Oracle® Financial Services Anti-Money Laundering Event Scoring (AMLES) Application Pack

OFS AMLES Installation and Configuration Guide

Release 8.0.7.0.0

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Installation and Configuration Guide, Release 8.0.7.0.0

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Document Control

This section provides the revision details of the document.

Version Number	Revision Date	Changes Done
1.0	April 2019	Created installation and configuration steps for 8.0.7.0.0 Release.
2.0	May 2019	Updated for Doc 29745770.
3.0	Oct 2019	Updated R Packages information in the section Installing R Packages for OFS AMLES (Doc 30416699).

This document includes the necessary instructions to install the OFS AMLES 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 Anti-Money Laundering Event Scoring (OFS AMLES) Pack Installation and Configuration Guide and includes the following topics:

- Summary

- Audience

- Related Documents

- Conventions

- Abbreviations

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 Anti-Money Laundering Event Scoring 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 AMLES:

This document assumes that you have experience in installing Enterprise components and basic knowledge about the following:

- OFS AMLES pack components

- OFSAA Architecture

- UNIX Commands

- Database Concepts

- Web server/Web application server

Related Documents

This section identifies additional documents related to OFS AMLES Application Pack.

You can access the following documents from the OHC Documentation Library for Oracle Financial Services Analytical Applications Infrastructure 8.x:

- *Oracle Financial Services Advanced Analytical Applications Infrastructure Applications Pack Installation and Configuration Guide*

- *Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide*

- *Oracle Financial Services Analytical Applications Infrastructure Administration Guide*

- *Oracle Financial Services Analytical Applications Infrastructure User Guide*

You can access the following documents from the OHC Documentation Library for Oracle Financial Services Anti-Money Laundering Event Scoring 8.x Application Pack:

- *Oracle Financial Services Anti-Money Laundering Event Scoring Administration and Configuration Guide*

- *Oracle Financial Services Anti-Money Laundering Event Scoring User Guide*

You can use your SSO credentials to access My Oracle Support (MOS) for the following generic documents related to the OFS AMLES Application:

- *Oracle Financial Services Analytical Applications Infrastructure Security Guide*

- *Oracle Financial Services Analytical Applications Infrastructure FAQ Document*

- *Oracle Financial Services Analytical Applications Technology Matrix*

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
AMLES	Anti-Money Laundering Event Scoring
AIX	Advanced Interactive eXecutive
BDP	Big Data Processing
DBA	Database Administrator
DDL	Data Definition Language

Abbreviation	Meaning
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
JVM	Java Virtual Machine
LDAP	Lightweight Directory Access Protocol
MFA	Multi-Factor Authentication
LHS	Left Hand Side
MOS	My Oracle Support
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OHC	Oracle Help Center
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
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)
- About Oracle Financial Services Analytical Applications (OFSAA) Application Packs
- About Oracle Financial Services Anti-Money Laundering Event Scoring (OFS AMLES) Application Pack
- About Oracle Financial Services Analytical Applications Infrastructure (OFS AAI)

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 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
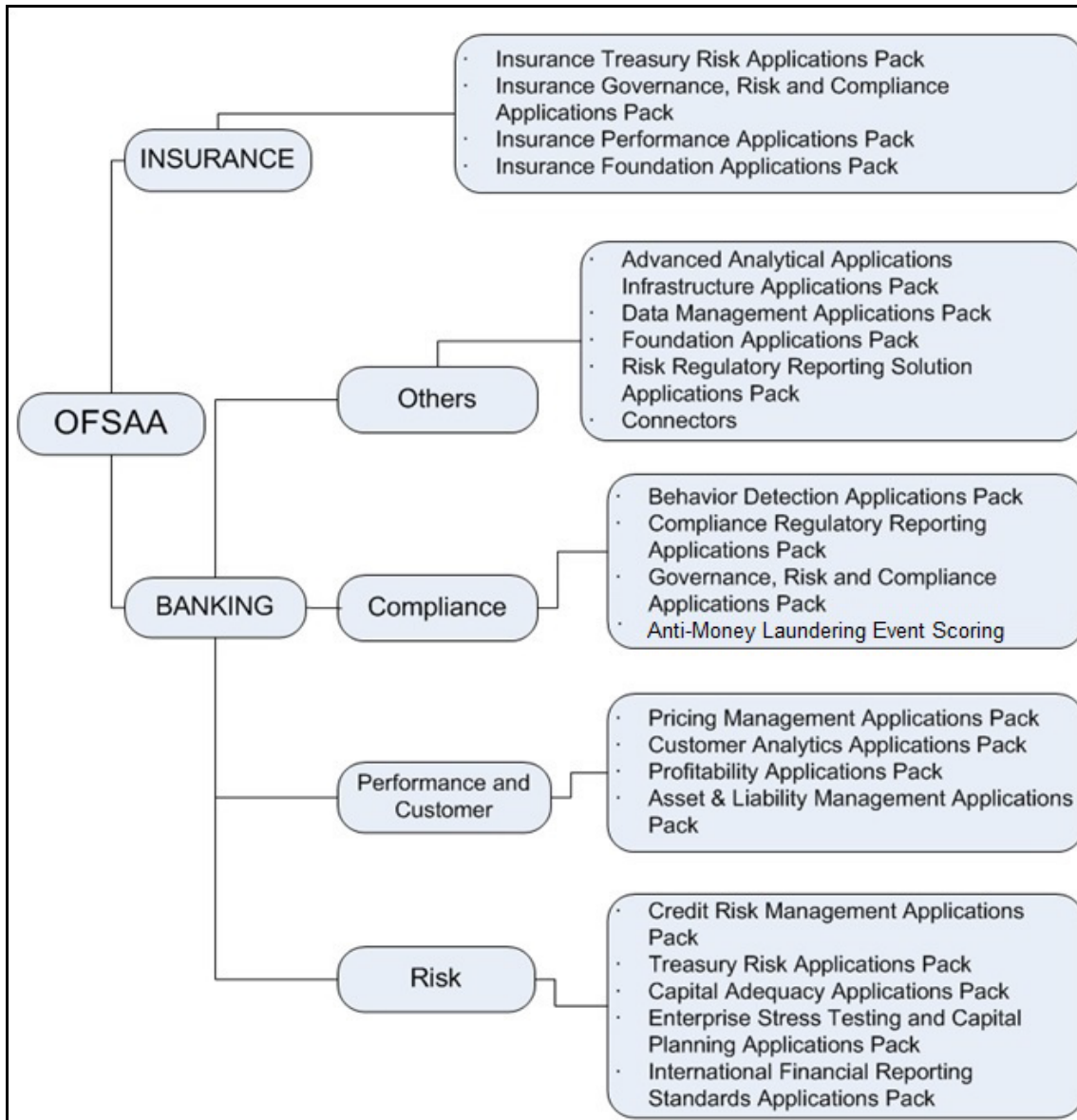
About Oracle Financial Services Anti-Money Laundering Event Scoring (OFS AMLES) Application Pack

Oracle Financial Services Anti Money Laundering Event Scoring application provides a mechanism to score and categorize the alerts generated by different AML engines thus reducing the manual effort of investigators. The application uses historical alert transaction to train and validate machine learning models, and apply them to score new alert data and prioritize alerts for investigation.

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
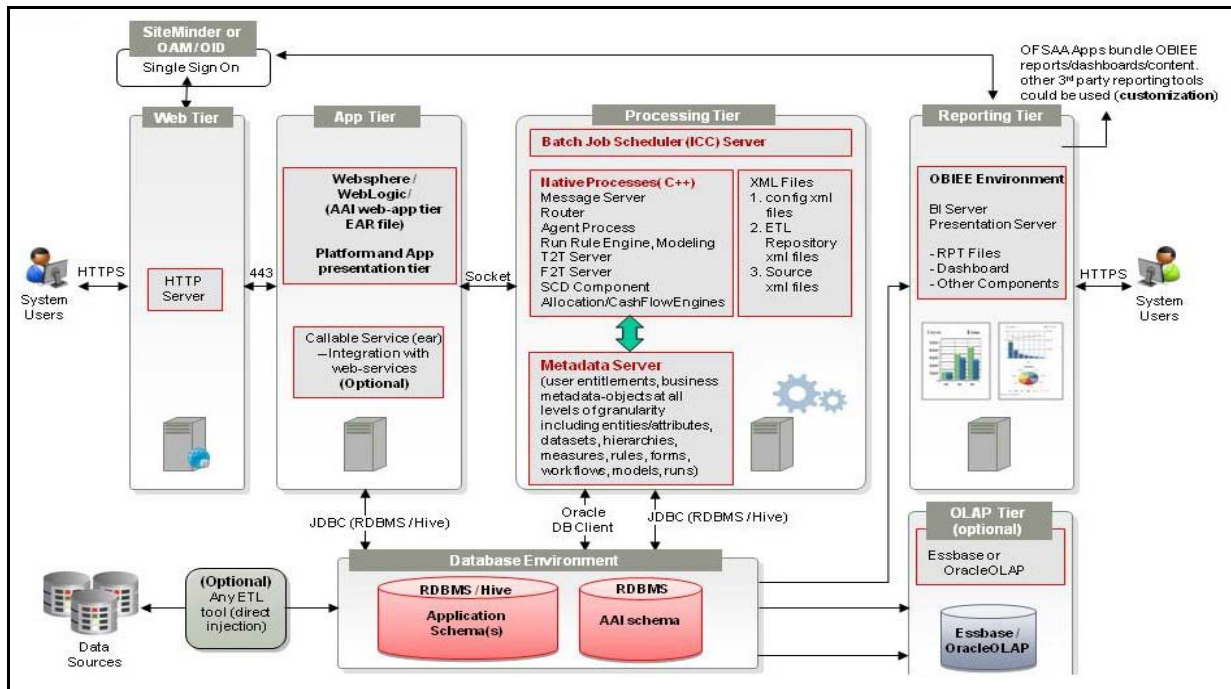
OFSAA Infrastructure High Availability

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

This release supports 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`.

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Understanding OFS AMLES Pack Installation

This chapter includes the following topics:

- Installation Overview
- Deployment Topology
- Hardware and Software Requirements
- Verifying System Environment
- Understanding the Installation Mode

Installation Overview

This release (8.0.7.0.0) of the OFS AMLES Application Pack bundles the base installer. Users or Administrators, who wish to install a new OFS AMLES Application Pack 8.0.7.0.0 instance should download this installer. Figure 2–1 shows the order of procedures required to follow to install a new OFS AMLES Pack 8.0.7.0.0 instance.

Figure 2–1   Installation Overview
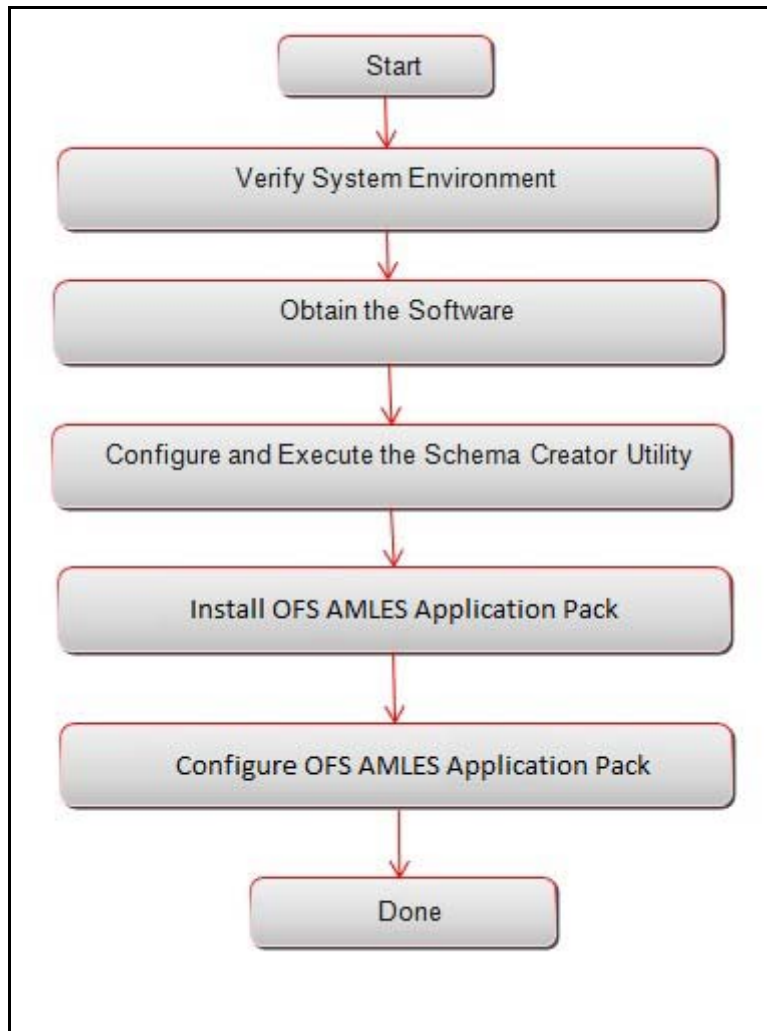
Table 2–1 provides additional information and links to specific documentation for each task in the flowchart.

