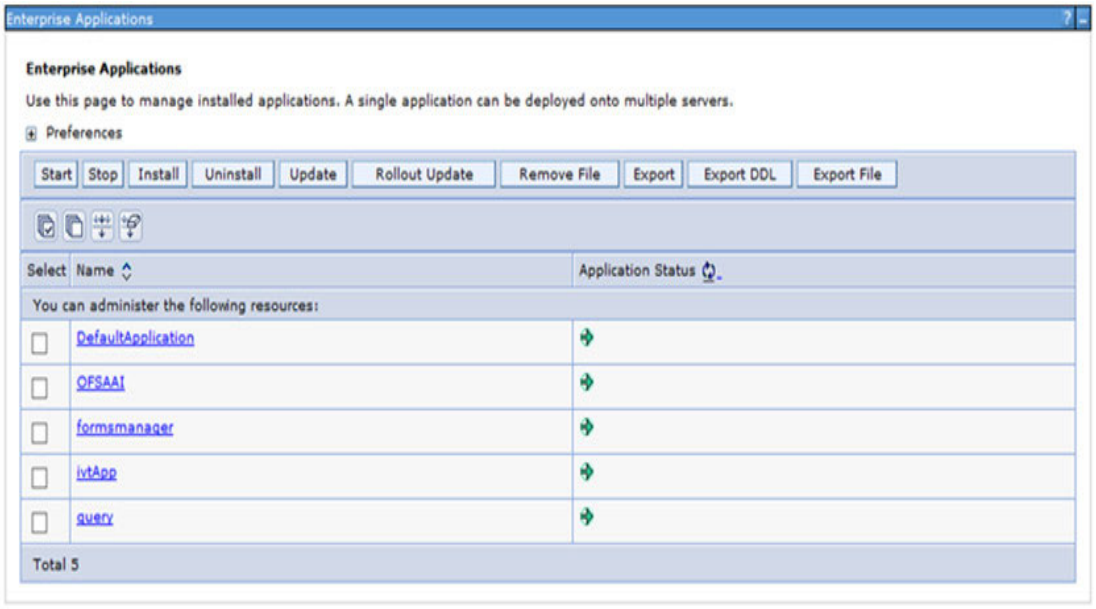
5. Select the newly created Work Manager ('wm') and click **Apply**.



6. Select the Work Manager ('wm/WorkManager') and click **OK**.



7. Click **Save**.



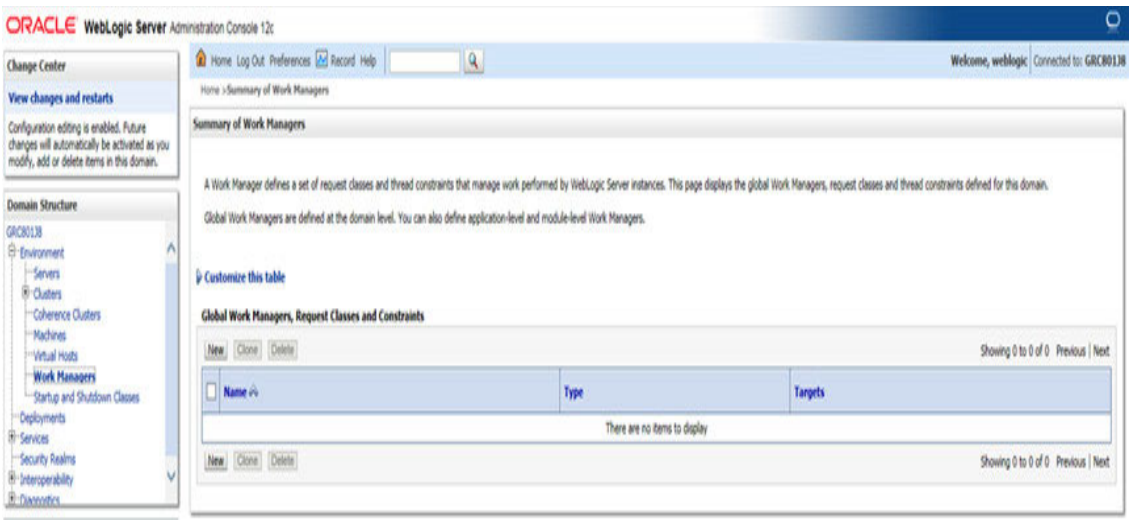
Configuring Work Manager in WebLogic Application Server

This section is applicable only when the Web Application Server type is WebLogic.

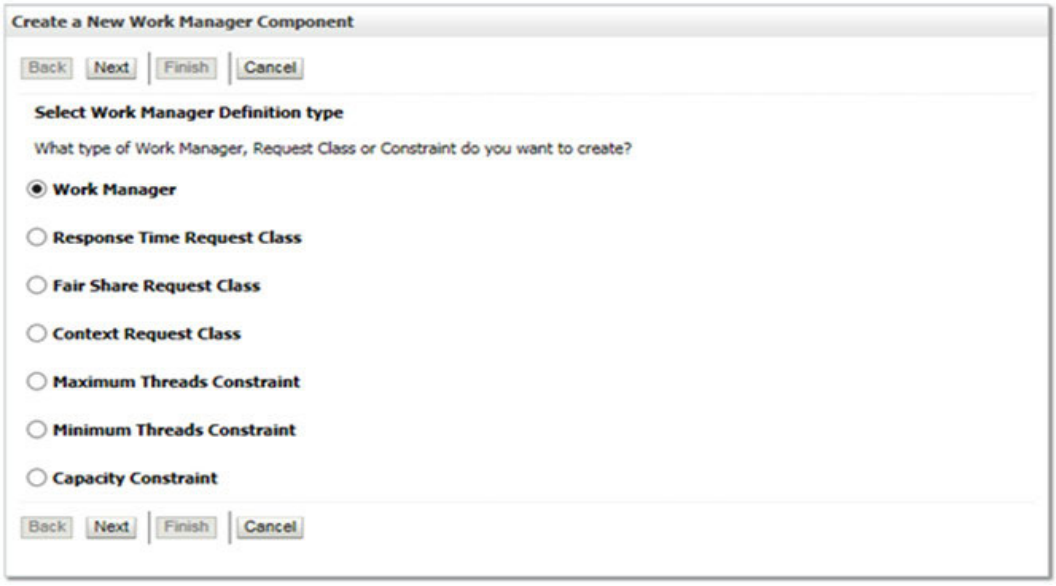
Creating Work Manager

1. Open the WebLogic admin console in the browser window: `http://<ipaddress>:<administrative console port>/console`. (https if SSL is enabled). The Welcome window is displayed.

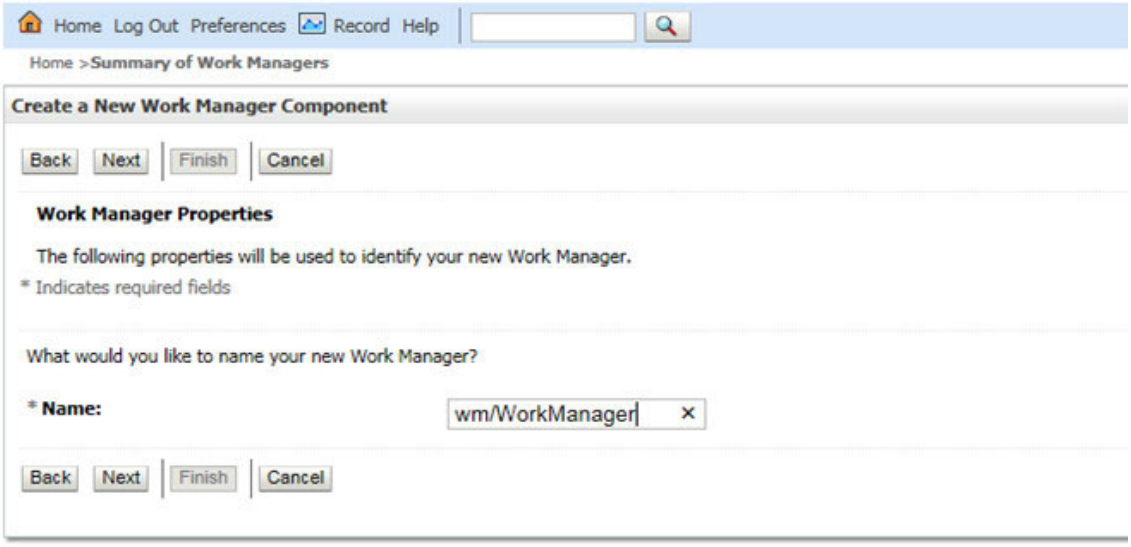
2. Login with the user id that has admin rights.
3. From the Domain Structure menu in the LHS, expand **Environment** and select **Work Managers**. The Summary of Work Managers window is displayed.



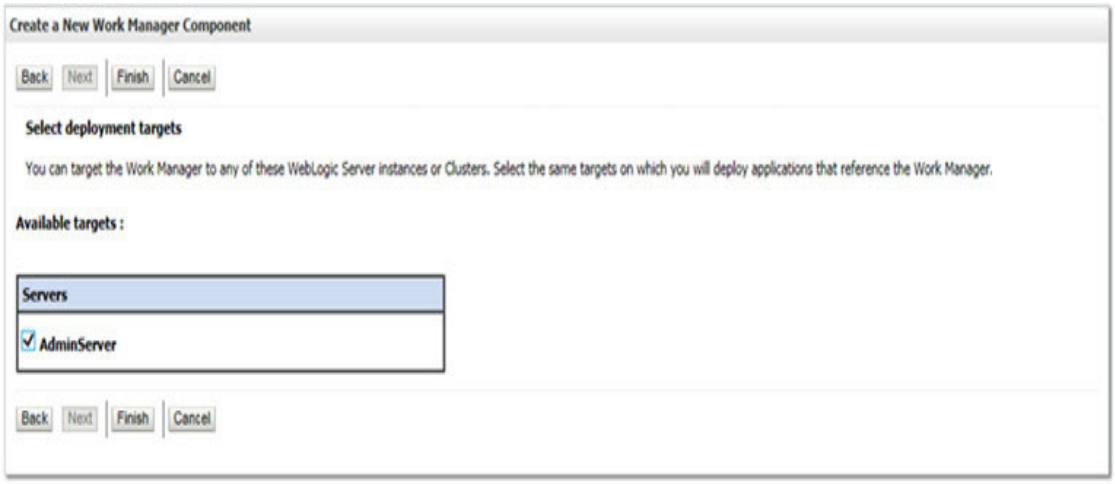
4. Click **New** to create a new work manager component.



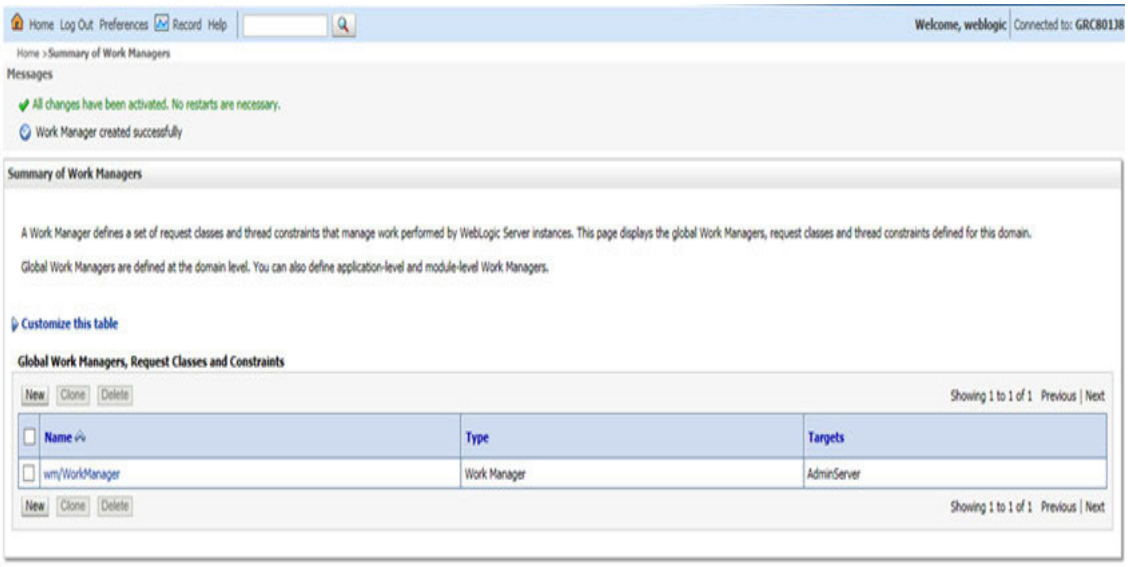
5. Select **Work Manager** and click **Next**.