Table 2–1   OFS AMLES Application Pack Installation Tasks and Descriptions

Tasks	Details and Documentation
Verify Systems Environment	To verify that your system meets the minimum necessary requirements for installing and hosting the OFS AMLES Application Pack, see Verifying System Environment.
Obtain the software	To access and download the OFS AMLES 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 AMLES Pack	To install the OFS AMLES Application Pack, see Installing the OFS AMLES Application Pack. To upgrade from an earlier version, see Upgrading the OFS AMLES Application Pack.
Configure OFS AMLES Pack	To configure the OFS AMLES Application Pack post installation, see Post Installation Configurations.

Deployment Topology

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

Figure 2–2   Deployment Topology
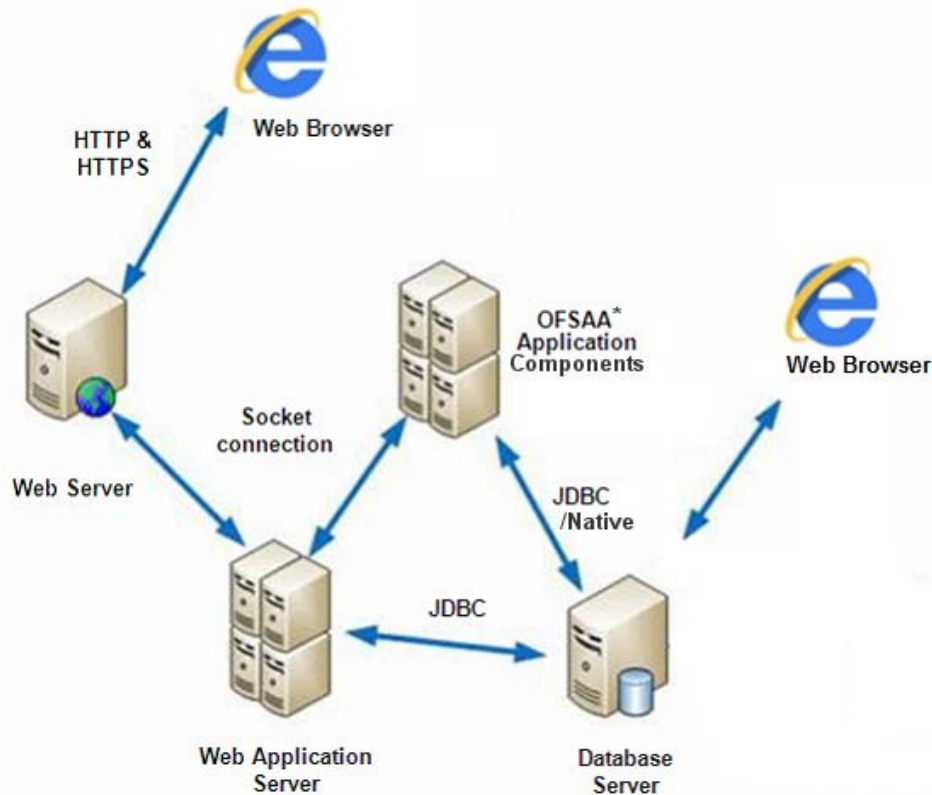
Hardware and Software Requirements

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 AMLES Application Pack has been qualified.

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

The following tables show the minimum hardware and software requirements for installing OFS AMLES Application Pack.

Configurations supported for Java 8

Table 2–2   Configurations Supported for Java 8

Operating System	
Oracle Linux / Red Hat Enterprise Linux (x86-64)	■ Oracle Linux Server release 5.3 up to 5.10 - 64 bit ■ Oracle Linux Server release 6.0 and above - 64 bit **Note**: Same version of RHEL is supported
Shell	■ KORN Shell (KSH)
❏	
Java Runtime Environment	
Oracle Linux / Red Hat Enterprise Linux	■ Oracle Java Runtime Environment (JRE) 1.8.x - 64 bit
Oracle Database Server and Client	
■ Oracle Database Server Enterprise Edition 12c Release 1 (12.1.0.1.0 +) - 64 bit RAC/Non-RAC with/without partitioning option, Advanced Security Option**. **Note:** See the "Additional Notes" section in the 807 Tech Matrix for details. ■ Oracle Client 12c Release 1 (12.1.0.1.0+) - 64 bit. ■ Oracle 12C Release 1 (12.1.0.1+) JDBC driver (Oracle thin driver) ■ Oracle R Distribution version 3.3 ■ Oracle R Enterprise (Server) version 1.5.1	
Note: Ensure that the following patches are applied: ■ For Oracle DB Server 12.1.0.1 and 12.1.0.2, download the patches 27010930 and 22205607 from My Oracle Support and apply them. ■ Oracle R Enterprise 1.5.1 requires Oracle Database Enterprise Edition 12.1.0.1/2 **ORD and ORE versions compatible along with Oracle DB version** Oracle R Enterprise 1.5.1 + Open source R or Oracle R Distribution 3.3.0 + Oracle Database Enterprise Edition 12.1.0.1 and 12.1.0.2	
Web Server/ Web Application Server	
Oracle Linux / Red Hat Enterprise Linux / IBM AIX Oracle Solaris	Oracle HTTP Server 11.1.1.1/ Apache HTTP Server 2.2.x/ IBM HTTP Server ■ Oracle WebLogic Server 12.1.3+ (- 64 bit) and 12.2.1 (- 64 bit) ■ IBM WebSphere Application Server 8.5.5.9+ (Full Profile) with IBM Java Runtime - 64 bit ■ Apache Tomcat 8.0.x - 64 bit

Table 2–2 (Cont.) Configurations Supported for Java 8

Note:
■ OFSAA Infrastructure web component deployment on Oracle WebLogic Server with Oracle JRockit is not supported.
■ For deployment on Oracle WebLogic Server 12.1.3+ (64 bit) with Java 8, download and install patch **18729264** from http://support.oracle.com/.
■ For deployment of OFSAA on Oracle WebLogic Server version 12.2.x, install the one-off patch **25343603**. See the Readme available with the patch for further instructions on the patch installation procedure. After applying the patch, make the following changes in the *web.xml* file. Replace the following code: ``` <servlet> <servlet-name>AO REST Service</servlet-name> <servlet-class>com.sun.jersey.spi.container.servlet.ServletContainer</servlet-class> <init-param> <param-name>com.sun.jersey.config.property.packages</param-name> <param-value>com.oracle.ofss.ao</param-value> </init-param> <init-param> <param-name>com.sun.jersey.config.property.resourceConfigClass</param-name> <param-value>com.sun.jersey.api.core.ClassNamesResourceConfig</param-value> </init-param> <init-param> <param-name>com.sun.jersey.config.property.classnames</param-name> <param-value>com.oracle.ofss.ao.service.AlertOptimizationRequestService,com.oracle.ofss.ao.service.AlertOptimizationRequestSummaryService,com.oracle.ofss.ao.service.AlertOptimizationResponseService,com.oracle.ofss.ao.service.CheckResultsService,com.oracle.ofss.ao.service.DeployDataGroupService,com.oracle.ofss.ao.service.DimensionDataService,com.oracle.ofss.ao.service.GetDataGroupDetails,com.oracle.ofss.ao.service.GetDataGroupMeasureMatrixService,com.oracle.ofss.ao.service.GetDataGroupsForModelService,com.oracle.ofss.ao.service.GetEDAPlotService,com.oracle.ofss.ao.service.GetModelDataService,com.oracle.ofss.ao.service.GetModelResultService,com.oracle.ofss.ao.service.RunModelService,com.oracle.ofss.ao.service.SaveModelService,com.oracle.ofss.ao.service.SummaryGridService</param-value> </init-param> <load-on-startup>1</load-on-startup> </servlet> ``` with ``` <servlet> <servlet-name>AO REST Service</servlet-name> <servlet-class>org.glassfish.jersey.servlet.ServletContainer</servlet-class> <!-- Register resources and providers under com.vogella.jersey.first package. --> <init-param> <param-name>jersey.config.server.provider.packages</param-name> <param-value>com.oracle.ofss.ao</param-value> </init-param> <load-on-startup>1</load-on-startup> </servlet> ```
Desktop Requirements	
---	---
Operating System	MS Windows 7/Windows 8/Windows 10

Table 2–2   (Cont.) Configurations Supported for Java 8

Browser	■ MS Internet Explorer Browser 11.x ■ Chrome 57.x ■ FireFox 52.x ■ Turn on Pop-up blocker settings. For more information, see Configuring Internet Explorer Settings
Office Tools	■ MS Office 2007/2010/2013 ■ Adobe Acrobat Reader 8 or above
Screen Resolution	1024*768 or 1280*1024
Other Software	
Directory Services	OFSAAI is qualified on both OPEN LDAP 2.2.29+ and Oracle Internet Directory v 11.1.1.3.0. However, it can be integrated with other directory services software such as MS Active Directory.
Note: ■ Configuration of Directory services software for OFSAAI installation is optional. For more information on configuration, see Setting Infrastructure LDAP Configuration. ■ Open LDAP must be installed on MS Windows Server machine.	

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 AMLES Applications Pack.

■ Installing in SILENT Mode

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.

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Preparing for Installation

This chapter provides necessary information to review before installing the Oracle Financial Services Anti-Money Laundering Event Scoring (OFS AMLES) 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 OFS AMLES application. The Installer/Environment Check Utility notifies you if any requirements are not met.

Table 3–1   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 Java version (8) based on the configuration. **Note:** ■ Ensure that the absolute path to `JRE/bin` is set at the beginning of PATH variable. ■ For example, `PATH=/usr/java/jre1.8/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 O, "Configuring Transparent Data Encryption (TDE) and Data Redaction 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/ SERVICE NAME) is added in the `tnsnames.ora` file on the OFSAA server.

Table 3–1   (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.
	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.
	Staging Area/ Metadata Repository	■ A directory to hold the application metadata artifacts and additionally act as 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 FTPSHARE folder.
	Download Directory	■ A directory where the product installer files will be downloaded/ copied. ■ Set 755 permission on this directory.
	OS Locale	■ Linux: `en_US.utf8` ■ AIX: `EN_US.UTF-8` ■ Solaris: `en_US.UTF-8` To check the locale installed, execute the following command: `locale -a	grep -i 'en_US.utf'`
Database Settings	Database Instance Settings	■ NLS_CHARACTERSET to be AL32UTF8 ■ NLS_LENGTH_SEMANTICS to be BYTE ■ OPEN CURSORS limit to be greater than 1000

Table 3–1 (Cont.) Prerequisite Information

Category	Sub-Category	Expected Value
Web Application Server	WebSphere/ WebLogic/ Tomcat	■ Web Application Server should be installed and 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 **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.
Others	Oracle R/ Oracle R Enterprise	■ This is a mandatory requirement. ■ see section Installing Oracle R distribution and Oracle R Enterprise (ORE) for more details.
OFS AAI	One-off	Download the consolidated one- off for bug number **27938294** from http://support.oracle.com/

Note: Following step is applicable only if existing OFSAA setup version is 8.0.5.x.x and Configuration and Atomic Schema(s) were restored from exported dumps of other environment:

Login 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

The 8.0.7.0.0 release of OFS AMLES Application Pack can be downloaded from My Oracle Support (https://support.oracle.com/). You must have a valid Oracle account to download the software.

Performing Common Pre-Installation Tasks

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

- Identifying the Installation, Download and Metadata Repository Directories
- Downloading and Copying the OFS AMLES Applications Pack Installer
- Extracting the Software
- Setting Up the Web Application Server
- Installing Oracle R distribution and Oracle R Enterprise (ORE)

Identifying the Installation, Download and Metadata Repository Directories

To install an OFSAA Application Pack, create the following directories:

- **OFS AMLES Download Directory**: Create a download directory and copy the OFS AMLES Application Pack Installer File (archive). This is the directory where the downloaded installer/patches can be copied.

- **OFS AMLES 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 OFS AMLES Installation Directory.

- **OFS AMLES 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 OFS AMLES 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 OFS AMLES staging directory is not set to the same path as the OFS AMLES installation directory and is not a sub-folder inside the OFS AMLES installation directory.

Downloading and Copying the OFS AMLES Applications Pack Installer

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

1. To download the OFS AMLES Applications Pack, login to My Oracle Support (https://support.oracle.com) with a valid Oracle account.

2. Enter the patch number 29606164 in the search box and click Search. The following installer is displayed:

   - 29606164 - OFS AMLES APPLICATION PACK V8.0.0.0.0 MINOR RELEASE #7 (8.0.7.0.0).

3. Download the installer archive into the download directory (in Binary mode) in the setup identified for OFS AMLES installation.

4. Download the mandatory installer one-off patch **28398331** from My Oracle Support.

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 AMLES Application Pack 8.0.7.0.0 installer archive file in the download directory with the following command:

   ```
   unzip p29606164_80700_Linux-x86-64.zip
   ```

5. Extract and apply the patch **28398331**. Refer to the *Readme.txt* file packaged with the patch for details on how to apply the patch.

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

   ```
   chmod -R 750 OFS_AO_PACK
   ```

Setting Up the Web Application Server

For setting up the environment based on your selected Web Application Server, see to Appendix A for more information.

Installing Oracle R distribution and Oracle R Enterprise (ORE)

Install Oracle R Distribution and Oracle R Enterprise (Server Components) on the Oracle Database server.

- Oracle R Distribution versions supported- Oracle Distribution of R version 3.3. See Oracle R Distribution Installation on Linux.

- ORE version supported- Oracle R Enterprise (Server) version 1.5.1. See Oracle® R Enterprise Installation and Administration Guide for Linux Release 1.5.1 at Oracle R Enterprise Documentation Library.

- Oracle Database Enterprise Edition supported - 11.2.0.4, 12.1.0.1, 12.1.0.2, and 12.2.0.1.

4

Installing the OFS AMLES Pack

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

This chapter includes the following sections:

- About Schema Creator Utility
- Configuring and Executing the Schema Creator Utility
- Installing the OFS AMLES Application Pack

About Schema Creator Utility

Creating database users/schemas (RDBMS) is one of the primary steps in the complete OFS AMLES installation process. Schema Creator utility facilitates you to quickly get started with the installation by creating Database User(s)/ Schema(s) (RDBMS), assigning the necessary GRANT(s), creating the required entities in the schemas and so on.

The schema creator utility must be configured and executed before installation of any OFSAA Application Pack.

This section includes the following topics:

- Configuring Schema Creator Utility for RDBMS Installation
- Selecting Execution Modes in Schema Creator Utility
- Selecting Execution Options in Schema Creator Utility

Configuring Schema Creator Utility for RDBMS Installation

Pack specific schema details need to be filled in the OFS_AO_SCHEMA_IN.xml file before executing the Schema Creator Utility. For more information on the xml file, refer Configuring OFS_AO_SCHEMA_IN.xml File.

The types of schemas that can be configured are:

- **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:** There can be multiple ATOMIC schemas per OFSAA Instance.

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_AO_SCHEMA_IN.xml (as the case may be) file and execute the utility. For more information on reconfiguring these files, see Configuring OFS_AO_SCHEMA_IN.xml File and respectively.
  >
  >   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_AO_SCHEMA_IN.xml and execute the utility. This regenerates the scripts with corrected information.
  >
  >   For more information, see Configuring OFS_AO_SCHEMA_IN.xml File or respectively.
  >
  > 4. Do not modify the OFS_AO_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
- Configuring the Schema Creator Utility
- Executing the Schema Creator Utility

Prerequisites

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

- Install ORD and ORE. For more information, see Section , "Installing Oracle R distribution and Oracle R Enterprise (ORE)".
- 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.
- To enable Transparent Data Encryption (TDE) in your OFSAA instance during installation, perform the steps explained in the Appendix O, "Configuring Transparent Data Encryption (TDE) and Data Redaction 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. Login to the system as non-root user.
2. Navigate to the following path: `OFS_AO_PACK/schema_creator/conf` directory.
3. Edit the `OFS_AO_SCHEMA_IN.xml` file in a text editor.
4. Configure the elements as described in Configuring OFS_AO_SCHEMA_IN.xml File or as the case may be. For example, to create schemas in RDBMS, populate the `OFS_AO_SCHEMA_IN.xml` file.
5. Save the `OFS_AO_SCHEMA_IN.xml` file.

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

Executing the Schema Creator Utility

You can execute the schema creator utility in Online or Offline mode. This section includes the following topics:

- Executing the Schema Creator Utility in Offline Mode
- Executing the Schema Creator Utility with -s Option
- Executing the Schema Creator Utility while Installing Subsequent Applications Pack

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. Login to the system as non-root user.

2. Navigate to the `OFS_AO_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 4–1   Schema Creation - Offline Mode


```
install.jar  OFSAAI.jar  pack_install.bin  pack_installsilent.bin  setup.sh
$ ./setup.sh SILENT
/scratch/ofsaaweb/tnsname
/scratch/ofsaaweb/ES85/ES85
 FIC_HOME : /scratch/ofsaaweb/ES85/ES85
Environment check utility started...
=========================================================
Java Validation Started ...
 Java found in : /scratch/oraofss/java/jdk1.8.0_77/bin
 JAVA Version found : 1.8.0_77
 JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
=========================================================
Environment Variables Validation Started ...
 ORACLE_HOME : /scratch/oraofss/app_12c/product/12.1.0/dbhome_1
 TNS_ADMIN : /scratch/ofsaaweb/tnsname
Environment Variables Validation Completed. Status : SUCCESS
=========================================================
OS specific Validation Started ...
 Checking en_US.utf8 locale. Status : SUCCESS
 Unix shell found : /bin/ksh. Status : SUCCESS
 Total file descriptors : 15000. Status : SUCCESS
 Total number of process : 10240. Status : SUCCESS
 OS version : 7. Status : SUCCESS
OS specific Validation Completed. Status : SUCCESS
=========================================================
DB specific Validation Started ...
 Oracle Client version : 12.1. Status : SUCCESS
 Successfully connected to schema e85_aao. Status : SUCCESS
 CREATE SESSION has been granted to user. Status : SUCCESS
 CREATE PROCEDURE has been granted to user. Status : SUCCESS
 CREATE VIEW has been granted to user. Status : SUCCESS
 CREATE TRIGGER has been granted to user. Status : SUCCESS
 CREATE MATERIALIZED VIEW has been granted to user. Status : SUCCESS
 CREATE TABLE has been granted to user. Status : SUCCESS
 CREATE SEQUENCE has been granted to user. Status : SUCCESS
 SELECT privilege is granted for NLS_INSTANCE_PARAMETERS view. Current value : SELECT. Status : SUCCESS
NLS_LENGTH_SEMANTICS : BYTE. Current value : BYTE. Status : SUCCESS
NLS_CHARACTERSET : AL32UTF8. Current value : AL32UTF8. Status : SUCCESS
 SELECT privilege is granted for V_$parameter view. Current value : SELECT. Status : SUCCESS
 Open cursor value is greater than 1000. Current value : 1000. Status : SUCCESS
 SELECT privilege is granted for USER_TS_QUOTAS view. Current value : SELECT. Status : SUCCESS
```

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 4–2   Schema Creation - Offline Mode (cont)


```
...............................................................................
Validating Connection URL ...jdbc:oracle:thin:@//whf00ark.in.oracle.com:1521/Ti11O12L64
Successfully connected to User - sys as sysdba URL - jdbc:oracle:thin:@//whf00ark.in.oracle.com:1521/Ti11O12L64
Connection URL successfully validated...
localhost name - whf00ark.in.oracle.com IPAddress - 10.184.152.10
Parsing TABLESPACE tags...
You have chosen to install this Application Pack on "e85_aao" ATOMIC schema. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "esinfo". Do you want to proceed? (Y/N)
y
```

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

Figure 4–3   Schema Creator Utility - Offline

```
Executing TableSpace Scripts started...
Skipping the creation of tablespace AO_INDEX_TABLE_SPACE
Skipping the creation of tablespace AO_TABLE_SPACE
Skipping the creation of tablespace AO_CONF_TABLE_SPACE
=====================================================================================
Creating Schemas started...
CONFIG User e85_conf successfully created on Default TableSpace : AO_CONF_TABLE_SPACE on Temp TableSpace : TEMP
Grants creation scripts execution started...
Grants creation scripts execution completed...
Successfully connected to User - e85_conf URL - jdbc:oracle:thin:@//whf00ark.in.oracle.com:1521/Ti11O12L64
Scripts execution for CONFIG schema started ...
Scripts execution for CONFIG schema completed ...
User e85_conf details updated into the dbmaster table
User e85_conf details updated into the I18NMASTER table
User e85_conf details updated into the aai_db_detail table
User e85_conf details updated into the aai_db_auth_alias table
User e85_aao details updated into the dbmaster table
User e85_aao details updated into the I18NMASTER table
User e85_aao details updated into the aai_db_detail table
User e85_aao details updated into the aai_db_auth_alias table
User e85_aao is successfully created on Default TableSpace : AO_TABLE_SPACE on Temp TableSpace : TEMP
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.
```

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

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

11. Navigate to the directory `OFS_AO_PACK/schema_creator`.

12. Login to SQLPLUS with a user having SYSDBA Privileges.

13. Connect to the Oracle DB Server on which the OFSAA Application Pack installation is to be performed and executethe `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.