6. Enter the **Name** as 'wm/WorkManager'.
7. Click **Next**.



8. Select the required deployment target and click **Finish**.


Home Log Out Preferences Record Help
Welcome, weblogic Connected to: GRC80138
Home >Summary of Work Managers
Messages
All changes have been activated. No restarts are necessary.
Work Manager created successfully
Summary of Work Managers
A Work Manager defines a set of request classes and thread constraints that manage work performed by WebLogic Server instances. This page displays the global Work Managers, request classes and thread constraints defined for this domain.
Global Work Managers are defined at the domain level. You can also define application-level and module-level Work Managers.
Customize this table
Global Work Managers, Request Classes and Constraints
New Clone Delete
Showing 1 to 1 of 1 Previous | Next
Name
Type
Targets
wm/WorkManager
Work Manager
AdminServer
New Clone Delete
Showing 1 to 1 of 1 Previous | Next

N

Configuring TDE, Data Redaction and the Corresponding Settings in OFSAA

Two features comprise Oracle Advanced Security: Transparent Data Encryption and Oracle Data Redaction.

This section details about the configurations required in case you want to enable TDE or Data Redaction in OFSAA applications.

Transparent Data Encryption (TDE)

Transparent Data Encryption (TDE) enables you to encrypt sensitive data, such as Personally Identifiable Information (PII), that you store in tables and tablespaces. After the data is encrypted, this data is transparently decrypted for authorized users or applications when they access this data. To prevent unauthorized decryption, TDE stores the encryption keys in a security module external to the database, called a Keystore. For more details on TDE, see the Database Advanced Security Guide.

TDE tablespace encryption enables you to encrypt all of the data stored in a tablespace. To control the encryption, you use a Keystore and TDE master encryption key. Oracle Database supports both software keystores and hardware, or HSM-based, keystores. A software keystore is a container for the TDE master encryption key, and it resides in the software file system.

Configuring TDE During OFS ALM Installation Using Full Installer

This section provides information on how to enable TDE (Transparent Data Encryption) in the database. This section consists of the following sub sections:

- Configuring a Software Keystore and Encrypted Tablespace Creation
- Running the Schema Creator Utility with Encryption
- Testing the Encryption

Configuring a Software Keystore and Encrypted Tablespace Creation

A software keystore is a container for the TDE master encryption key, and it resides in the software file system. You must define a location for the key in the sqlnet.ora file so that the database locates the keystore (one per database) by checking the keystore location in the sqlnet.ora file. After defining the location, create the keystore and open it. Set the TDE master key after opening it and then encrypt the data.

To find whether a wallet is already existing, check the following entries:

1. The location specified by the ENCRYPTION_WALLET_LOCATION parameter in the sqlnet.ora file.
2. The location specified by the WALLET_LOCATION parameter in the sqlnet.ora file.

Encrypted tablespaces can share the default database wallet. However, Oracle recommends that you use a separate wallet for transparent data encryption functionality by specifying the ENCRYPTION_WALLET_LOCATION parameter in the sqlnet.ora file.

You should have proper privileges to perform the following actions.

For details to configure the software keystore, perform the following steps:

Step 1: Set the Software keystore location in the sqlnet.ora file

The first step is to designate a location for software keystore in the sqlnet.ora file. The Oracle Database will check the sqlnet.ora file for the directory location of the keystore to determine whether it is a software keystore or a hardware module security (HSM) keystore.

NOTE: Ensure that the directory location which you want to set for software keystore exists beforehand. Preferably, this directory should be empty.

In a multitenant environment, the keystore location is set for the entire multitenant container database (CDB), not for individual pluggable databases (PDBs).

By default, the sqlnet.ora file is located in the ORACLE_HOME/network/admin directory or in the location set by the TNS_ADMIN environment variable. Ensure that you have properly set the TNS_ADMIN environment variable to point to the correct sqlnet.ora file.

To create a software keystore on a regular file system, use the following format when you edit the sqlnet.ora file:

```
ENCRYPTION_WALLET_LOCATION=
  (SOURCE=
    (METHOD=FILE)
    (METHOD_DATA=
    (DIRECTORY=<<path to keystore>>)))
```

Examples:

For regular file system in which the database name is orclb:

```
ENCRYPTION_WALLET_LOCATION=
  (SOURCE=
   (METHOD=FILE)
    (METHOD_DATA=
     (DIRECTORY=/etc/ORACLE/WALLETS/orcl)))
When multiple databases share the sqlnet.ora file:
ENCRYPTION_WALLET_LOCATION=
  (SOURCE=
   (METHOD=FILE)
    (METHOD_DATA=
```

```
     (DIRECTORY=/etc/ORACLE/WALLETS/orcl)))


When Oracle Automatic Storage Management (ASM) is configured:
ENCRYPTION_WALLET_LOCATION=
 (SOURCE=
  (METHOD=FILE)
   (METHOD_DATA=
    (DIRECTORY=+disk1/mydb/wallet)))
For ASM Diskgroup:
ENCRYPTION_WALLET_LOCATION=
 (SOURCE=
  (METHOD=FILE)
   (METHOD_DATA=
    (DIRECTORY=+ASM_file_path_of_the_diskgroup)))
```

Step 2: Create the Software Keystore

There are three different types of Software Keystores:

- Password-based Software Keystores
- Auto-login Software Keystores
- Local Auto-login Software Keystores

Perform the following steps to create a software keystore:

1. Login as sysdba or user with ADMINISTER KEY MANAGEMENT or SYSKM privilege.
2. Use the following command to create password-based software keystore:

   ```
   CONN sys/password@serviceid AS SYSDBA
   ```

   ADMINISTER KEY MANAGEMENT CREATE KEYSTORE 'keystore_location' IDENTIFIED BY software_keystore_password;

   - keystore_location is the path of the keystore directory you want to create
   - software_keystore_password is the password of the keystore that you want to create.

   For example, to create the keystore in the `/etc/ORACLE/WALLETS/orcl` directory:

   ```
   ADMINISTER KEY MANAGEMENT CREATE KEYSTORE
   '/etc/ORACLE/WALLETS/orcl' IDENTIFIED BY password;
   ```

   After you run this statement, the ewallet.p12 file, which is the keystore, appears in the keystore location.

   - Alternatively, you can create an Auto-Login or Local-Login Keystore to avoid opening the Keystore manually every time. Use the following command:

     ```
     ADMINISTER KEY MANAGEMENT CREATE [LOCAL] AUTO_LOGIN
     KEYSTORE FROM KEYSTORE 'keystore_location' IDENTIFIED BY
     keystore_password;
     ```

- LOCAL enables you to create a local auto-login software keystore. Otherwise, omit this clause if you want the keystore to be accessible by other computers.

After you run this statement, the cwallet.sso file appears in the keystore location.

NOTE: It is important to remember the master key password (<keystore_ password>) used during creation of the keystore. There are no ways to retrieve the password if forgotten.

Step 3: Open the Software Keystore

Depending on the type of keystore you create, you must manually open the keystore before you can use it.

You do not need to manually open auto-login or local auto-login software keystores. These keystore are automatically opened when it is required, that is, when an encryption operation must access the key. If necessary, you can explicitly close any of these types of keystores. You can check the status of whether a keystore is open, closed, open but with no master key, or open but with an unknown master key by querying the STATUS column of the V$ENCRYPTION_WALLET view.

NOTE: After you open a keystore, it remains open until you manually close it. Each time you restart a database instance, you must manually open the password keystore to re-enable encryption and decryption operations.

Perform the following steps to open the software wallet:

1. Login as sysdba or user with ADMINISTER KEY MANAGEMENT or SYSKM privilege.
2. Use the following command to open password-based software keystore:

```
CONN sys/password@serviceid AS SYSDBA

ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY
software_keystore_password [CONTAINER = ALL | CURRENT];
```

- software_keystore_password is the same password that you used to create the keystore in "Step 2: Create the Software Keystore".
- CONTAINER is for use in a multitenant environment. Enter ALL to set the keystore in all of the PDBs in this CDB, or CURRENT for the current PDB.

NOTE: In a CDB, open the Keystore in the ROOT (CDB$ROOT) container and in all the associated PDBs, where TDE is enabled.

You do not need to manually open auto-login or local auto-login software Keystores.

Step 4: Set the Software TDE Master Encryption Key

Once the keystore is open, you can set a TDE master encryption key for it. The TDE master encryption key is stored in the keystore. This key protects the TDE table keys and tablespace encryption keys. By default, the TDE master encryption key is a key that Transparent Data Encryption (TDE) generates.

In a multitenant environment, you can create and manage the TDE master encryption key from either the root or the PDB.

Ensure that the database OPEN_MODE is set as READ WRITE. To find the status for a non-multitenant environment, query the OPEN_MODE column of the V$DATABASE dynamic view. If you are using a multitenant environment, then query the V$PDBS view. (If you cannot access these views, then connect as SYSDBA and try the query again. In order to connect as SYSKM for this type of query, you must create a password file for it. See Oracle Database Administrator's Guide for more information.)

Perform the following steps to set the encryption key:

1. Login as sysdba or user with ADMINISTER KEY MANAGEMENT or SYSKM privilege.
2. Use the following command to set the encryption key:

```
CONN sys/password@serviceid AS SYSDBA
```

```
ADMINISTER KEY MANAGEMENT SET KEY [USING TAG 'tag']
IDENTIFIED BY password [WITH BACKUP [USING 'backup_
identifier']] [CONTAINER = ALL | CURRENT];
```

- tag is the associated attributes and information that you define. Enclose this setting in single quotation marks (' ').
- password is the mandatory keystore password that you created when you created the keystore in "Step 2: Create the Software Keystore".
- WITH BACKUP creates a backup of the keystore. You must use this option for password-based keystores. Optionally, you can use the USING clause to add a brief description of the backup. Enclose this description in single quotation marks (' '). This identifier is appended to the named keystore file (for example, ewallet_time_stamp_emp_key_backup.p12, with emp_key_backup being the backup identifier). Follow the file naming conventions that your operating system uses.
- CONTAINER is for use in a multitenant environment. Enter ALL to set the key in all of the PDBs in this CDB, or CURRENT for the current PDB.

For example,

```
ADMINISTER KEY MANAGEMENT SET KEY IDENTIFIED BY password WITH
BACKUP USING 'emp_key_backup';
```

Step 5: Encrypting your Data

After completing the keystore configuration, encrypt the data. You can encrypt individual columns in a table or entire tablespaces. OFSAA recommends encrypting entire tablespaces and the description in this section covers encrypting entire tablespaces.

Note the following restrictions on using Transparent Data Encryption when you encrypt a tablespace:

- Transparent Data Encryption (TDE) tablespace encryption encrypts or decrypts data during read and write operations, as compared to TDE column encryption, which encrypts and decrypts data at the SQL layer. This means that most restrictions that apply to TDE column encryption, such as data type restrictions and index type restrictions, do not apply to TDE tablespace encryption.
- To perform import and export operations, use Oracle Data Pump.

Encrypting data involves the following steps:

Step 1: Setting the COMPATIBLE initialization parameter for tablespace encryption

Step 2: Setting the tablespace TDE master encryption key

Step 3: Creating the Encrypted Tablespace

Step 1: Setting the COMPATIBLE initialization parameter for tablespace encryption

Prerequisite- You must set the COMPATIBLE initialization parameter for the database to 11.2.0.0 or later. Once you set this parameter to 11.2.0.0, the change is irreversible.

Perform the following steps to set the COMPATIBLE initialization parameter:

1. Log into the database instance. In a multitenant environment, log into the PDB.
2. Check the current setting of the COMPATIBLE parameter.

   For example:

   ```
   SHOW PARAMETER COMPATIBLE


   NAME                                 TYPE        VALUE
   ------------------------------------ ------------------
   compatible                           string      12.0.0.0
   noncdbcompatible                     BOOLEAN     FALSE
   ```

3. If you want to change the COMPATIBLE parameter, perform the following steps:
   1. a.Locate the initialization parameter file for the database instance.

      UNIX systems: This file is in the ORACLE_HOME/dbs directory and is named initORACLE_SID.ora (for example, initmydb.ora).
   2. In SQL*Plus, connect as a user who has the SYSDBA administrative privilege, and then shut down the database.

      For example:

      ```
      CONNECT /AS SYSDBA

      SHUTDOWN
      ```
   3. Edit the initialization parameter file to use the correct COMPATIBLE setting.

      For example:

      ```
      COMPATIBLE = 12.2.0.0
      ```
   4. In SQL*Plus, ensure that you are connected as a user who has the SYSDBA administrative privilege, and then start the database.

      For example:

      ```
      CONNECT /AS SYSDBA

      STARTUP
      ```
   5. If tablespace encryption is in use, then open the keystore at the database mount. The keystore must be open before you can access data in an encrypted tablespace.

      ```
      STARTUP MOUNT;

      ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY
      password;

      ALTER DATABASE OPEN;
      ```

Step 2: Setting the tablespace TDE master encryption key

Make sure that you have configured the TDE master encryption key as shown in ***Step 4: Setting the software TDE master encryption key***.

Step 3: Creating the Encrypted Tablespace

After you have set the COMPATIBLE initialization parameter, you are ready to create the encrypted tablespace.

Follow the instruction given in Running the Schema Creator Utility with Encryption section for configuring the schema creator file to create tablespaces.

If you are enabling TDE in case of upgrade or you did not enable it during installation and want to enable at a later point of time, see

the following reference link for details on manually creating encrypted tablespaces:

https://docs.oracle.com/cloud/latest/db121/ASOAG/asotrans_config.htm#ASOAG9555

Running the Schema Creator Utility with Encryption

Run the schema creator utility by including the encrypt=on option in the Tablespace tag in the `<<APP PACK>>_SCHEMA_IN.xml` Schema in xml file. You have to perform this procedure manually as it is's not a part of the schema `<<APP PACK>>_SCHEMA_IN.xml.TEMPLATE` template originally.Run the schema creator utility by including the encrypt=on option in the Tablespace tag in the `<<APP PACK>>_SCHEMA_IN.xml` file. You have to perform this procedure manually as it is not a part of the `<<APP PACK>>_SCHEMA_IN.xml.TEMPLATE` originally.

Following is an example for `OFS _ALM_PACK_ SCHEMA_IN.xml`

```
<APPPACKSCHEMA>

<APP_PACK_ID>OFS_AAAI_PACK</APP_PACK_ID>

<JDBC_URL>jdbc:oracle:thin:@<DB_Server_IP>:1521:<DB_NAME></JDBC_
URL>

<JDBC_DRIVER>oracle.jdbc.driver.OracleDriver</JDBC_DRIVER>

<HOST><OFSAA_Server_IP/HOST Name></HOST>

<SETUPINFO NAME="<PREFIX_NAME>" PREFIX_SCHEMA_NAME="Y"/>

<PASSWORD APPLYSAMEFORALL="Y" DEFAULT="<PASSWORD>"/>

<TABLESPACES>

<TABLESPACE NAME="OFS_AAI_TBSP" VALUE="TS_USERS1"
DATAFILE="<ABSOLUTE PATH to TABLESPACE>/<TABLESPACE_DATA_FILE_
NAME>.dbf" SIZE="500M" AUTOEXTEND="OFF" ENCRYPT="ON" />

</TABLESPACES>

<SCHEMAS>

<SCHEMA TYPE="CONFIG" NAME="ofsaaconf" PASSWORD="" APP_ID="OFS_
AAI" DEFAULTTABLESPACE="##OFS_AAI_TBSP##" TEMPTABLESPACE="TEMP"
QUOTA="unlimited"/>

<SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_
AAAI" DEFAULTTABLESPACE="##OFS_AAI_TBSP##" TEMPTABLESPACE="TEMP"
QUOTA="unlimited" INFODOM="OFSAAAIINFO"/>

<SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_
IPE" DEFAULTTABLESPACE="##OFS_AAI_TBSP##" TEMPTABLESPACE="TEMP"
QUOTA="unlimited" INFODOM="OFSAAAIINFO"/>

</SCHEMAS>

</APPPACKSCHEMA>
```

Testing the Encryption

Test the encryption by checking if a tablespace is encrypted or not. Execute the following query to check:

```
SELECT tablespace_name, encrypted FROM dba_tablespaces;
```

The following result is displayed, which indicates whether the TABLESPACE is encrypted (ENCRYPTED TS - YES) or not (ENCRYPTED TS - NO) in the ENCRYPTED column:

```
TABLESPACE_NAME         ENCRYPTED
----------------------------------------
SYSTEM                          NO
SYSAUX                          NO
UNDOTBS1                        NO
TEMP                            NO
USERS                           NO
ENCRYPTED_TS                    YES
```

6 rows selected.

Configuring TDE in case of Upgrade

This section details about the configurations required in case you want to enable TDE in OFSAA applications after upgrade to OFSAA 8.0.7.0.0 version from a previous version. Additionally, these configurations are required in case you did not enable TDE during 8.0.7.0.0 installation and want to enable at a later point of time.

1. Create a new PDB (12c)/ instance (11g) on same or different Database Server for TDE. For more information, see Configuring Software Keystore and Encrypted Tablespace Creation.
2. Shutdown the OFSAAI Services.
3. Export all Configuration, Atomic and Sandbox Schemas as per the applications installed in your OFSAA instance.

   For example:

   ```
   expdp SYSTEM/oracle@OFSA12C2DB  DIRECTORY=data_pump_dir
   DUMPFILE=ofsaaconf_ofsaaatm_%U.dmp filesize=2G
   SCHEMAS=ofsaaconf,ofsaaatm LOGFILE=ofsaaconf_ofsaaatm_exp.log
   ```

   Note: The above command will create data dumps as files of 2GB size each (multiples). Any other commands/ tools as appropriate may be used to archive the schemas.

4. Import all schemas that are exported using the above command, into the new DB instance.

   For example:

   ```
   impdp SYSTEM/oracle@OFSA12nDB  DIRECTORY=data_pump_dir
   DUMPFILE=ofsaaconf_ofsaaatm_%U.dmp
   SCHEMAS=ofsaaconf,ofsaaatm LOGFILE=ofsaaconf_ofsaaatm_imp.log
   ```

Note: Restoring the exported dumps creates Configuration and Atomic Schema(s) with the same user credentials as that of the source, along with the existing grants.

If schemas are restored using a tool/ mechanism other than as mentioned in the Step 1 and 2, retain the user credentials of Configuration and Atomic Schemas same as in the Source environment, along with the Schema grants.

5. Provide select grants on sys.V_$parameter to view Configuration and Atomic Schemas of Target Environment database

   For example:

   ```
   Login as sys user:

   SQL> GRANT SELECT ON SYS.V_$PARAMETER TO ofsaaconf;

   Grant succeeded

   SQL> GRANT SELECT ON SYS.V_$PARAMETER TO ofsaaatm;

   Grant succeeded
   ```

6. Update `.profile` for ORACLE_SID environment variable with new ORACLE_SID.
7. Update JDBC URL by executing Port Changer utility. For details on how to execute Port Changer utility, see Changing IP/ Hostname, Ports, Deployed paths, Protocol of the OFSAA Instance section.
8. Navigate to the $FIC_WEB_HOME directory and execute the following command to trigger the creation of EAR/WAR file:

   ./ant.sh

9. The EAR/WAR file - <contextname>.ear/.war - is created in `$FIC_WEB_HOME` directory.
10. On completion of EAR/WAR file creation, the message "BUILD SUCCESSFUL" will be displayed.
11. Edit the existing Connection Pool settings to point to new JDBC URL and verify connections.
12. Clear the webserver cache and redeploy the application onto your configured web application server.
13. Restart the OFSAA Services. For more information, refer to the Start/Stop Infrastructure Services section.

Data Redaction

OFSAA is enhanced to enable masking of sensitive data and Personal Identification Information (PII) to adhere to Regulations and Privacy Policies. Oracle Data Redaction provides selective, on-the-fly redaction of sensitive data in database query results prior to display by applications so that unauthorized users cannot view the sensitive data. The stored data remains unaltered, while displayed data is transformed to a pattern that does not contain any identifiable information.

Enabling Data Redaction in case of Upgrade

This section details about the configurations required in case you want to enable Data Redaction in OFSAA applications after upgrade to OFSAA 8.0.7.0.0 version from a previous version. Additionally, these configurations are required in case you did not enable TDE during OFS ALM 8.0.7.0.0 installation and want to enable at a later point of time.

Perform the following steps:

1. Login as SYSDBA into the database.
2. Execute the file `$FIC_HOME/utility/data_security/scripts/create_data_sec_roles.sql` only once per database (PDB in case of 12c).
3. Execute the following sql statement to find out the list of atomic users from the table:

   ```
   select v_schema_name from aai_db_detail where V_DB_NAME <> 'CONFIG' AND V_DB_TYPE = 'ORACLE'
   ```

4. Execute the file `$FIC_HOME/utility/data_security/scripts/grant_data_sec_roles.sql` for all atomic users found in the previous step.
5. From the Configuration window in the System Configuration module, select the Allow Data Redaction checkbox.
6. Run the Data Redaction utility. For more details on how to run the utility, see Data Redaction section under Data Security and Data Privacy chapter in OFS Analytical Applications Infrastructure Administration Guide 8.0.7.0.0.

O

FAQs and Error Dictionary

This section of the document consists of resolution to the frequently asked questions and error codes noticed during OFSAAI installation.

- Frequently Asked Questions
- Error Dictionary

OFSAAI installer performs all the pre-requisite validation check during installation. Any errors encountered in the process is displayed with an appropriate Error Code. You can refer to the Error Dictionary to find the exact cause and resolution to rectify the error.

Frequently Asked Questions

You can refer to the Frequently Asked Questions which has been developed with the interest to help you resolve some of the OFSAAI Installation and configuration issues. This intends to share the knowledge of problem resolution to a few of the known issues. This is not an official support document and just attempts to share the knowledge of problem resolution to a few of the known issues.

This section includes the following topics:

- OFSAAI FAQs
- Application Pack 8.0.7.0.0 FAQs
- Forms Framework FAQs

OFSAAI FAQs

What are the different components that get installed during OFSAAI?

The different components of OFSAAI are illustrated in Figure 1–2, "Components of OFSAAI".

Can the OFSAA Infrastructure components be installed on multi-tier?

No. OFSAA Infrastructure components (ficapp, ficweb, ficdb) cannot be installed on multi-tier. By default, they will be installed on single-tier. However, OFSAA Infrastructure can be deployed within the n-Tier architecture where the Database, Web Server and Web Application Server is installed on separate tiers.