> **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 AMLES 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_AO_PACK/schema_creator/conf/OFS_AO_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 4–4 Schema Creator Utility with -s Option

```
install.jar  OFSAAI.jar  pack_install.bin  pack_installsilent.bin  setup.sh
$ ./setup.sh SILENT
/scratch/ofsaaweb/tnsname
/scratch/ofsaaweb/ES85/ES85
 FIC_HOME : /scratch/ofsaaweb/ES85/ES85
Environment check utility started...
============================================================
Java Validation Started ...
 Java found in : /scratch/oraofss/java/jdk1.8.0_77/bin
 JAVA Version found : 1.8.0_77
 JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
============================================================
Environment Variables Validation Started ...
 ORACLE_HOME : /scratch/oraofss/app_12c/product/12.1.0/dbhome_1
 TNS_ADMIN : /scratch/ofsaaweb/tnsname
Environment Variables Validation Completed. Status : SUCCESS
============================================================
OS specific Validation Started ...
 Checking en_US.utf8 locale. Status : SUCCESS
 Unix shell found : /bin/ksh. Status : SUCCESS
 Total file descriptors : 15000. Status : SUCCESS
 Total number of process : 10240. Status : SUCCESS
 OS version : 7. Status : SUCCESS
OS specific Validation Completed. Status : SUCCESS
============================================================
```

Figure 4–5   Schema Creator Utility with -s Option (cont)

```
Validating Connection URL ...jdbc:oracle:thin:@//whf00ark.in.oracle.com:1521/Ti11O12L64
Successfully connected to User - sys as sysdba URL - jdbc:oracle:thin:@//whf00ark.in.oracle.com:1521/Ti11O12L64
Connection URL successfully validated...
localhost name - whf00ark.in.oracle.com IPAddress - 10.184.152.10
Parsing TABLESPACE tags...
You have chosen to install this Application Pack on "e85_aao" ATOMIC schema. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "esinfo". Do you want to proceed? (Y/N)
y
================================================================================
Executing TableSpace Scripts started...
Skipping the creation of tablespace AO_INDEX_TABLE_SPACE
Skipping the creation of tablespace AO_TABLE_SPACE
Skipping the creation of tablespace AO_CONF_TABLE_SPACE
================================================================================
Creating Schemas started...
CONFIG User e85_conf successfully created on Default TableSpace : AO_CONF_TABLE_SPACE on Temp TableSpace : TEMP
Grants creation scripts execution started...
Grants creation scripts execution completed...
Successfully connected to User - e85_conf URL - jdbc:oracle:thin:@//whf00ark.in.oracle.com:1521/Ti11O12L64
Scripts execution for CONFIG schema started ...
Scripts execution for CONFIG schema completed ...
User e85_conf details updated into the dbmaster table
User e85_conf details updated into the I18NMASTER table
User e85_conf details updated into the aai_db_detail table
User e85_conf details updated into the aai_db_auth_alias table
User e85_aao details updated into the dbmaster table
User e85_aao details updated into the I18NMASTER table
User e85_aao details updated into the aai_db_detail table
User e85_aao details updated into the aai_db_auth_alias table
User e85_aao is successfully created on Default TableSpace : AO_TABLE_SPACE on Temp TableSpace : TEMP
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.
```

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.

To execute the schema creator utility while installing OFS AMLES 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 4–6   Schema Creator Utility while installing Subsequent Application Pack

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

Figure 4–7   Schema Creator Utility while installing Subsequent Application Pack

```
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sys as sysdba URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Connection URL successfully validated...
The following Application Packs are already installed in this OFSAA setup:


dev_atm1-           INFOTR-           "OFS_TR_PACK"


You have selected to install this Application Pack on "dev_atm3" ATOMIC schema. To proceed enter (Y/y). To change the selection, enter (N/n).
n
Choose the ATOMIC schema from the below list on which you wish to install this Application Pack:


1. dev_atm1-           INFOTR-           "OFS_TR_PACK"
2. dev_atm3


Enter the option number:2
========================================================================
Generating TableSpace creation Scripts started...
Generating TableSpace creation Scripts completed...
========================================================================
Generating Schema creation scripts started...
Skipping the creation of CONFIG user dev_conf1 as OFSAAI is already installed on dev_conf1
User dev_atm3 details updated into the dbmaster table
User dev_atm3 creation script generated successfully on Default TableSpace : USERS on Temp TableSpace : TEMP
User dev_atm3 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/ofsaadb/OFS_AAAI_PACK/schema_creator/sysdba_output_scripts.sql
before proceeding with the installation.
```

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_AO_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 AMLES Application Pack

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

This section includes the following topics:

- Prerequisites
- Installing in SILENT Mode
- Verifying the Log File

Prerequisite

Grant default role access to rqadmin, otherwise executions will fail. Use the following alter statement:

```
"alter user <schema_user> default role rqadmin'
```

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 AMLES in SILENT mode, follow these steps:

1. Login 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_AO_PACK` directory.

5. Edit the `OFS_AO_PACK/conf/OFS_AO_PACK.xml` to enable the product licenses.

   > **Note:** See Configuring OFS_AO_PACK.xml File section for details on configuring this XML file.

6. Rename the `OFS_AO_PACK/schema_creator/conf/OFS_AO_SCHEMA_IN.xml.TEMPLATE` to `OFS_AO_PACK/schema_creator/conf/OFS_AO_SCHEMA_IN.xml`.

7. Edit the `OFS_AO_PACK/schema_creator/conf/OFS_AO_SCHEMA_IN.xml` file to set the appropriate attribute values.

   > **Note:** See Configuring OFS_AO_SCHEMA_IN.xml File section for details on configuring this XML file.

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

> **Note:**
>
> See Configuring OFSAAI_InstallConfig.xml file for details on configuring this XML file.

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. In the console, navigate to the path *OFS_AAAI_PACK/bin*. Enter the following command o execute the application pack installer with Silent option.

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

Figure 4–8   Silent Mode Installation

```
install.jar  OFSAAI.jar  pack_install.bin  pack_installsilent.bin  setup.sh
$ ./setup.sh SILENT
/scratch/ofsaaweb/tnsname
/scratch/ofsaaweb/ES85/ES85
 FIC_HOME : /scratch/ofsaaweb/ES85/ES85
Environment check utility started...
============================================================
Java Validation Started ...
 Java found in : /scratch/oraofss/java/jdk1.8.0_77/bin
 JAVA Version found : 1.8.0_77
 JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
============================================================
Environment Variables Validation Started ...
 ORACLE_HOME : /scratch/oraofss/app_12c/product/12.1.0/dbhome_1
 TNS_ADMIN : /scratch/ofsaaweb/tnsname
Environment Variables Validation Completed. Status : SUCCESS
============================================================
```

11. Enter the OFSAA Processing Tier FTP/SFTP password value, when prompted at the command prompt.

Figure 4–9   Silent Mode Installation

```
Checking Infrastructure installation status ...
Infrastructure installation does not exist. Proceeding with Infrastructure installation ...
Triggering Infrastructure installation ...

Please enter Infrastructure Application/Database component FTP/SFTP password :
```

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

The OFSAAI License Agreement is displayed.

Figure 4–10   Silent Mode Installation

13. Enter Y/y to accept the License Agreement.

14. Enter the passwords for default Infrastructure administrator and authorizer users.

Figure 4–11   Silent Mode Installation

Figure 4–12   Silent Mode Installation

```
/scratch/ofsaaweb/tnsname
/scratch/ofsaaweb/ES85/ES85
executing "ant"
Buildfile: /scratch/ofsaaweb/ES85/ES85/ficweb/build.xml

createwar:
      [war] Building war: /scratch/ofsaaweb/ES85/ES85/ficweb/ES85.war

createear:
      [ear] Building ear: /scratch/ofsaaweb/ES85/ES85/ficweb/ES85.ear

BUILD SUCCESSFUL
Total time: 52 seconds
OFSAA App Layer Services start-up check started...
Starting startofsaai.sh service...
OFSAA Service - OK
Starting icc service...
ICC service - OK
Shutting down icc service...
Shutting down OFSAA service...
OFSAAI App Layer Services check Status: SUCCESSFUL.
OFSAAI DB Layer Services check started...
Calling agentshutdown.sh to check and kill, if any of the server is running...
OLAP Data Server service is not running.
MESSAGE Server service is not running.
AM service is not running.
ROUTER service is not running.
Starting ROUTER Service
ROUTER service started in background mode.
Starting AM Service
AM service started in background mode.
Starting MESSAGE SERVER Service
MESSAGE SERVER service started in background mode.
Starting OLAP DATA SERVER Service
OLAP DATA SERVER service started in background mode.
OLAP Data Server service is not running.
Stop MESSAGE Server service with Proces ID : 20197
Stop AM service with Proces ID : 20183
Stop ROUTER service with Proces ID : 20172
OFSAAI DB Layer File Services check Status: SUCCESSFUL.
****************************************************
Installation completed...
****************************************************
```

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

---

15. The following message is displayed in the console:

Installation completed…

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

For more information, see Verifying the Log File.

17. Install the consolidated one-off patch **27938294**. See the Readme available with the patch for further instructions on installing the patch.

18. Perform the steps mentioned in Post Installation Configurations section.

19. To enable Transparent Data Encryption (TDE), see section Transparent Data Encryption (TDE).

20. To enable Data Redaction, see the Data Redaction section in the Data Security and Data Privacy chapter in the OFS Analytical Applications Infrastructure Administration Guide 8.0.6.0.0.

Verifying the Log File

Verify the following logs files for more information:

- See the `Pack_Install.log` file located in the `OFS_AO_PACK/logs/` directory for OFS AMLES Application Pack installation logs.

- See the log file(s) located in the `OFS_AO_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 AMLES Application Pack

This chapter provides information for upgrade procedures from earlier versions of AMLES. The following topics are available:

- Upgrading the OFS AMLES Application Pack

> **Note:** Release 8.0.6.0.0 and higher of AMLES is not fully backward compatible with earlier versions of OFSAA applications. You can either upgrade all your applications from existing 8.0.x versions to 8.0.6.0.0 and higher versions, or choose to upgrade only selective application packs to v8.0.6.0.0 and higher. In the event you choose the latter option, you must also apply the forthcoming compatibility patches for the required application packs, so that the remaining application packs can continue to be at their pre-8.0.6.0.0 versions.

> **Note:** Before you upgrade AMLES from 8.0.5.x to 8.0.6.0.0 and higher, update and execute the following query in configuration schema:
>
> ```
> UPDATE INFODOM_PATCHES SET V_APP_ID = 'OFS_AO' WHERE V_APP_
> ID = 'AO';
> ```
>
> For details about configuration schema, see Configuring the Schema Creator Utility.

Upgrading the OFS AMLES Application Pack

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

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

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

2. Login to the OFSAA Server with user credentials that was used to install OFSAA.

3. Shut down all the OFSAAI Services. For more information, refer to the *Start/Stop Infrastructure Services* section in Appendix D.

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_AO_80700_<OperatingSystem>.zip
```

6. Extract the contents of the Oracle Financial Services Advanced Analytical Applications Infrastructure 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_AAAI_ 80700_<OperatingSystem>.zip* and execute the command:

```
chmod -R 750 OFS_AO_80700_<OperatingSystem>
```

8. Execute setup.sh file using the following command:

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

Verify if the release is applied successfully by checking the log file generated in the installation folder. You can ignore ORA-00001, ORA-00955, ORA-02260, and ORA-01430 errors in the log file. In case of any other errors, contact Oracle Support.

9. For more information on securing your OFSAA Infrastructure, refer to the Security Guide in `OHC Documentation Library`.

10. Restart all the OFSAAI services. For more information, refer to the *Start/Stop Infrastructure Services* section in Appendix D.

11. 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 section.

12. After successful installation, follow these steps:

Login 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
```

> **Note:** If the WebLogic version is 12.2.x.x, delete the directory "WL_
> internal", if it exists, in the path *<WebLogic installation location>/user_
> projects/domains/< Domain name >/applications/<context_
> name>.ear/META-INF/.*

- **Websphere**

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

13. Add umask 0027 in the `.profile` of the UNIX account which manages the WEB server to ensure restricted access permissions.

14. For enabling TDE, see Configuring TDE for AMLES upgrade installation.

15. For enabling Data Redaction, see Enabling data redaction for AMLES upgrade.

6

Post Installation Configurations

On successful installation of the Oracle Financial Services Anti-Money Laundering Event Scoring 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 for AMLES
- 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 Appendix B 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 Appendix D 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. Login 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 for AMLES

This section provides information for ORD and ORE configurations for OFS AMLES enabled in your OFSAA instance. The instructions discussed here involves the installation and configuration of R packages for AMLES.

Install the required R packages and dependent packages for R.

For more information, see Installing R Packages for OFS AMLES. If you have already installed the R packages (as part of a previous installation), uninstall it (for more information, see Uninstalling R Packages for OFS AMLES section), and reinstall the latest available R packages.

Installing R Packages for OFS AMLES

The R packages built by the OFS AMLES Application are a prerequisite to execute models developed using R scripts.