Is JDK (Java Development Kit) required during installation of OFSAA? Can it be uninstalled after OFSAA installation?

JDK is not required during installation of OFSAA and only a run time is needed. For details, see Hardware and Software Requirements, Java Runtime Environment section.

Is JRE required during installation of OFSAA? Can it be uninstalled after OFSAAI installation?

Only JRE (Java Runtime Environment) is required during installation of OFSAA and cannot be uninstalled as the JRE is used by the OFSAA system to work.

How do I know what are the Operating system, webservers and other software versions that OFSAA supports?

Refer to OFSAA Technology Stack Matrices.

What are the different files required to install OFSAAI?

The following files are required:

- setup.sh.
- envCheck.sh
- preinstallcheck.sh
- VerInfo.txt
- OFSAAInfrastructure.bin
- validatedXMLinputs.jar
- MyResources_en_US.properties
- log4j.xml
- OFSAAI_PostInstallConfig.xml
- OFSAAI_InstallConfig.xml
- privileges_config_user.sql
- privileges_atomic_user.sql

What should I do if I get the following error message during installation:

"Execute Permission denied"?

Check whether all the files provided for OFSAAI installation has execute permissions.

To give execute permissions,

- Navigate to the path `OFSAAI_80200` and execute the command

```
chmod 755
```

"Graphical installers are not.."

If error resembles "Graphical installers are not supported by the VM. The console mode will be used instead..." then check whether any of the X-windows software has been installed.

Example: Hummingbird Exceed is started and configured to Graphical mode installation.

Note: Type '`xclock`' from prompt and this should display clock in graphical mode.

"No Java virtual machine could be…"

If the error message reads "No Java virtual machine could be found from your PATH environment variable. You must install a VM prior to running this program", then

- Check whether "java path" is set in PATH variable. See the Table 3–1, " Prerequisite Information"section in this document.
- Check whether sufficient temporary space is available.
- Ensure that the movement of OFSAAI Installer text files to the target system is done in the Text mode so that `setup.sh` file does not contain control line feed characters (^M).

What should I do if I get the following error message during installation, "OracleDriver Files Not Found, Please Choose the Right Path To Continue"?

Check whether the provided path for Oracle Driver files is correct and whether the user has permissions to access the files.

What should I do if I get the following error message during installation, "User must have CREATE TABLE, CREATE VIEW, CREATE TRIGGER, CREATE INDEX, CREATE SEQUENCE, CREATE PROCEDURE" even though the oracle schema user created has the mentioned privileges?

OFSAAI installer validates the database details provided during installation, so ensure:

- Whether the oracle schema user has the required set of privileges for successful installation.
- Whether the oracle schema user has been created with quota privileges on tablespace to create database objects.

See the Table 3–1, " Prerequisite Information"section in this document.

Installation of OFSAAI was completed successfully! What next?

Post the successful completion of OFSAAI installation, one has to perform the Post Installation steps. See Post Installation Configurations.

What is to be done when OFSAAI Installation is unsuccessful?

OFSAAI installer generates log file `OFSAAInfrastructure_Install.log` in the Infrastructure Installation Directory. There is also another log file created in the path configured in `Log4j.xml`. If the logs of any of these reported Warnings, Non Fatal Errors, Fatal Errors or Exceptions, they should be brought to the notice of the

OFSAAI Oracle Support Services. It is recommended not to proceed, until the reported problems are adequately addressed.

How do I completely uninstall OFSAAI?

OFSAAI can be completely uninstalled by performing the steps provided in Uninstalling OFSAA Infrastructure section in this guide.

Can OFSAAI config and atomic schemas be on different databases?

OFSAAI requires both config and atomic schemas to be present on the same database instance.

How do I grant privileges if a new information domain is created?

If you are creating a new information domain, provide a set of privileges (database permissions) to the new Atomic schema.

- Log into the database as **sys** and connect as **sysdba** user.
- Execute the file `privileges_config_user.sql` available under `$FIC_HOME` directory
- Enter the database schema for which you want to grant privileges.

When should I run the MLS utility?

See the Multiple Language Support (MLS) Utility section in OFS AAI Administration Guide available on OTN.

Does OFSAAI support Oracle Linux versions other than 5.5?

OFSAAI supports the Oracle Linux versions from 5.5 up to 5.10 and also from 6.0 and above.

What should I do if I get the following error message on the UNIX System terminal while executing ./setup.sh, "Insert New Media. Please insert Disk1 or type its location"?

1. Login as root user on the Unix machine where OFSAAI is getting installed.
2. Navigate to the path `/etc/security/`.
3. Edit the file `limits.conf` to add/edit a row for the unix user installing OFSAA:

   ```
   <Unix User> soft nofile 9216
   ```

4. After saving the changes, log in as unix user with which OFSAAI is getting installed and execute the command:

   ```
   ulimit -n
   ```

The command should return the value 9216.

How do I verify if the system environment is ready for OFSAAI installation?

To verify the system environment meets the minimum requirements for the installation, a Pre-Install Check utility is available within the Install Kit archive file. This utility can also be obtained separately by contacting Oracle Support.

See Verifying System Environment section for additional information.

How do I know if the installation is completed successfully?

The OFSAA Infrastructure installation performs a post install health check automatically on successful installation of the product. To rerun the post install verification at a later time, perform the following steps:

1. Navigate to the path `$FIC_HOME` (Product Installation Directory).
2. Execute the command:

   ```
   ./piverify.sh
   ```

What should I do if there are any exceptions or errors in installation and how to proceed?

1. Please backup the installation logs.
2. Share the backup logs with Oracle Support Services.

What should I do if I get the following error message during OFSAAI installation on Solaris 11 system?:

"Error: OFSAAI-1108

ORA-00604: error occurred at recursive SQL level 1

ORA-01882: timezone region not found"

Or

"Time zone cannot be set as null or 'localtime' "

This happens if the time zone is not set, that is NULL or it is set as 'localtime'. Set the environment variable TZ to a valid time zone region in the `.profile` file. For example,

```
TZ=Asia/Calcutta

export TZ
```

What should I do if the installation process is abruptly terminated or aborted?

If the installation process is abruptly terminated, then the installation will be incomplete. To recover from this, follow these steps:

1. Drop the DB objects in the config schema created by OFSAAI installation.
2. Open the `.profile` and remove the entries made by the OFSAAI installation which are made between the comment statements, #Beginning of entries by OFSAA Infrastructure installation and #End of entries by OFSAA Infrastructure installation.
3. Delete the OFSAA install directory created by the OFSAAI installer.
4. Perform the OFSAAI installation again.

Does OFSAA support any other web server types, other than the ones stated in Tech Matrix and Installation Guide?

No, all the supported softwares and versions are stated in the OFSAA Technology Stack Matrices.

What should I do if the database connection from connection pool displays the following error message, "java.sql.SQLRecoverableException: IO Error: Connection reset"?

This happens while running several database intensive tasks in parallel. To correct this error, add the line `securerandom.source=file:/dev/./urandom` in the `java.security` configuration file available in `$JAVA_HOME/jre/lib/security/` path.

Note: This needs to be configured on all the machines or VMs where the OFSAAI components are installed.

If the issue is not resolved even with the preceding settings, check the MTU(Maximum Transmission Unit) settings on the linux box. For details on MTU settings and updating them, contact your system Administrator.

What should I do when I get syntax errors/file not found error messages while invoking setup.sh file from my install archive?

This could mostly happen:

- When installer was not unzipped rightly or corrupted during unzip.
- setup.sh file which resides within the install archive was not transferred in ASCII or text mode, which could have corrupted the file.

To correct this, follow the steps:

1. Copy the installer (in BINARY mode) to the system on which the OFSAA Infrastructure components will be installed.
2. Unzip the installer using the command:

   `unzip <OFSAAI_Installer>.zip`
3. The corrupted `setup.sh` file would have introduced certain ^M characters into the file. You can remove ^M characters from setup.sh file by following these steps:
   a. Login to the server where the installer is copied.
   b. Navigate to the directory `OFSAAI_80200`.
   c. Open the `setup.sh` file in the **vi** editor using the command: `vi setup.sh`.
   d. Inside vi editor in Esc mode, type: **`%s/^M//g`**

   Note: To enter ^M, hold the CTRL key then press V and M in succession.

   e. Save the `setup.sh` file by typing: **`wq!`**

Does OFSAA support Oracle DB 11g Standard edition?

The OCI client and the jdbc driver does not change depending on whether it is a standard or enterprise edition. So, OFSAAI will work with standard edition as well.

We do not recommend standard edition because it will not scale and does not support partition pack, database security vault, or advanced analytics.

What should I do if I get the following error message while executing ./startofsaai.sh file on the UNIX System terminal "./startofsaai.sh: /java: Execute permission denied"?

- Ensure JAVA_BIN environment variable path is set on the "unix user" terminal from where the `startofsaai.sh` file is invoked.
  - Ensure the `.profile` where the environment/ path settings are made has been executed successfully.

What should I do if the OFSAAI Application Server does not proceed even after providing the system password?

Ensure that, the System Password provided when prompted is "password0" provided during installation. Also check whether the connection to the "configuration schema" can be established through sqlplus.

Although the OFSAAI installation has completed successfully, when OFSAAI servers are started, and the application URL is accessed, it gives an error message "the page cannot be found or displayed" or "Could not retrieve list of languages from Server. Please contact the system administrator". What should one do?

Ensure OFSAAI servers have been started and are running successfully. For details on start up parameters options, see Starting Infrastructure Services section.

For more details on the issue, refer to the Revappserver log in `$FIC_APP_HOME/common/FICServer/logs` directory or the Web Server log files.

Is it necessary to provide the specified grants to the Oracle schema user before installation? If yes, can it be revoked after completing the installation?

The "Oracle schema" user requires the necessary grants specified before, during, and after the installation process. Grants provided should never be revoked as the application makes use of these grants all the time.

Can we have distributed OFSAAI Application Server for load balancing?

OFSAAI Application server can be scaled out/distributed across different JVM's (machines) based on the various services and Information Domains, in other words, Load balancing could be achieved with distribution of services.

Why do we need FTPSHARE on all the layers? Can we have ftpshare on another machine other than the machines where OFSAAI is installed?

FTPSHARE is a Metadata Repository directory. All the metadata related files used in Infrastructure are stored in the FTPSHARE directory. The ftpshare contains folders for each Information Domain, with each Information Domain folders holding Erwin, log, and scripts folder. The transfer of data among the Web, Application, and Database servers in Infrastructure takes place through FTP/SFTP.

You need to configure FTP/SFTP and enable communication between the servers by providing App server's FTP/SFTP credentials to the Web server and DB server users.

Yes, you can have FTPSHARE on another machine other than the machines where OFSAAI is installed.

Is it mandatory to provide the FTP/SFTP password?

Yes, OFSAAI needs credentials of the user who has complete permissions on FTPSHARE directory, and the user should be able to independently login to the unix server.

What are the permissions required for FTPSHARE and when should I give them?

It is recommended to provide permissions on FTPSHARE in case of installations done across different machines or VMs (multitier installation).

In case of single tier installation, 770 permissions can be provided if the Unix users of OFSAAI and web server belong to the same Unix group.

Additionally, any new file that is created in the FTPSHARE folder of any installation layer should be granted specific/explicit permission.

Port Change utility can be used to have the Port number modified, which are currently being used by the Infrastructure application. For more information, refer C*hanging IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance* section in OFS Analytical Applications Infrastructure Administration User Guide in OTN.

Are there any in-built system administration users within OFSAAI Application?

The three in-built system administration users are provided to configure and setup OFSAAI.

- SYSADMN
- SYSAUTH
- GUEST

Does OFSAAI Application support both FTP and SFTP?

OFSAAI supports both FTP and SFTP configuration.

Is it necessary to enable the FTP/SFTP services to use the OFSAAI?

Yes, enabling of FTP/SFTP services and its ports is a pre-requisite step towards using the OFSAAI.

OFSAAI Configuration: Unable to save the server details?

- Ensure the input User ID, Password, and Share Name are correct.
- Ensure FTP/SFTP services are enabled.
- Have a test FTP/SFTP connection made and confirm if they are successful.

What should I do if I get the following message while creating Information Domain, "Please create a database and then create the information domain"?

Information Domain is mapped to only one Database; and thus before the creation of Information Domain, at least one database details should exist.

What should I do if I get the following message during the startup of backend engine message server, "ConnectToDatabase: FatalError, could not connect to the DB server"?

- Verify whether connection to the Configuration Schema can be established through SQL*PLUS.
- Verify Configuration Schema password is modified post installation.
- Ensure Oracle Database Alias Name created for Oracle Instance and Oracle Service Name are same.
- On a multi tier installation mode, ensure TNSNAME and SID are same in both the Application and Database Layers.

What should I do if I get the following message during the startup of backend engine message server, "Fatal Error, failed to get user ID from LibSmsConnect"?

Ensure Reveleus.sec file exist under the $FIC_HOME/conf directory where the Database components are installed.

Does OFSAAI Application support LDAP authentication?

OFSAAI supports LDAP configuration and authentication.

Does OFSAAI support multiple languages?

Yes, OFSAAI supports multiple languages.

Does OFSAAI provide any data back-up features?

OFSAAI does not have built-in back up facility. External Storage Infrastructure is recommended for back-up.

What kind of security features does the OFSAAI provide?

OFSAAI provides security at:

- Segment Level - Users can access only the segment they are mapped to.
- Application Level - Users can perform an operation only if mapped to appropriate role and functions.

Does OFSAAI have the ability to enforce periodic password change?

OFSAAI provides configurable parameters to define number of days after which the user password would expire and then the user is forced to change the password after expiration period.

What is the password policy followed in OFSAAI?

OFSAAI enforces a minimum password length with a combination of Upper and Lower case characters and alpha-numeric strings.

Which version of Erwin Data Modeller does OFSAAI support?

OFSAAI framework supports Data Modeler Erwin versions 9.0, 9.2, 9.6, and 9.7 for backward compatibility. However, the data models shipped with version 8.0.7.0.0 of the application packs are compatible with Erwin 9.5, 9.64, and 9.7.

Does OFSAAI provide the mechanism to upload Business Data model?

OFSAAI provides two mechanisms for business data model upload:

- Easy to use GUI based Model upload mechanism to upload the Business Data Model through Data Model Management -->Data Model Maintenance --> Import Model.
- OFSAAI also provides a model upload utility "`upload.sh`" for uploading the business data model through the command line parameter by executing this shell script file under the path `<FIC_HOME>/ficapp/common/FICServer/bin`.

For more details, see Configuration for Model Upload Utility section of the OFS Analytical Applications Infrastructure User Guide available on OTN.

How do I apply incremental change to the existing model when the Business Data model undergoes a change?

Modified data model can be uploaded into the system and OFSAAI has the ability to compare the changes within the data model with respect to the one already present in the system and enables propagation of incremental changes in a consistent manner.

What are the different types of uploading a business data Model?

OFSAAI supports uploading of business data model from client desktop and also by picking up the data model from the server location.

Can the OFSAAI Configuration Schema password be modified post installation?

The OFSAAI Configuration Schema password can be modified post installation. OFSAAI application stores the password in the database and few configuration files, thus any changes to the Configuration Schema password will require updating in those files. For more information, see Modifying OFSAA Infrastructure Config Schema Password.

Can the OFSAAI Atomic Schema password be modified?

The OFSAAI Atomic Schema password can be modified. OFSAAI application stores the atomic schema password in the database and few configuration files, thus any change to the atomic schema password will require updating those files.

To change the Atomic Schema password, follow the steps:

1. Login to OFSAA.
2. Navigate to System Configuration > Database Details window. Select the appropriate connection, provide the modified password and save.
3. Based on the Web Server installed, follow the steps:
   a. If you are using Apache as Web server:
   * Update the <Context> -> Resource tag details in `server.xml` file from the `$CATALINA_HOME/conf` folder. (In case of Tomcat only Atomic <Resource> will exist).
   b. If you are using WebSphere as Web server:
   * Login to the WebSphere Administration Console from the left side menu.
   * Navigate to Resources >JDBC >Data Sources. A list of data sources will be populated on the right side.
   * Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
   c. If you are using WebLogic as Web server:
   * Login to the WebLogic Administration Console from the left side menu.
   * Under Domain Structure list box, expand the appropriate Domain and navigate to Services > JDBC >Data Sources. A list of data sources will be populated on the right side.
   * Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
4. Restart the OFSAAI services

Note: If the modified passwords are not updated, OFSAAI logs display the message ORA-28000: the account is locked.

Does the upload of Business Data model depend on Java Memory?

Business data model upload through OFSAAI depends on the Java memory settings on the client and server machines. Java memory setting varies with the data model size and the available RAM. Contact Oracle Support Services for more details.

Why do the Business Metadata Management screens (Business Processors screen) in User Interface, take more time to load than other screens?

The Log file in DynamicServices.xml which resides in $FIC_HOME/conf is continuously being updated/refreshed to cache metadata. This can be observed when you are starting startofsaai.sh and if any of the log file (For example, SMSService.log) in DynamicServices.xml is being continuously refreshed for longer time.

By default, the Metadata Log file cache size is set to 1000. If in case the log is being updated beyond this limit, retrospectively the preceding entries are overwritten. For example, the 1001th entry is overwritten by deleting the first entry. This results in the application window taking a longer time to load.

Increase the cache size limit in Dynamicservices.xml located at <FIC_HOME>/conf, depending on the currently logged count for the specific metadata.

1. Generate the Log report by executing the following query in config schema.

```
select count(1), t.metadata_name, m.dsn_id
from metadata_master m, metadata_type_master t
where m.metadata_type = t.metadata_type
group by t.metadata_name, m.dsn_id
```

2. The preceding query returns a list of codes with their respective metadata count. You can refer to "metadata_type_master" table to identify the metadata name.
3. View the log report to identify the metadata which is being updated/refreshed beyond the specified cache size limit. Accordingly increase the cache size limit in Dynamicservices.xml depending on the currently logged count for the specific metadata.

   For example, if the "MEASURE_CACHE_SIZE" is set to 1000 and total measure reported in log is 1022, increase the limit to 2000 (approximately).
4. Restart Reveleus/OFSAAI servers (Web and APP) and check the issue.

What should I do if I get OutOfMemoryError while deploying EAR file in WebSphere application server?

The Java memory needs to be increased in ejbdeploy.sh file which is present under <WebSphere Install directory>/AppServer/deploytool/itp. For example,

```
$JAVA_CMD \
-Xbootclasspath/a:$ejbd_bootpath \
Xms256m -Xmx1024m \
```

What configurations should I ensure if my data model size is greater than 2GB?

In order to upload data model of size greater than 2GB from OFSAAI Data Model Management -->Data Model Maintenance--> Import Model, you need to configure the required model size in struts.xml file available in the path $FIC_WEB_HOME/webroot/WEB-INF/classes.

Note: The size requirements have to be always specified in bytes.

For example, if you need to configure for model size of 2.5GB, then you can approximately set the max size to 3GB (3221225472 bytes) as follows, in order to avoid size constraints during model upload.

```
<constant name="struts.multipart.maxSize" value="3221225472"/>
```

After configuring `struts.xml` file, generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR / WAR file, refer Appendix C.

What should I do if my Hierarchy filter is not reflecting correctly after I make changes to the underlying Hierarchy?

In some cases, the Hierarchy Filters do not save the edits correctly if the underlying Hierarchy has been changed. This can occur in hierarchy maintenance, where you have moved a member to another hierarchy branch, and that member was explicitly selected in the Filter and is now a child of a node which is already selected in the Filter. Refer Support Note for the workaround.

Can I install an Application Pack on an existing Atomic schema/ Information Domain created manually?

No, you cannot install an Application Pack on existing Atomic schema/Information Domain created manually. Application Packs can be installed only on Atomic Schemas/Information Domain created using schema creator utility and/ or the Application Pack installer.

What should I do if I get the following exception while trying to view the model outputs in Model Outputs screen, "Exception ->Local Path/STAGE/Output file name (No such file or directory)"?

Ensure you have created a folder "STAGE" under the path mentioned as "Local Path" in the web server details window. This folder needs to be created under the local path on every node, in case of web application server clustering.

What should I do if I get the following exception during OFSAA services startup, "Exception in thread "main" java.lang.UnsatisfiedLinkError: net (Not a directory)"?

Ensure the JRE referred in .profile is not a symbolic link. Correct the path reference to point to a physical JRE installed.

What is the optimized memory settings required for "New" model upload?

The following table lists the optimized memory settings required for "New" model upload.

Table O–1 Optimized Memory Settings for New Model Upload

Model Upload Options	Size of Data Model XML File	X_ARGS_APP ENV Variable in OFSAAI APP Layer
Pick from Server	106 MB	"-Xms1024m -Xmx1024m
	36 MB	"-Xms2048m -Xmx2048m
	815 MB	"-Xms4096m -Xmx4096m
	1243 MB	"-Xms6144m -Xmx6144m

Table O–1 Optimized Memory Settings for New Model Upload

Model Upload Options	Size of Data Model XML File	X_ARGS_APP ENV Variable in OFSAAI APP Layer
Model Upload Utility	106 MB	"-Xms1024m -Xmx1024m"-Xms2048 m -Xmx2048m
	336 MB	"-Xms4096m -Xmx4096m
	815 MB	"-Xms4096m -Xmx4096m
	1243 MB	"-Xms6144m -Xmx6144m
Save New Erwin File In Server	106 MB	"-Xms1024m -Xmx1024m
	336 MB	"-Xms2048m -Xmx2048m
		"-Xms4096m -Xmx4096m
		"-Xms6144m -Xmx6144m

What should I do if I get the following error message, "ORA 01792 maximum number of columns in a table or view is 1000 during T2T execution"?

You should apply the following patch set from Oracle. Applicable only for 12c.

https://support.oracle.com/epmos/faces/DocumentDisplay?id=1937782.1

I did not enable OFS Inline Processing Engine Application license during the installation. However, I have enabled it post installation, using the Manage OFSAA Product License(s) in the Admin UI. Are there any other additional configurations that I need to do?

Yes. Follow the instructions explained in the OFS Inline Processing Engine Configuration Guide available on OTN.

I get an error when I try to build an Oracle OLAP cube. What should I do?

Execute the following grant on the appropriate ATOMIC schema

```
grant olap_user to &database_username
```

How do you turn off unused Information Domains (Infodoms) from caching?

Follow these steps to turn off unused infodoms from caching:

1. Navigate to $FIC_HOME/conf in the APP layer of your OFSAAI installation.
2. In the DynamicServices.xml file, identify the section for <Service code="20">.
3. Modify the value of parameter CACHE_ON_STARTUP to 0 (default is 1).
4. Repeat the same in the WEB layer too. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR / WAR file, refer to the Appendix C section.
5. Restart the OFSAAI Services (APP and WEB). For more information, refer to the Starting Infrastructure Services section.

Note: This setting helps cache the Infodom metadata only for the infodoms that are accessed after user login. Infodoms which are not accessed, are not cached.