Note:

- GCC 4.6 is a pre-requisite for compiling XGBoost in Linux [OEL/RHEL]. This is required for R packages.

- Native OEL-7 is recommended. Hence, XGBoost can be installed on OEL-7.

- Native OEL-6 does not support XGBoost. Hence, XGBoost cannot be installed on Native OEL-6.

The R packages are available in the `$FIC_HOME/ES_R_Packages` directory.

Prerequisite

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

Installing the Packages

See the following instructions to install the R packages:

1. Login to the OFSAA Server. Navigate to the directory `$FIC_HOME/ES_R_Packages`.

2. Copy the **ES_R_Packages** directory to a directory in the Oracle Database Server.

3. Login to the Oracle Database Server with the user ID that was used to install the Oracle Database Server.

4. Navigate to the **ES_R_Packages** directory that was copied to the Oracle Database Server.

5. From **ES_R_Packages** directory, go to **SourcePackages** directory and install the packages by executing the following command:

```
ORE CMD INSTALL R_Package_Name
```

For example, `ORE CMD INSTALL ofswoelr_1.0.0.tar.gz`

Install the following packages in the order listed:

1. ofswoelr_1.0.0.tar.gz
2. oreclassifiers_1.0.0.tar.gz
3. orexv_1.0.0.tar.gz
4. ofsEventScoring_2.0.0.tar.gz

6. From **ES_R_Packages** directory, go to **BinaryPackages** directory and install the packages by executing the following command:

```
ORE CMD INSTALL R_Package_Name
```

For example, `jsonlite_1.5_R_x86_64-pc-linux-gnu.tar.gz`

Install the following packages in the order listed:

1. jsonlite_1.5_R_x86_64-pc-linux-gnu.tar.gz
2. data.table_1.10.4-3_R_x86_64-pc-linux-gnu.tar.gz
3. lattice_0.20-35_R_x86_64-pc-linux-gnu.tar.gz
4. magrittr_1.5_R_x86_64-pc-linux-gnu.tar.gz
5. Matrix_1.2-12_R_x86_64-pc-linux-gnu.tar.gz
6. stringi_1.1.6_R_x86_64-pc-linux-gnu.tar.gz
7. xgboost_0.71.2_R_x86_64-pc-linux-gnu.tar.gz

Successful installation is indicated in the installation log as:

```
* DONE (R package name here)

Making packages.html ... done
```

> **Note:** The R packages are installed in the directory $ORACLE_HOME/R/library.

7. Navigate to the directory $ORACLE_HOME/R/library and check whether R packages are listed there by executing the command:

```
>library(R package name)
```

```
>R package name:: and press TAB twice.
```

The result displays the list of all the functions.

Uninstalling R Packages for OFS AMLES

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

Perform the following instructions to uninstall the R packages:

1. Login to the Oracle Database Server with the user ID that was used to install the Oracle Database Server.

2. Enter ORE in command prompt and execute the command:

   #ORE

   >remove.packages("R package name")

   Note: See the directory $FIC_HOME/ES_R_Packages for exact package names.

   ---

3. To save 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 that the package is not listed there by executing the command:

   ls –l

Configuring Tomcat

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

To configure `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 Appendix C.

Accessing the OFSAA Application

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

Refer to Appendix E for details on accessing the OFSAA Application on 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 Appendix F.

A

Configuring Web Server

This section covers the following topics:

- Configuring Web Server
- Configuring Web Application Servers

Configuring Web Server

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

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

Configuring Web Application Servers

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

This section includes the following topics:

- Configuring WebSphere Application Server for Application Deployment
- Configuring WebLogic for Application Deployment
- Configuring Apache Tomcat Server for Application Deployment

> **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 web server is not configured).
>
> - Add umask 0027 in the `.profile` of the UNIX account which manages the WEB server 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 web server.

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

- Managing IBM WebSphere SDK Java Technology Edition Versions

- Managing Applications in WebSphere

- Deleting WebSphere Profiles

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

- Configuring WebSphere HTTPS

- Configuring WebSphere Memory Settings

- Configuring WebSphere for REST Services Authorization

- Configuring Application Security in WebSphere

Creating a New Profile in WebSphere

The Profile is created in WebSphere through 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. Login 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 *Application servers* window, click the required Application Server link. For example, server1 in the following illustration:

Figure A–1   Application Server - Java SDKs
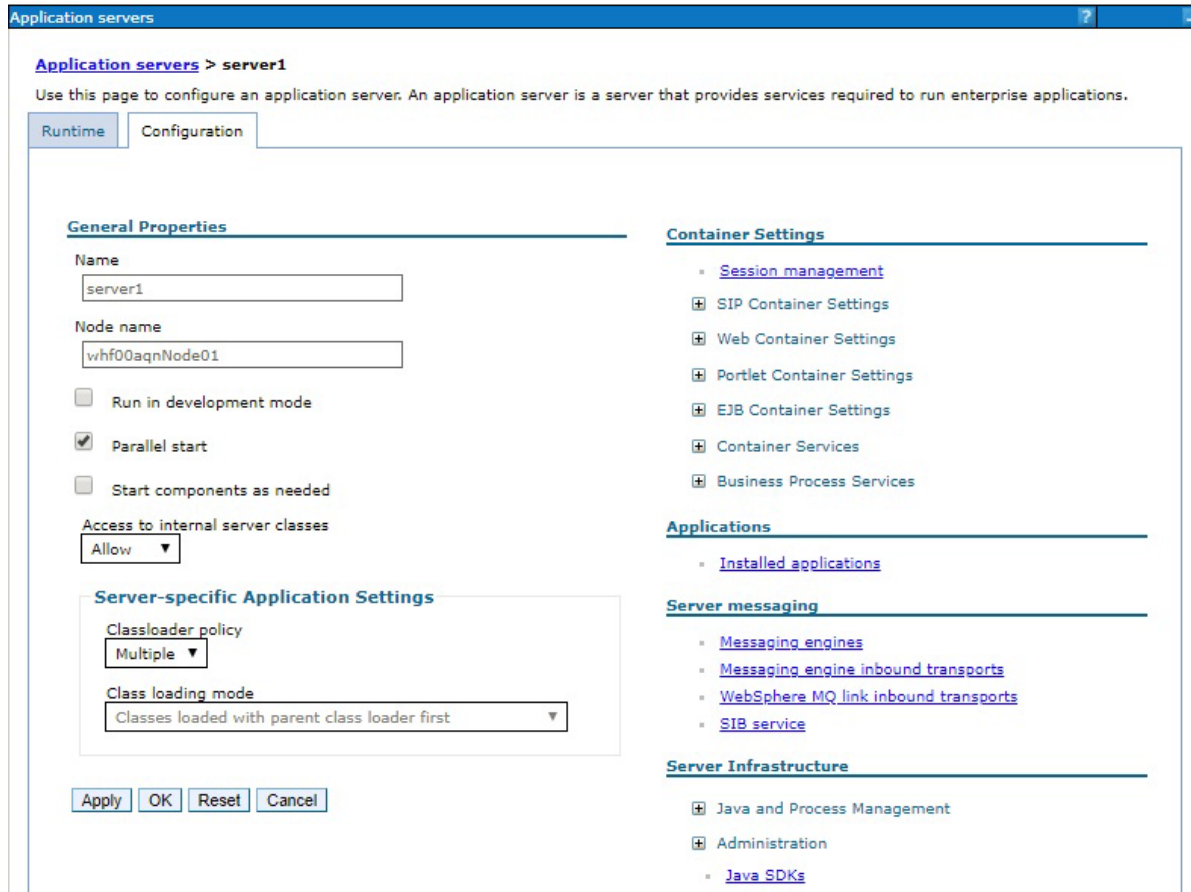
6. Click **Java SDKs** link from *Server Infrastructure* to view the list of Java SDKs.

Figure A–2   Application Server - List of Java SDKs
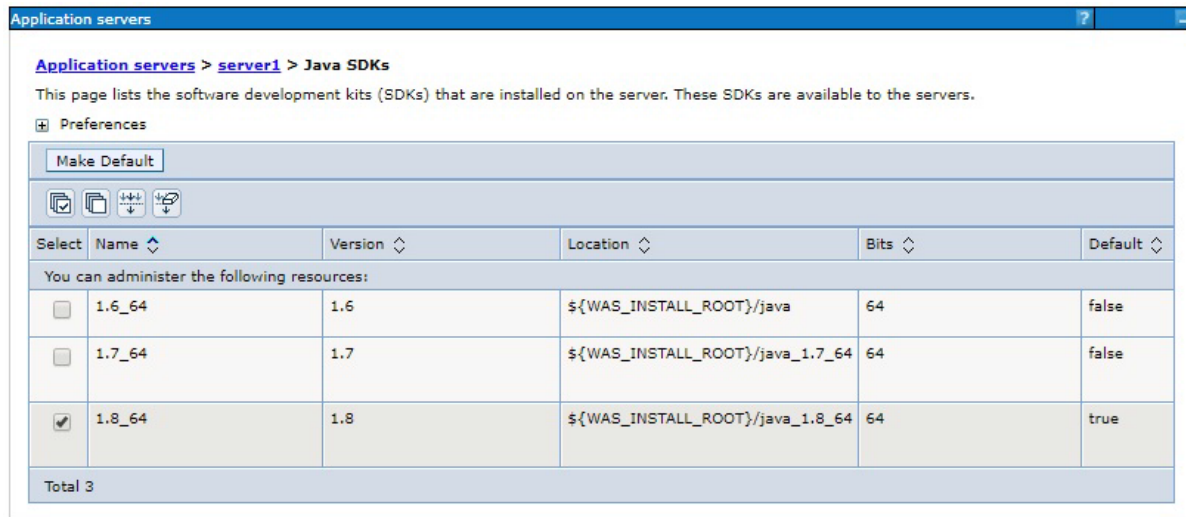
7. Select either **1.7_64** or **1.8_64** based on the JVM version with which you plan to install OFSAA or have installed with.

8. Click **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 6–1   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 6–2 Enterprise Applications
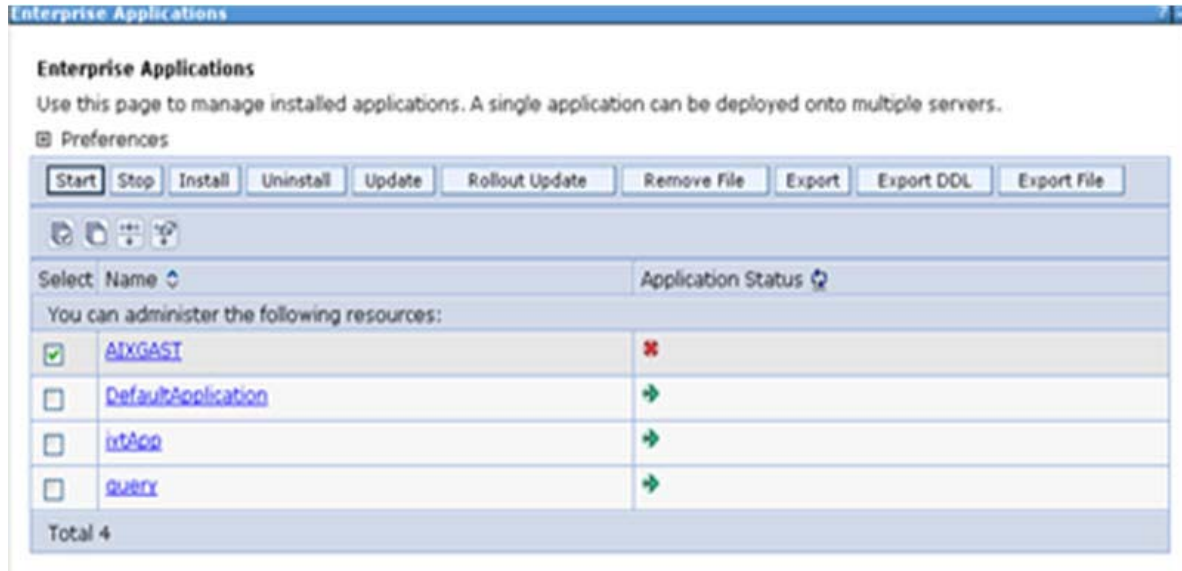
This Enterprise Applications window helps you to:

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

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 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.