Sample code is as follows:

```
<SERVICE CODE="20"
CLASS="com.iflex.fic.metadata.services.MetadataServiceProvider"
NAME="BMD"
SERVERID="DEFAULT" PATH=" " LOGGERNAME="UMMLOGGER" LOGGERLEVEL="10">
<PARAMETERS>
<PARAMETER NAME="CACHE_ON_STARTUP" VALUE="0" />
<PARAMETER NAME="BACKUP_XML" VALUE="1" />
<PARAMETER NAME="MAX_BACKUP_XML" VALUE="2" />
<PARAMETER NAME="PC_NONBI_BI_SWITCH" VALUE="2048" />
<PARAMETER NAME="HIERARCHY_NODE_LIMIT" VALUE="2000" />
<PARAMETER NAME="ALIAS_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="DATASET_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="MEASURE_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="HIERARCHY_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="DIMENSION_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="HIERARCHYATTRIBUTE_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="CUBE_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="RDM_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="BUSINESSPROCESSOR_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="DERIVEDENTITY_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="LOG_GET_METADATA" VALUE="false" />
<PARAMETER NAME="METADATA_PARALLEL_CACHING" VALUE="0" />
</PARAMETERS>
</SERVICE>
```

While creating an Excel Mapping, after specifying the excel worksheet, the target table, and mapping each column in the worksheet to a target table, I click Save and nothing happens. But when I click Cancel, a message pops up informing me that all changes will be discarded", what is to be done.

Check if the version of Internet Explorer and JRE Plugin are as mentioned in the Desktop Requirements section of this manual. If not, use the qualified versions as mentioned.

Can multiple OFSAA Infrastructure instances share the same Config Schema?

No, only one OFSAA environment can be installed using one Config Schema.

Can Atomic Schema be shared?

Yes, it can be shared between two OFSAA instances.

While setting a firewall, which ports should be opened for communication between the Web Server (Apache HTTP Server/ Oracle HTTP Server/ IBM HTTP Server) and the Web Application Server (WebSphere/ WebLogic/ Tomcat) for OFSAAI to operate properly?

The OFSAA Servlet port which is same as Web server port should be open. Also the web application port should be open.

Can I modify the NLS_LENGTH_SEMANTICS to BYTE from CHAR for the Database where older versions of OFSAA is Installed?

Yes, NLS_LENGTH_SEMANTICS can be modified to BYTE from CHAR if you are not intending to use multi language support.

Can I install already installed application in a different infodom?

No, it is not possible to install the same application in two different infodoms.

How can I configure the OFSAA application for High Availability?

OFSAA can have active-passive high availability.For more details, refer Configuration for High Availability- Best Practices Guide.

During OFSAA installation should I provide web application server's IP /Hostname and port or web server's IP/Hostname and port, if the Apache HTTP Server/ Oracle HTTP Server/ IBM HTTP Server are configured?

In case the web server is configured, you should enter the Web Server IP Address/Hostname and Port details during OFSAA installation. Here the Servlet port should be same as the Web Server port.fl

If Web Server is not configured, the Web Application Server's IP Address/ Hostname and Port is required during the installation process. Here the Servlet port should be same as the Web application Server port.

Is "ReveleusAdminConsoleAgent" applicable for OFSAAI 8.0.0.0.0 and higher versions?

No, `ReveleusAdminConsoleAgent` is not applicable starting OFSAAI 7.3.3.0.0. There is a change in the way agentservers are managed through `AGENTSTARTUP.SH` and `AGENTSHUTDOWN.SH`.

What should I do when the message server process does not open and I get the following error message, "CI18NProvider::CI18NProvider, Error, unable to connect to the config database"?

This error is displayed due to the following reasons:

- The Config Schema password is already expired.
- If the Config Schema password is going to expire soon and the message likeflfl"ORA-28002: the passwordflwill expire within 6 days" displays while connecting to Config Schema through SQLPlus.
- The Config Schema password is modified.

To resolve the error, re-set the Config Schema password to the old password. Else, if the Config Schema password is modified to something else then follow these steps:

1. Delete the $FIC_HOME/conf/Reveleus.SEC file.
2. Shutdown the OFSAAI App service: `cd $FIC_APP_HOME/common/FICServer/bin ./stopofsaai.sh`

3. Shutdown the OFSAAI App service: `cd $FIC_APP_HOME/common/FICServer/bin ./stopofsaai.sh`
4. Start the Infrastructure Server in foreground directly on the server or through XWindows software using the command: `./startofsaai.sh`
5. Enter System Password.
6. Enter the new Config schema password. The service starts and initializes if it is able to successfully connect to the DB and generates the `Reveleus.SEC` file.
7. Post successful startup of the service, if required, the Infrastructure server may be shut down and restarted in the background using nohup mode.

What is the mechanism of Log File sizing and backup?

OFSAAI Log files created under `$FIC_APP_HOME/common/FICServer/logs & <OFSAAI_DEPLOYED_AREA>/<CONTEXT.war>/logs` is configurable in `RevLog4jConfig.xml`.

The default size of the log files (MaxFileSize) is set to 5000kb and number of maximum backup log files (MaxBackupIndex) retained is set to 5, both of which are configurable. Increasing these parameters to a higher value should depend on the server hardware configurations and may reduce the performance.

To configure the Logs file size on OFSAA Application server, follow these steps:

1. Navigate to `$FIC_HOME/conf` where OFSAA is installed.
2. Edit the following parameters in the file `RevLog4jConfig.xml`
   * param name="file" : Enter the path where the Logs are to be generated.
   * param name="MaxFileSize" : Provide the required file size.
   * param name="MaxBackupIndex" : Provide the required number of backup files to be created.

Example:

```
<appender name="REVSERVERAPPENDER"
class="org.apache.log4j.RollingFileAppender">
<param name="file" value="$FIC_
HOME/ficapp/common/FICServer/logs/RevAppserver.log"/>
<param name="Append" value="true" />
<param name="MaxFileSize" value="5000kb" />
<param name="MaxBackupIndex" value="5" />
<layout class="org.apache.log4j.PatternLayout">
<param name="ConversionPattern" value="[REVELEUSLOG] %m%n"/>
</layout>
</appender>
```

To configure the Deployed area logs file, follow these steps:

1. Navigate to `<EAR/WAR Deploy area>/conf` folder.
2. Repeat step 2 from the preceding section.

Can we modify the Log file path?

Yes, Log file path is configurable, it can be configured in `RevLog4jConfig.xml` file. The default log file path (file) is set by the installer. This can be configured to another path.

Can I point the environment with HTTP enabled to HTTPS after installation and vice versa?

Follow these steps:

1. Create SSL related certificates and import to respective servers.
2. Enable SSL on a desired Port (example 9443) on your existing and already deployed web application servers.
3. Replace the protocol as https and new ssl port (FIC_SERVLET_PORT) configured and in all the URLs specified on the following files:
   * $FIC_HOME/ficapp/common/FICServer/conf/FICWeb.cfg and $FIC_HOME/ficweb/webroot/conf/FICWeb.cfg
   * $FIC_HOME/ficapp/icc/conf/WSMREService.properties
   * $FIC_HOME/ficweb/webroot/conf/ModelExecution.properties
   * $FIC_HOME/ficdb/conf/MDBPublishExecution.properties
   * $FIC_HOME/ficdb/conf/ObjAppMap.properties
   * $FIC_HOME/utility/Migration/conf/WSMigration.properties
   * $FIC_HOME/utility/WSExecution/conf/WSExecution.properties
   * $FIC_HOME/EXEWebService/WebSphere/ROOT/WEB-INF/wsdl/EXEWebServiceImpl.wsdl
   * $FIC_HOME/EXEWebService/Tomcat/ROOT/WEB-INF/wsdl/EXEWebServiceImpl.wsdl
   * `$FIC_HOME/EXEWebService/weblogic/ROOT/WEB-INF/wsdl/EXEWebServiceImpl.wsdl`
4. Replace XML attribute/Node values as specified on the following files:
   * $FIC_HOME/ficweb/webroot/WEB-INF/web.xml
   * FIC_WEBSERVER_PORT=9443
   * FIC_WEBPROTOCOL=https
   * $FIC_HOME/conf/LookUpServices.xml and $FIC_HOME/ficweb/webroot/conf/LookUpServices.xml
   * `PORT="9443" PROTOCOL="https:"`
5. Login to Config Schema and execute the following SQL command to replace protocol and SSL port.

   ```
   SQL> update configuration cn set cn.paramvalue='9443' where
   cn.paramname='SERVLET_ENGINE_PORT';
   ```

   SQL> update configuration cn set cn.paramvalue=replace(cn.paramvalue,'http:','https:') where cn.paramname='FormsManagerCacheReload';

```
SQL> update web_server_info ws  set
ws.servletport='9443',ws.servletprotocol='https';
```

6. Create EAR/WAR file and Re-Deploy.

What should I do if my HIVE connection fails with the following exception:

```
java.sql.SQLException: [Cloudera][HiveJDBCDriver](500164)
Error initialized or created transport for authentication:
[Cloudera][HiveJDBCDriver](500168) Unable to connect to server:
GSS initiate failed.
       com.ibm.security.krb5.KrbException, status code: 37
                message: PROCESS_TGS at
com.ibm.security.krb5.KrbTgsRep.<init>(KrbTgsRep.java:20)
```

This happens if there is a clock skew between the client and the KDC server. To resolve this, there are two solutions:

- **Solution 1:**

  Synchronize the clocks between the servers. For more information, refer http://docs.oracle.com/cd/E19253-01/816-4557/setup-192/index.html

- **Solution 2:**

1. Set clockskew parameter on the server side (KDC) krb5.conf file and replace the same file in `HIVE_LIBRARY_PATH` folder. Parameter value should be decided on the basis of the time difference between the two machines.
2. Get the epoch time on the two servers by firing "date +%s" on the command line.
3. Clockskew param value should be chosen as a value sufficiently larger than the difference of the preceding two calculated values.
4. Set "clockskew = <value>" in the /etc/krb5.conf on the KDC server.
5. Restart Kerberos services.

What should I do if my schema creator log has the following exception:

```
Failed to detect a valid hadoop home directory
```

java.io.IOException: HADOOP_HOME or hadoop.home.dir are not set.

at org.apache.hadoop.util.Shell.checkHadoopHome(Shell.java:302)

at org.apache.hadoop.util.Shell.<clinit>(Shell.java:327)

at org.apache.hadoop.util.StringUtils.<clinit>(StringUtils.java:79) at org.apache.hadoop.security.Groups.parseStaticMapping(Groups.java:130)

at org.apache.hadoop.security.Groups.<init>(Groups.java:94)

at org.apache.hadoop.security.Groups.<init>(Groups.java:74)

at org.apache.hadoop.security.Groups.getUserToGroupsMappingService(Groups.java:303)

at org.apache.hadoop.security.UserGroupInformation.initialize(UserGroupInformation.java:283)

at org.apache.hadoop.security.UserGroupInformation.setConfiguration(UserGroupInformation.java:311)

at HdfsDbUtil.connect(HdfsDbUtil.java:162)

at SchemaParserUtil.validateHiveConnection(SchemaParserUtil.java:1359)

at SchemaParserUtil.checkAllPreChecks(SchemaParserUtil.java:1011)

at Main.execute(Main.java:317)

at Main.main(Main.java:145)

This occurs when HADOOP_HOME environment variable is not set. You can ignore this exception since we do not mandate to install HIVE where OFSAA is installed.

What should I do if the sliced data model upload takes a long time to complete?

If the metadata cache size is set to a lower value than the actual count of each metadata type (hierarchy, dataset, dimension etc), then it gets into performance degrade issues. We have to increase the cache size for each metadata type according to the count in the environment.

Following are the parameters in DynamicServices.xml to be configured depends on the metadata count in your environment.

```
<PARAMETER NAME="HIERARCHY_NODE_LIMIT" VALUE="2000"/>

 <PARAMETER NAME="ALIAS_CACHE_SIZE" VALUE="1000"/>

<PARAMETER NAME="DATASET_CACHE_SIZE" VALUE="2000"/>

 <PARAMETER NAME="MEASURE_CACHE_SIZE" VALUE="3000"/>

<PARAMETER NAME="HIERARCHY_CACHE_SIZE" VALUE="2000"/>

<PARAMETER NAME="DIMENSION_CACHE_SIZE" VALUE="2000"/>

<PARAMETER NAME="CUBE_CACHE_SIZE" VALUE="1000"/>

<PARAMETER NAME="BUSINESSPROCESSOR_CACHE_SIZE" VALUE="2000"/>

<PARAMETER NAME="DERIVEDENTITY_CACHE_SIZE" VALUE="1000"/>
<PARAMETER NAME="LOGGERLEVEL" VALUE="0"/>
```

Metadata count can be derived based on the following queries:

```
select count(1) from metadata_master where metadata_version=0  --- for all metadata

select count(1) from metadata_master where metadata_version=0  and metadata_type=1  --- for measure

select count(1) from metadata_master where metadata_version=0  and metadata_type=2  --- for Dimension

select count(1) from metadata_master where metadata_version=0  and metadata_type=3  --- for HCY

select count(1) from metadata_master where metadata_version=0  and metadata_type=4  --- for DATASET

select count(1) from metadata_master where metadata_version=0  and metadata_type=59  --- for BP's
```

```
select count(1) from metadata_master where metadata_version=0  and
metadata_type=54   --- for Alias

select count(1) from metadata_master where metadata_version=0  and
metadata_type=5  --- for CUBES

select count(1) from metadata_master where metadata_version=0  and
metadata_type=856  --- for Derived Entity
```

For LDAP authentication, which server connects with the LDAP server, the Application server (where ofsaai is installed), or Web Application server (where EAR is deployed)?

For LDAP authentication, the Application server (ficapp) connects with the LDAP server.

The LDAP server in the setup listens on secure protocol ldaps (port 636). I have the root certificate of the LDAP server for SSL, and would like to know where to offload this certificate?

You need to import the certificate into the JDK/JVM used by Reveleus server in ficapp layer.

How to relocate FTPSHARE folder?

You can run the PortC.jar utility. For more details, refer Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance section in the OFSAAI Admin Guide available on OHC.

How do we identify the list of ports that are used by/configured in an OFSAA environment?

1. Navigate to $FIC_HOME folder on Target.
2. Run the PortC.jar utility using the command:

   ```
   java -jarPortC.jar DMP
   ```

   A file with the name **DefaultPorts.properties** will be created under $FIC_HOME directory which will contain the ports. For more information, refer Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance section in the OFSAAI Admin Guide available on OHC.

Note: This feature is available only after applying 7.3.5.2.0 Minor Release patch.

What should I do if I get the following error message, "Error while fetching open cursor value Status : FAIL"?

This error occurs while executing `envCheck.sh` because the user does not have access to `V$parameter`. This error does not occur due to sysdba or non sysdba privileges provided they have access/grants to `V$parameter`.

What should I do when an entity containing many attributes (>100 columns) is selected as Source entity and the Data Mapping (T2T definition) save operation takes longer than expected with the hourglass in the UI continuously rotating?

The workaround is:

1. Locate the webserver deployed area `webroot/conf/excludeURLList.cfg` file.
2. Modify the following entries:

- `[SQLIA]./dataIntegrator/` to `[ALL]./dataIntegrator/`
- `[SQLIA]./ETLExtractionServlet` to `[ALL]./ETLExtractionServlet`

3. Save the changes and restart the webserver.
4. Resave the definition.

What should I do if I get the following error message when I try to start the OLAP server:

```
./olapdataserver: error while loading shared libraries:
libessapinu.so:

cannot open shared object file: No such file or directory

FATAL ERROR :- OLAP DATA SERVER start up failed.
```

This error occurs when OLAP component is not configured and OLAP feature in OFSAA is not used. However, this error can be ignored.

How to patch the OFSAA Infrastructure Installation?

Oracle strongly recommends installing the latest available patch set so as to be up to date with the various releases of the OFSAA product.

Refer `http://support.oracle.com` for more information on latest release.

How to clone the OFSAA Instance?

There is a consistent need for a faster and effective approach of replicating an existing OFSAA instance for further project developments, that is, setting up OFSAA instances that are exact copies of the current OFSAA instance.

For more information on cloning, refer OFSAA Cloning Reference Guide.

***What should I do if I get the error "FATAL ERROR-Problem with OFSAA Service" during OFS_ALM_PACK installation*?**

Increase the sleep counter (default value is 80) to a higher value in the following section of the OFS_ALM_PACK/OFSAAIUpdate.sh file:

```
if [ $count -eq 0 ] ; then

sleep 80;

count=` grep -i "FICServer Initialization Complete"

$FIC_HOME/ficapp/common/FICServer/bin/nohup.out | wc -l `

if [[ $count -gt 0 ]] ; then

echo OFSAA Service - OK

else

echo FATAL ERROR-Problem with OFSAA Service

exit 1
```

Application Pack 8.0.7.0.0 FAQs

What is an Application pack?

An Application Pack is suite of products. For more information, refer ***About Oracle Financial Services Analytical Applications (OFSAA) Application Packs***.

Can I get a standalone installer for OFSAAI 8.0?

No. AAI is part of every application pack and installs automatically.

Where can I download OFSAA 8.0.7.0.0 Application Pack?

You can download the OFSAAI 8.0.7.0.0 Application Pack from Oracle Software Delivery Cloud (OSDC).

What are the minimum system and software requirements for OFSAA 8.0 Application Pack?

Refer installation guide section Hardware and Software Requirements.

Is my environment compatible with OFSAA 8.0.7.0.0 Application Pack?

Environment Check utility performs the task. It is part of install and can also be run separately.

Does the OFSAA 8.0.7.0.0 Application Pack support all Operating systems?

OFSAA 8.0.7.0.0 Application pack supports the following Operating Systems: LINUX, AIX, SOLARIS 10, 11. Refer to Technology Matrix for the technology matrix that OFSAA suite products are/ will be qualified on.

How can I install OFSAA 8.0.7.0.0 Application Pack?

Refer to Oracle Financial Services Advanced Analytical Infrastructure Installation And Configuration Guide published in OHC for the application pack installers.

Does this installation require any Third party Softwares?

Oracle Financial Services Advanced Analytical Infrastructure Installation And Configuration Guide published in OHC lists the third party software that needs to be installed.

What languages are supported during OFSAA 8.0.7.0.0 Application Pack installation?

US English is the language supported.

Does OFSAA 8.0.7.0.0 Application Pack support Multi tier Installations?

OFSAA 8.0.7.0.0 supports only single tier installation. For more information refer to OFSAAI FAQs section.

Does this Application Pack validate all prerequisites required for this installation like Memory, Disk Space and so on?

Yes. The pre-requisite checks are done by the respective application pack installer.

What happens if it aborts during installation of any application/products within an Application pack?

You must restore the system and retrigger the installation

Does this Application pack 'Roll Back' if any application installation fails due to errors?

Rollback of installation is not supported.

Does the Application pack install all applications bundled?

All application pack system files are installed but there is an option to enable the licensed products.

Can I re-install any of the Application Packs?

You can retrigger in case of failure.

Does this Application pack allow enabling / disabling any of the applications installed?

Yes, you can enable but you cannot disable once the product is enabled in an environment.

I have installed one application in an Application pack, can I install any of new application within the Application pack later?

No, installation of additional applications is not required. If you wish to add an application later, you can enable the application at that time.

How many OFSAA Infrastructures can be installed in a single server?

There is no issue in installing separate OFSAAI installations, each with their own PFT/FTP installations and separate associated database instances and separate Web Server installations on the same server as long as adequate memory is allocated for each instance and as long as each OFSAAI installation is installed using a separate UNIX user and profile. Care should be taken if running multiple OFSAAI installations on a single server. Adequate memory will be required for each installation as several OFSAAI processes (model upload, DEFQ services, etc) take significant amounts of memory. So it depends on your server memory.

Is it possible to install OFSAA 8.0.7.0.0 Application pack on an existing 'Infodom' where another OFSAA 8.0.7.0.0 application is installed?

Yes. However, the Behavioral Detection Application Pack and Compliance Regulatory Reporting Application pack are the exceptions. They need to be installed in a different Infodom.

Can I select an Infodom for the Application pack during installation?

Yes. You can select or change the required infodom.

Can I install all Application Packs in a 'Single Infodom'?

Yes. But, the Behavioral Detection Application Pack and Compliance Regulatory Reporting Application Pack are the exceptions. They need to be installed in a different Infodom.

Is it possible to install applications on different Infodom within the Application pack? (For example, I want to install LRM and MR in two infodoms)

Applications within application pack have to be installed in the same information domain in the same environment.

How many Infodoms can be created over a single OFSAA Infrastructure of 8.0.1.0.0?

You can install only one infodom during installation. But after installation, you can create multiple infodoms.

Is the 'Data Model' bundled specific to an Application pack or to an individual application?

A merged data model for all applications within the application pack is bundled and uploaded.

Is it possible to install OFS Enterprise Modeling later?

OFS Enterprise Modeling is a separate product and can be enabled as an option later from any application pack that bundles Enterprise Modeling.

Does the Application pack create sandbox automatically for the required applications?

Yes, Sandbox creation is part of application install process.

Are upgrade Kits available for individual applications or the complete Application Pack?

Maintenance Level (ML) Release / Minor Release upgrades are available across all applications.

Can I upgrade AAI only?

Yes, you can upgrade AAI alone.

Can I upgrade one application within the Application Pack? (For example, I want to upgrade LRM in the Treasury Application pack, but not MR.)

No, an upgrade is applied to all applications in the application pack.

Is it possible to uninstall any Application from the Application pack?

No, it is not possible to uninstall any Application from the Application Pack.

Can I uninstall entire Application Pack?

No, you cannot uninstall the Application Pack.

Is it possible to uninstall only application and retain AAI in the installed environment?

No, you cannot uninstall only the application and retain AAI in the installed environment.

Does Application Pack contain all Language Packs supported?

Language Packs need to be installed on the application packs.

Can I install an Application Pack over another Application Pack (that is same infodom or different infodom)?

Yes, you can install an Application Pack over another Application Pack in the same information domain or different information domain. But Behavioral Detection Application Pack and Compliance Regulatory Reporting Application Pack, Asset Liability Management Application Pack and Profitability Application Pack are the exceptions. They need to be installed in a different Infodom.

Can I use an existing manually created schema as information domain for application pack installation?

No. Schemas required by OFSAA applications have to be created using Schema Creator Utility.

Does OFSAA 8.0.7.0.0 support on WebLogic 10.3.6 with Oracle 12c?

Yes, OFSAA 8.0.7.0.0 will support on WebLogic 10.3.6 with Oracle 12c. WebLogic 10.3.6 supports oracle 12c with some additional configurations. Refer the link http://docs.oracle.com/cd/E28280_01/web.1111/e13737/ds_12cdriver.htm#JDBCA655 for additional configurations.

What should I do if I get the following error message while running the schema creator utility, "HostName in input xml is not matching with the local hostname"?

One possible reason could be the machine is configured for zonal partitioning. Ensure all the known IP Addresses of the machine are present in the /etc/hosts file.

What are the Java versions supported in OFS ALM Application Pack version 8.0.7.0.0?

OFS ALM Application Pack supports Java 1.7.x and 1.8.x.

Is OFS ALM Application Pack version 8.0.7.0.0 supported on Java 8?

Yes. To install this release of the OFS ALM Application Pack version 8.0.7.0.0 on Java 8. For more information, refer to specific notes mentioned in the sections Installer and

Installation Prerequisites, Configurations supported for Java 8, Configuring the Schema Creator Utility, Installing in GUI Mode, Installing in SILENT Mode.

Can I upgrade the Oracle Database version from 11g to 12C on which OFSAA 8.0.7.0.0 version is installed?