Figure A–3   Shared Libraries
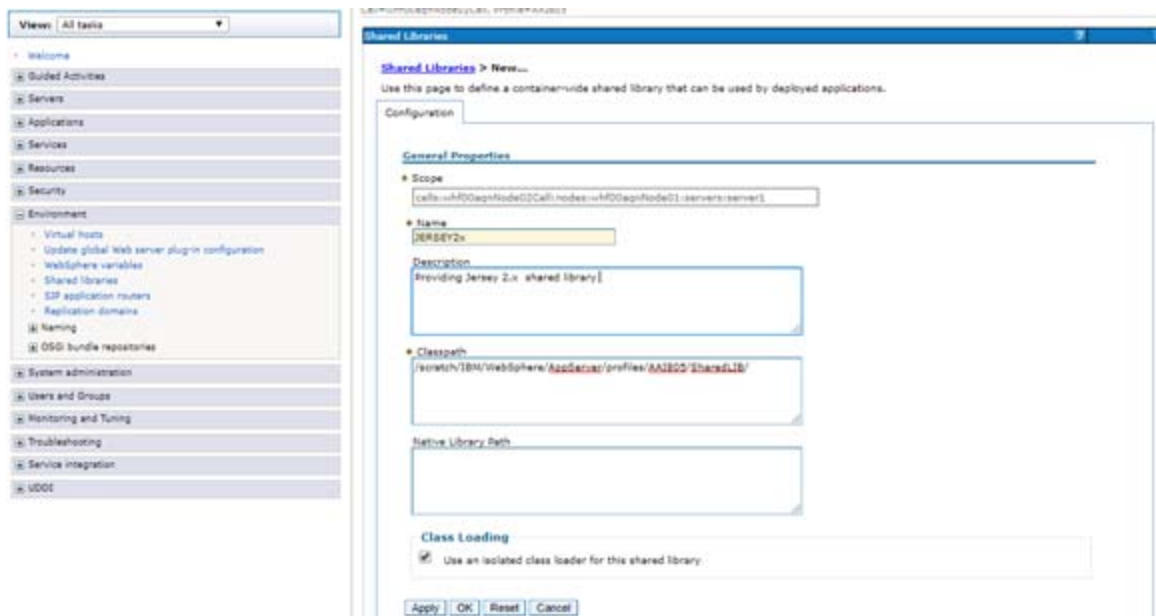
2. Enter details as shown in the following:

    1. **Name:** Enter a 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. Select the application or module and map the shared libraries. Click **OK**. In the following illustration, **ofsa** is selected.

Figure A–4   Shared Library References
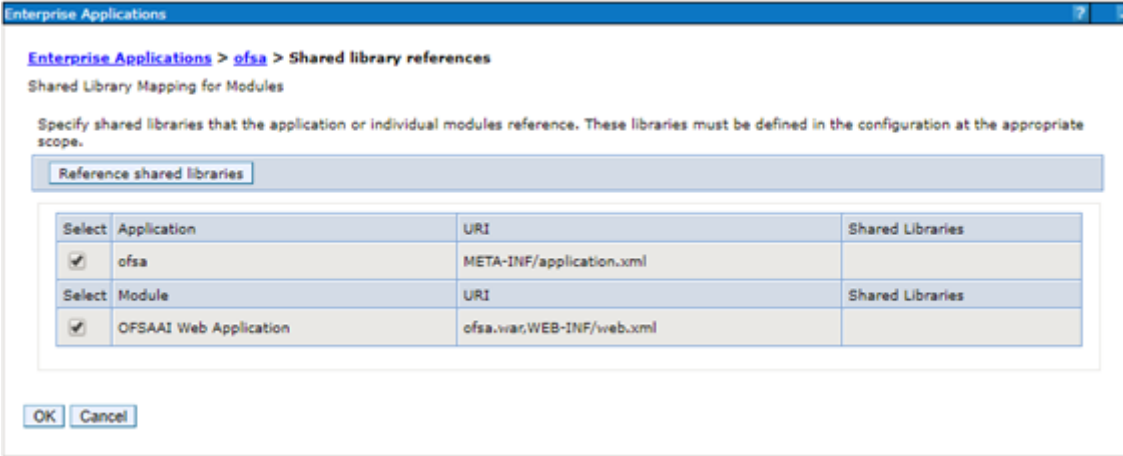
6. From the *Shared Library Mapping* window, move the required shared libraries from **Available** to **Selected**. In the following illustration, JERSEY2x is selected.

Figure A–5   Shared Library Mapping
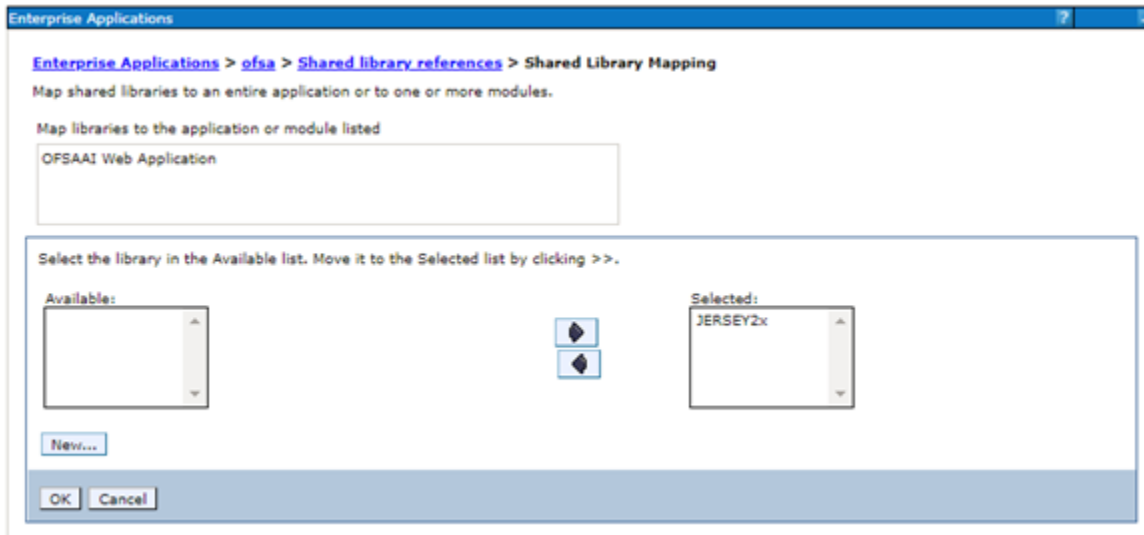
7. Click **OK**.

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

Figure A–6   Shared Library References
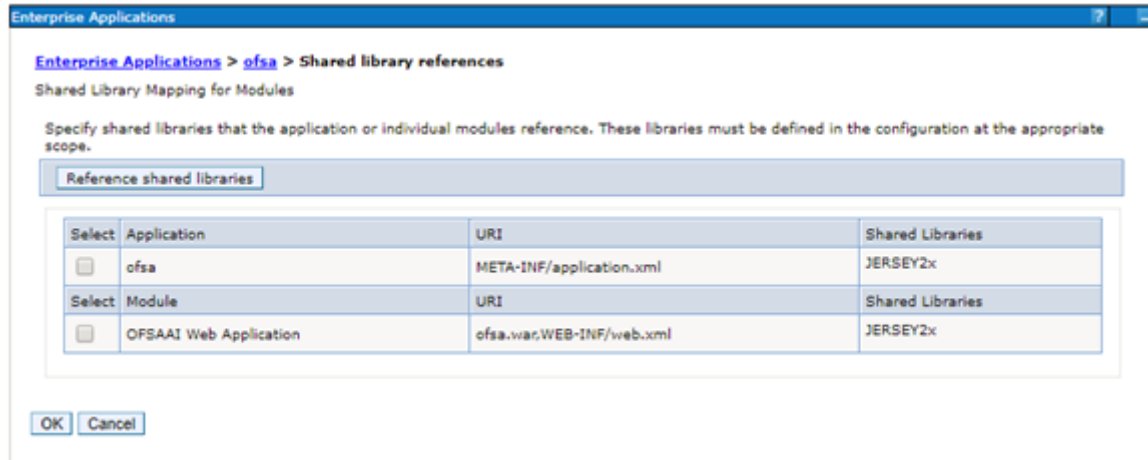
9. Disable the built-in JAX-RS via JVM property.

   1. Go to WebSphere admin console in **Servers > WebSphere Application Servers > yourServerName**.

   2. In S**erver 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 servlet port or web server 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. Login to WebSphere console with the **User ID** provided with the admin rights.

2. Expand **Security** menu in the LHS and click *Global security > Web and SIP security > General settings*.

Figure A–7   General Settings

3. Deselect the **Use available authentication data when an unprotected URI is accessed** checkbox.

4. Click **OK**.

Figure A–8 Global Security

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.

> **Note:** For deployment on Oracle WebLogic Server 12.1.3+ (64 bit) with Java 8, download and install patch 18729264 from My Oracle Support.

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.

Configuration Type
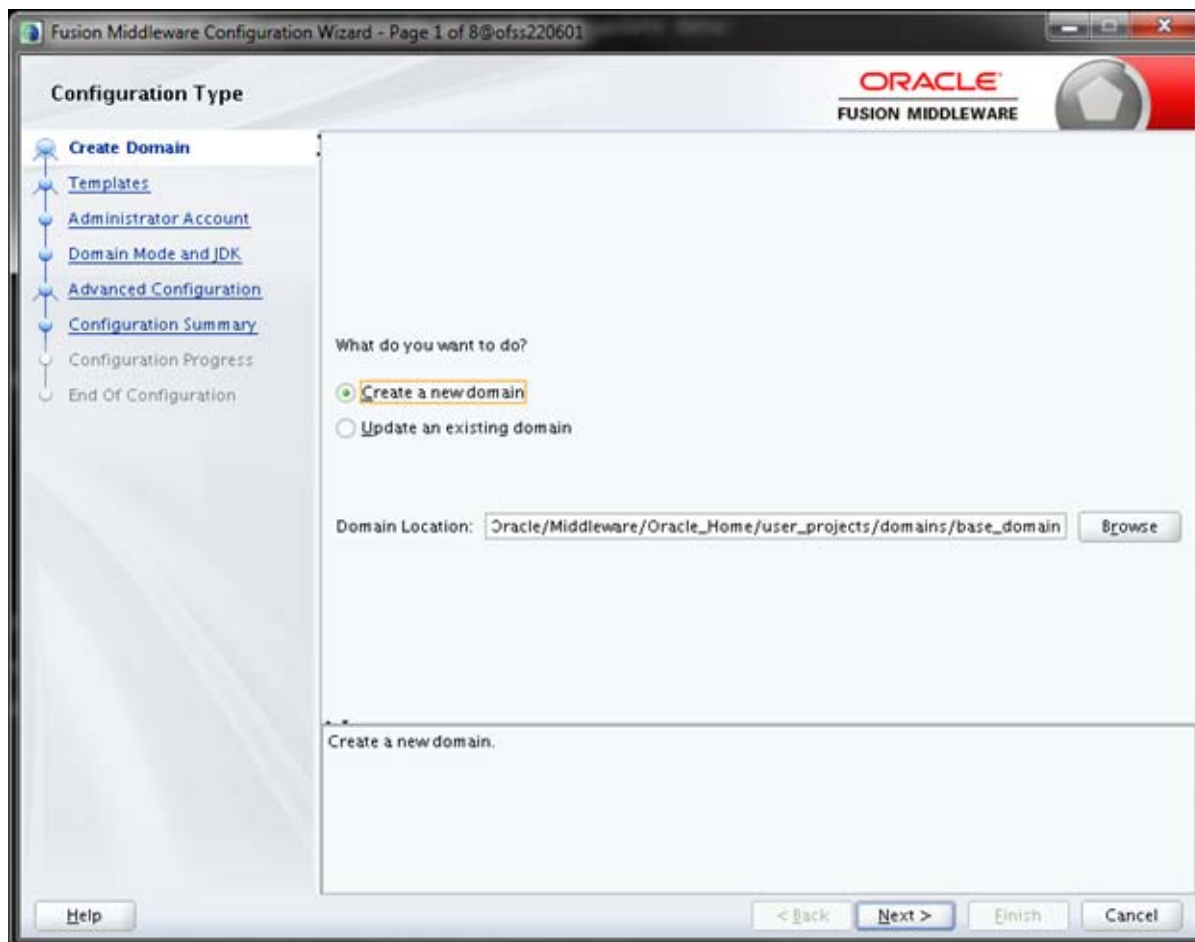
2. Select **Create a new domain** option and click **Next**.