Yes, you can upgrade. When the DB Server was Oracle 11g, the ojdbc jar used was ojdbc6.jar. But, when the DB is upgraded to 12c, you need to upgrade the `ojdbc6.jar` to `ojdbc7.jar`.

Copy `ojdbc7.jar` from `$ORACLE_HOME/jdbc/lib` to the following locations:

- `$FIC_HOME/utility/OFSAAGenerateRepository/lib/`
- `$FIC_HOME/realtime_processing/WebContent/WEB-INF/lib/`
- `$FIC_HOME/ficdb/lib/`
- `$FIC_HOME/ficapp/icc/lib/`
- `$FIC_HOME/ficapp/common/FICServer/lib/`
- `$FIC_HOME/FMStandalone/FormsManager/WEB-INF/lib/`
- `$FIC_HOME/ficweb/webroot/WEB-INF/lib/`
- `$FIC_HOME/ficdb/etl/classes/`

What should I do when I get "[ERROR] - Error : APP Setup bin file failed." message during OFS_Application_PACK installation?

This is a generic error message that appears during application installation failure. You should check the installation log files for more information about what failed the installation.

However, if the message is displayed and the log files are not generated, it could be that it is a temp directory issue. The resolution is that your UNIX administrator has to disable the NOEXEC option. The installers extract the installation files into the /tmp directory, and if NOEXEC is enabled, execution of binaries will not happen in the directory and the installation fails. Re-run the installer after the configuration is changed. For detailed information, see the support note at https://support.oracle.com/epmos/faces/DocumentDisplay?id=2340045.1.

What is the required disk space for ALM Application Pack installation?

The required free disk space for ALM installation is Current disk space of $FIC_HOME + Installer size.

Forms Framework FAQs

What should I do when I have large volume of data to be exported?

It is recommended to use BIP reports or OBIEE reports if you have to export large volume of data.

How do I export the columns added to the grid using Field Chooser option?

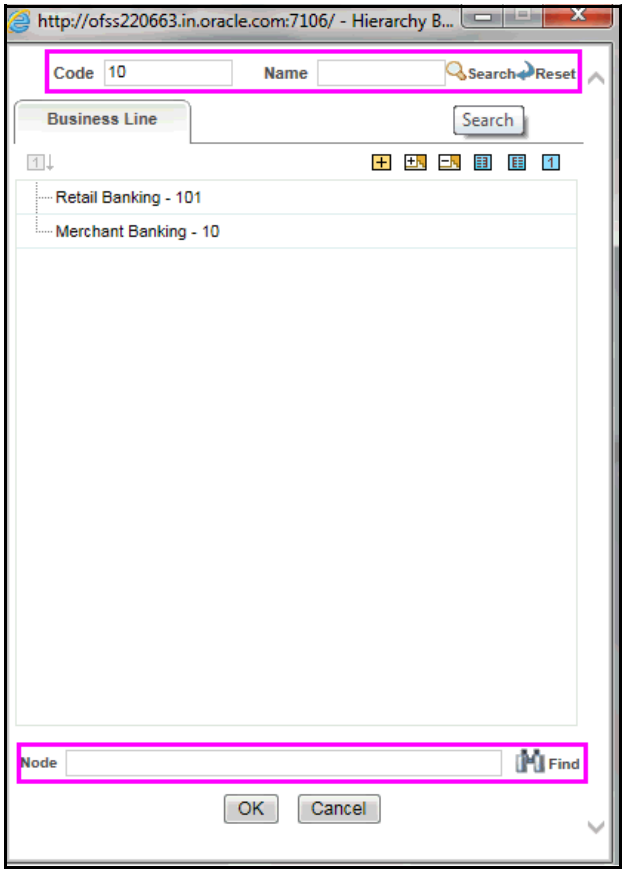
Perform Grid Export operation to export the columns added to the grid by Field Chooser option.

'Expand All/ Collapse All' button is not visible in the Hierarchy Browser window. What should I do?

Expand All/ Collapse All button is disabled if the number of hierarchy nodes is more than 50 and if it is a non-custom hierarchy. Hierarchy with more than 50 nodes is considered as large hierarchy and the data will be fetched dynamically when you expand the parent node.

What is the difference between the two Searches available in the Hierarchy Browser window?

In the new ***Hierarchy Browser*** window introduced from 7.3.5.1.0 version, there are 2 search options available as highlighted in the following figure:



- **DB Search (Top search container):** It will search the required node in database and displays the result as shown below. This search is performed on full hierarchy nodes.
- **UI search (Below the hierarchy):** This search will find the required node in the UI and will show in tree structure.

> **Note:** In case hierarchy nodes are more than 50 and if it is a non-custom hierarchy, then the UI search will not show the required node in tree structure, until all the nodes are expanded and loaded manually in the UI.

What is a Custom Hierarchy?

Custom hierarchies will be having the parameter configuration customQuery as shown below and the customized query will be taken from the `HIERARCHY_FILTER_MASTER` table.

Configuration in xml:

```
<CONTROL ID="1003" TYPE="41">
<CONTROLPROPS>
            <EXTRAPARAMETERS>
<PARAMETER NAME="customQuery" VALUE="Yes"/>
</EXTRAPARAMETERS>
</CONTROLPROPS>
    </CONTROL>
```

For custom hierarchy, all the hierarchy nodes are loaded in UI without any limit.

So, even if the hierarchy nodes are more than 50, the UI search will show the required node in tree structure and ExpandAll and ExpandBranch images will be enabled.

Error Dictionary

This contents of this section has been created with the interest to help you resolve the installation issues if any. There is a compilation of all the possible errors that might arise during the installation process with the possible cause and the resolution to quickly fix the issue and proceed further with the installation.

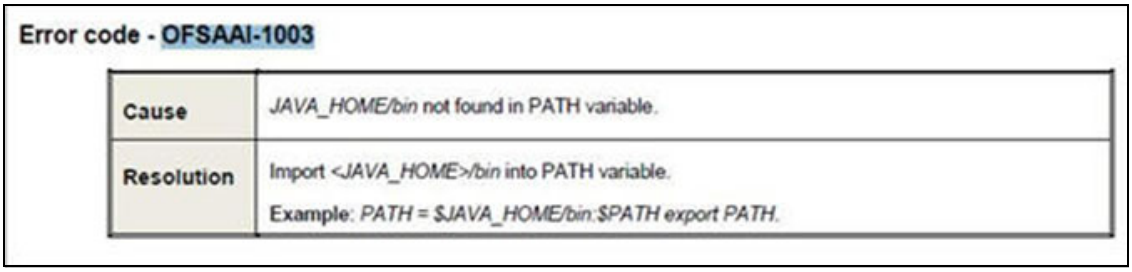
This section includes the following topics:

Accessing Error Dictionary

Instead of scrolling through the document to find the error code, you can use the pdf search functionality. In the "Find" dialog available in any of the Adobe Acrobat version that you are using to view the pdf document, follow these instructions to quickly find the error resolution:

1. With the Installation pdf open, press **Ctrl+F** or select **Edit** > **Find**.
2. The ***Find*** dialog is displayed as indicated.
3. Enter the error code that is displayed on screen during Infrastructure installation.
4. Press **Enter**. The search results are displayed and highlighted as follows:

Figure O–1 Error Code



View the details of the issues, its cause, and resolution specific to the error code. Repeat the step to find an answer to any other errors that you notice during installation. If you are not able to resolve the issue even after following the steps

provided in resolution, you can contact support.oracle.com along with log files and appropriate screen shots.

Error Code Dictionary

Error code - OFSAAI-1001

Table O–2 Error code - OFSAAI-1001

Cause	Unix shell is not "korn" shell.
Resolution	Change the shell type to "korn". Use chsh unix command to change SHELL type. Shell type can also be changed by specifying shell path for the Unix user in `/etc/passwd` file. Note: chsh command is not available in Solaris OS.

Error code - OFSAAI-1002

Table O–3 Error code - OFSAAI-1002

Cause	No proper arguments are available.
Resolution	Provide proper arguments. Invoke `Setup.sh` using SILENT. Example: `./Setup.sh SILENT`

Error code - OFSAAI-1004

Table O–4 Error code - OFSAAI-1004

Cause	File `.profile` is not present in `$HOME`.
Resolution	Create `.profile` in `$HOME`, i.e. in the home directory of user.

Error code - OFSAAI-1005

Table O–5 Error code - OFSAAI-1005

Cause	File `OFSAAInfrastructure.bin` is not present in current folder.
Resolution	Copy `OFSAAInfrastructure.bin` into installation kit directory.

Error code - OFSAAI-1006

Table O–6 Error code - OFSAAI-1006

Cause	File `CustReg.DAT` is not present in current folder.
Resolution	Copy `CustReg.DAT` into installation kit directory.

Error code - OFSAAI-1007

Table O–7 Error code - OFSAAI-1007

Cause	File `OFSAAI_InstallConfig.xml` is not present in current folder.
Resolution	Copy `OFSAAI_InstallConfig.xml` into installation kit directory.

Error code - OFSAAI-1008

Table O–8 Error code - OFSAAI-1008

Cause	File `validateXMLInputs.jar` is not present in current folder.
Resolution	Copy `validateXMLInputs.jar` into installation kit directory.

Error code - OFSAAI-1009

Table O–9 Error code - OFSAAI-1009

Cause	File `log4j.xml` is not present in current folder.
Resolution	Copy `log4j.xml` into installation kit directory.

Error code - OFSAAI-1010

Table O–10 Error code - OFSAAI-1010

Cause	Unknown error occurred.
Resolution	Make sure to provide proper argument (SILENT) to the `Setup.sh` file.

Error code - OFSAAI-1011

Table O–11 Error code - OFSAAI-1011

Cause	XML validation failed.
Resolution	Check InfrastructurePreValidations.Log for more details.

Error code - OFSAAI-1012

Table O–12 Error code - OFSAAI-1012

Cause	Property file with locale name does not exist.
Resolution	Copy `MyResources_en_US.properties` to the setup kit directory and keep `en_US` in `LOCALE` tag of `OFSAAI_InstallConfig.xml`.

Error code - OFSAAI-1013

Table O–13 Error code - OFSAAI-1013

Cause	File `OFSAAI_InstallConfig.xml/OFSAAI_PostInstallConfig.xml` not found.
Resolution	Copy `OFSAAI_InstallConfig.xml/OFSAAI_PostInstallConfig.xml` to the setup kit directory.

Error code - OFSAAI-1014

Table O–14 Error code - OFSAAI-1014

Cause	XML node value is blank.
Resolution	Make sure all node values except SMTPSERVER, PROXYHOST, PROXYPORT, PROXYUSERNAME, PROXYPASSWORD, NONPROXYHOST, or RAC_URL are not blank.

Error code - OFSAAI-1015

Table O–15 Error code - OFSAAI-1015

Cause	XML is not well formed.
Resolution	Execute the command `dos2unix OFSAAI_InstallConfig.xml` to convert plain text file from DOS/MAC format to UNIX format. OR Make sure that `OFSAAI_InstallConfig.xml` is valid. Try to open the file through Internet Explorer for a quick way to check validity. If it is not getting opened, create new `OFSAAI_InstallConfig.xml` using the `XML_Utility.jar`.

Error code - OFSAAI-1016

Table O–16 Error code - OFSAAI-1016

Cause	User installation directory contain blank spaces.
Resolution	Provide an installation path that does not contain spaces. Check the tag `USER_INSTALL_DIR` in `OFSAAI_InstallConfig.xml` file. This path should not contain any spaces.

Error code - OFSAAI-1017

Table O–17 Error code - OFSAAI-1017

Cause	User installation directory is invalid.
Resolution	Provide a valid installation path. Check if you are able to create the directory mentioned in `USER_INSTALL_DIR` tag value of `OFSAAI_InstallConfig.xml` file.