   The *Templates* window is displayed.

Figure A–9   Templates
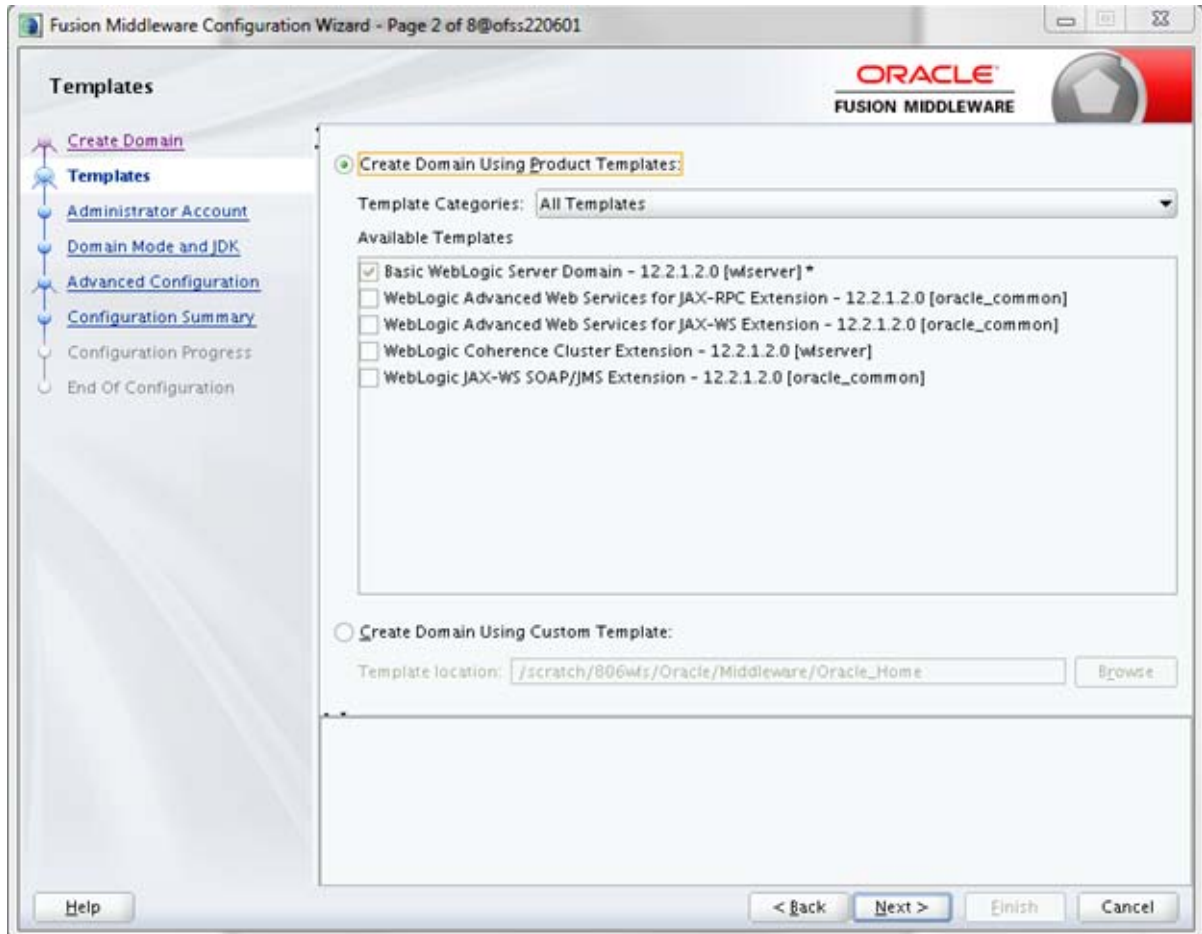
3.   Select the **Create Domain Using Product Templates** option and click **Next**.

The *Administrator Account* window is displayed.

Figure A–10   Administrator Account
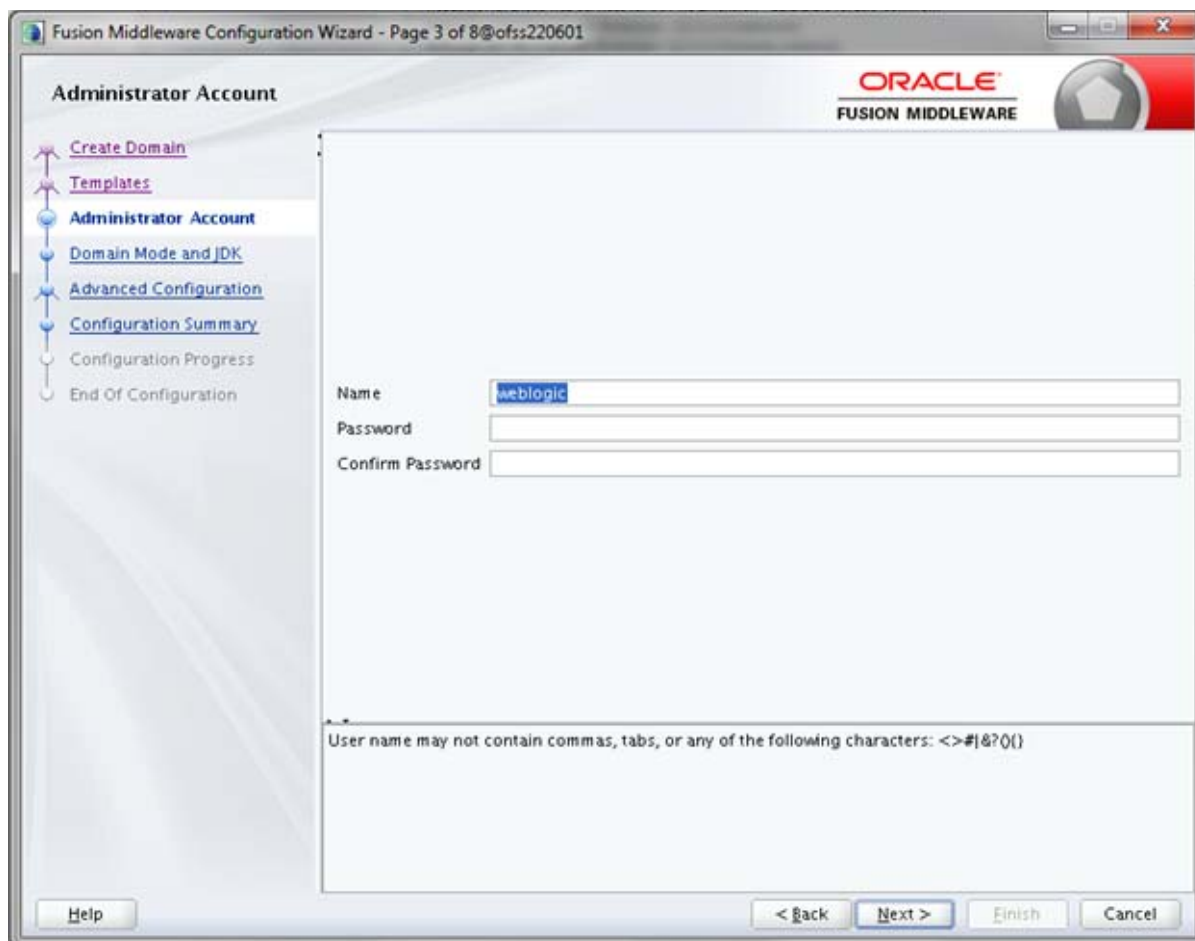
4. Enter the **Name** and **Password** to be assigned to the Administrator. Domain Mode and JDK. Re-enter the password for confirmation. Click **Next**.

   The *Domain Mode and JDK* window is displayed.

Figure A–11   Domain Mode and JDK
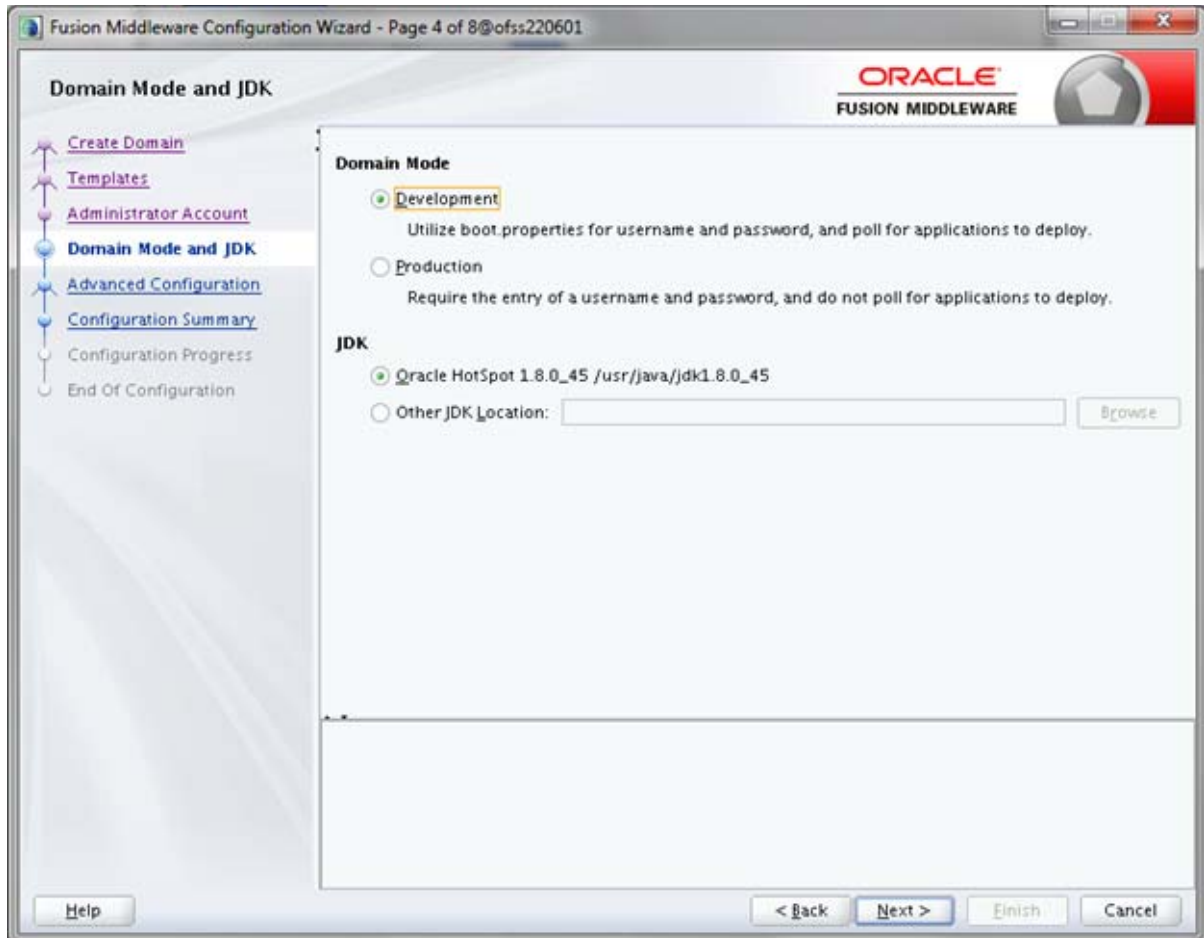
5. Select from the following options:

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

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

    The *Advanced Configuration* window is displayed.

Figure A–12 Advanced Configuration

6. Select **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.

Figure A–13   Administration Server

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.

Figure A−14   Configuration Summary
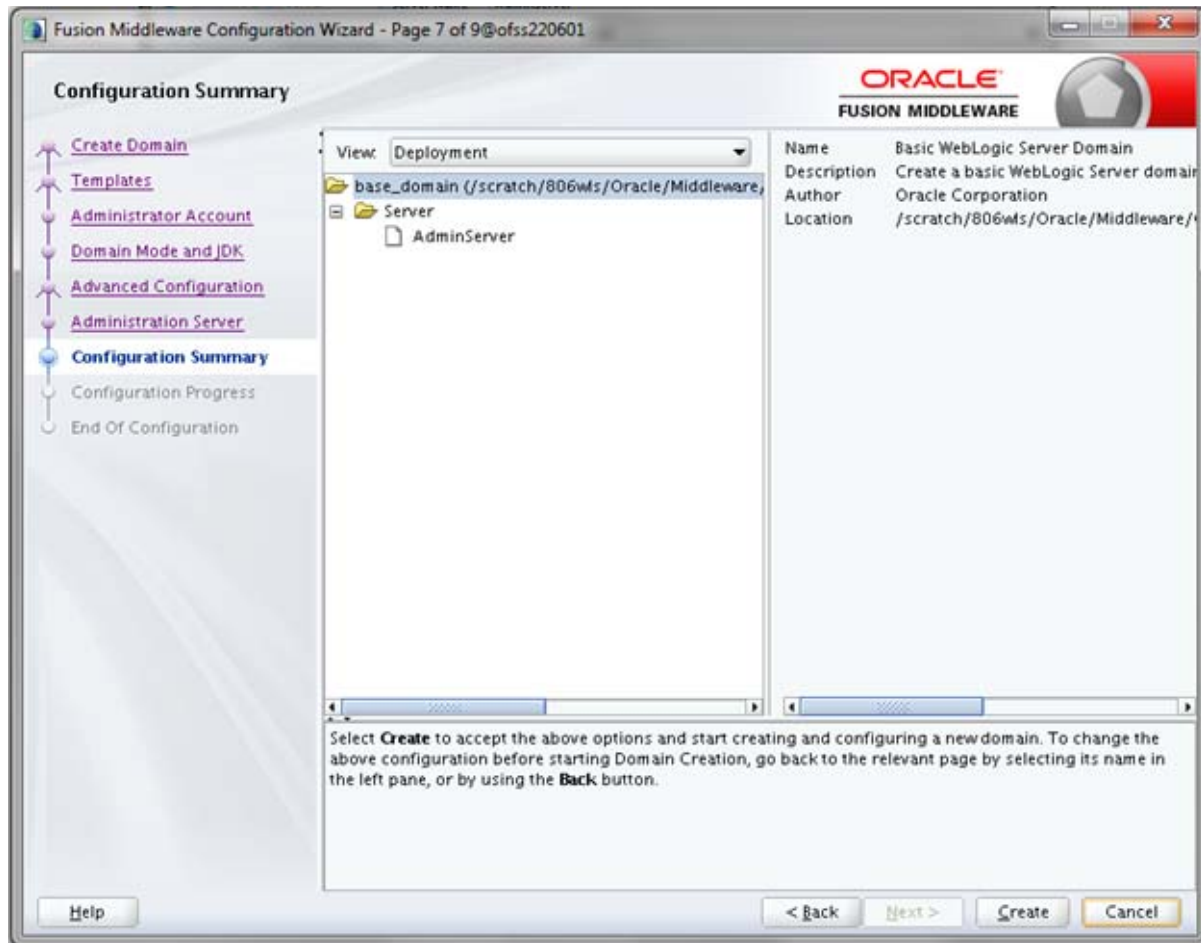
8. Verify the configuration details of the WebLogic domain and click **Create**.

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

Figure A–15   Creating Domain
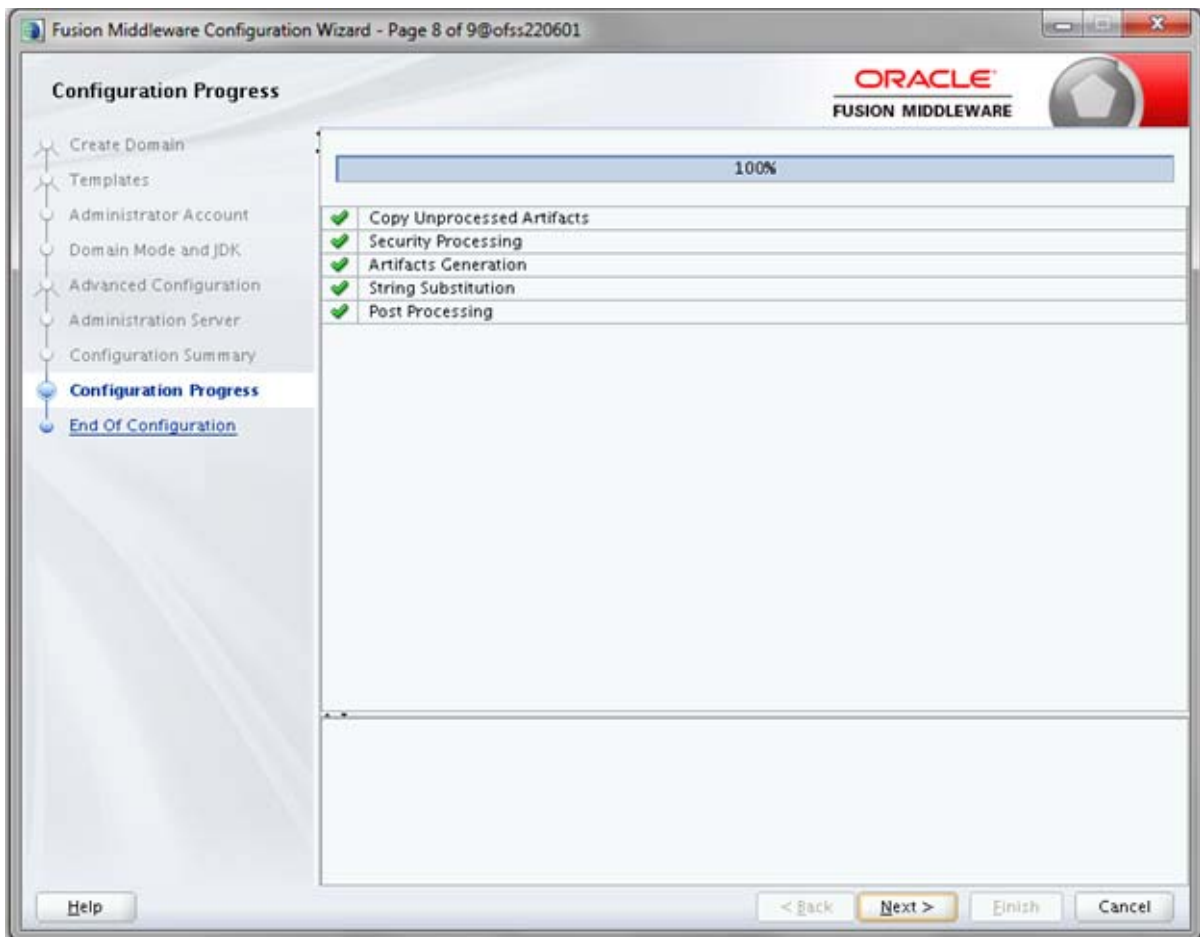
9. Click **Next** when 100% of the activity is complete.

    The E*nd of Configuration* window is displayed
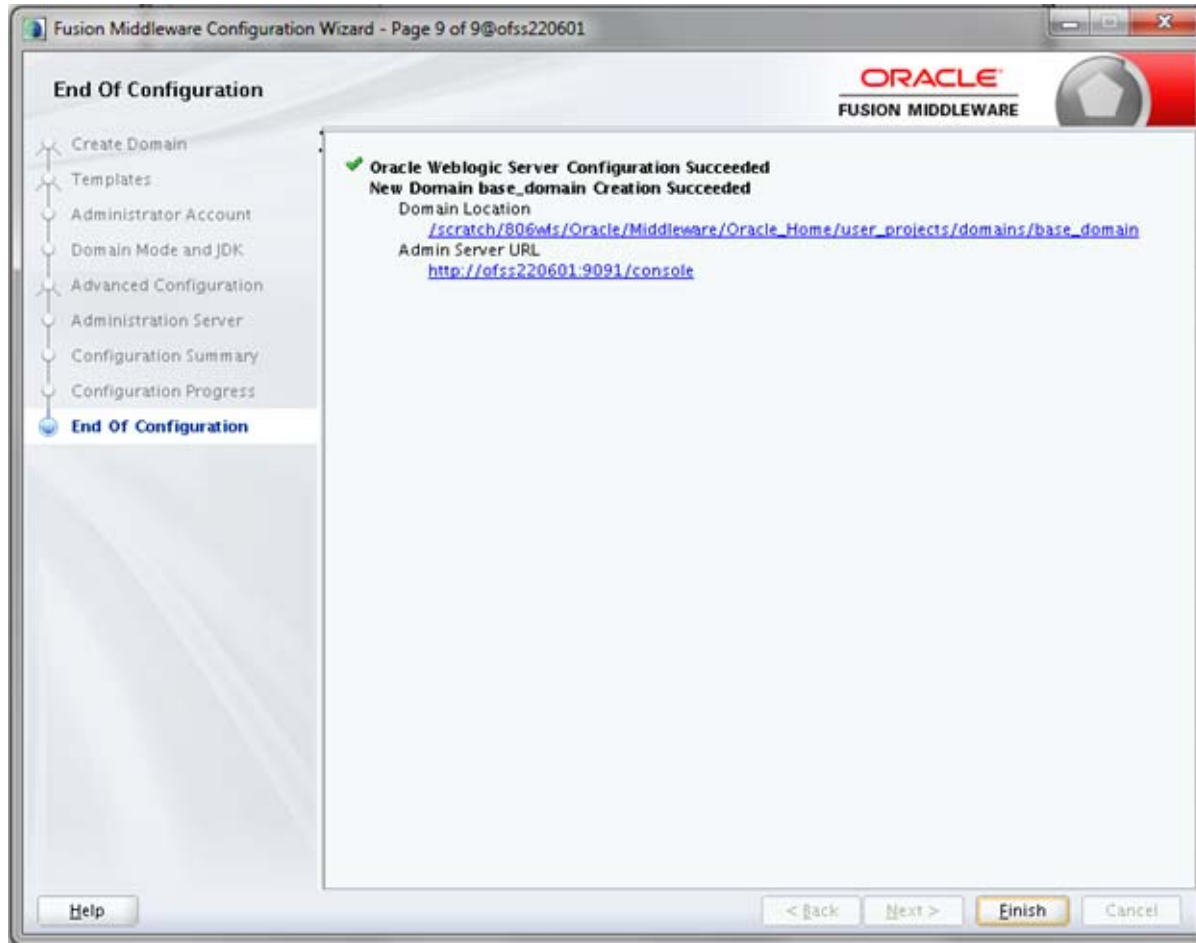
10. Click **Finish**. The domain server is created enabling the deployment of multiple Infrastructure applications on a single WebLogic.

> **Note:**
>
> ■ Note down the HTTPS port specified during this process and use the same as servlet port or web server 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 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 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 Tomcat web server, you have to perform the following configuration steps:

1. Navigate to the `$CATALINA_HOME/conf` folder and open `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. Login 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 6–3   JDBC Providers
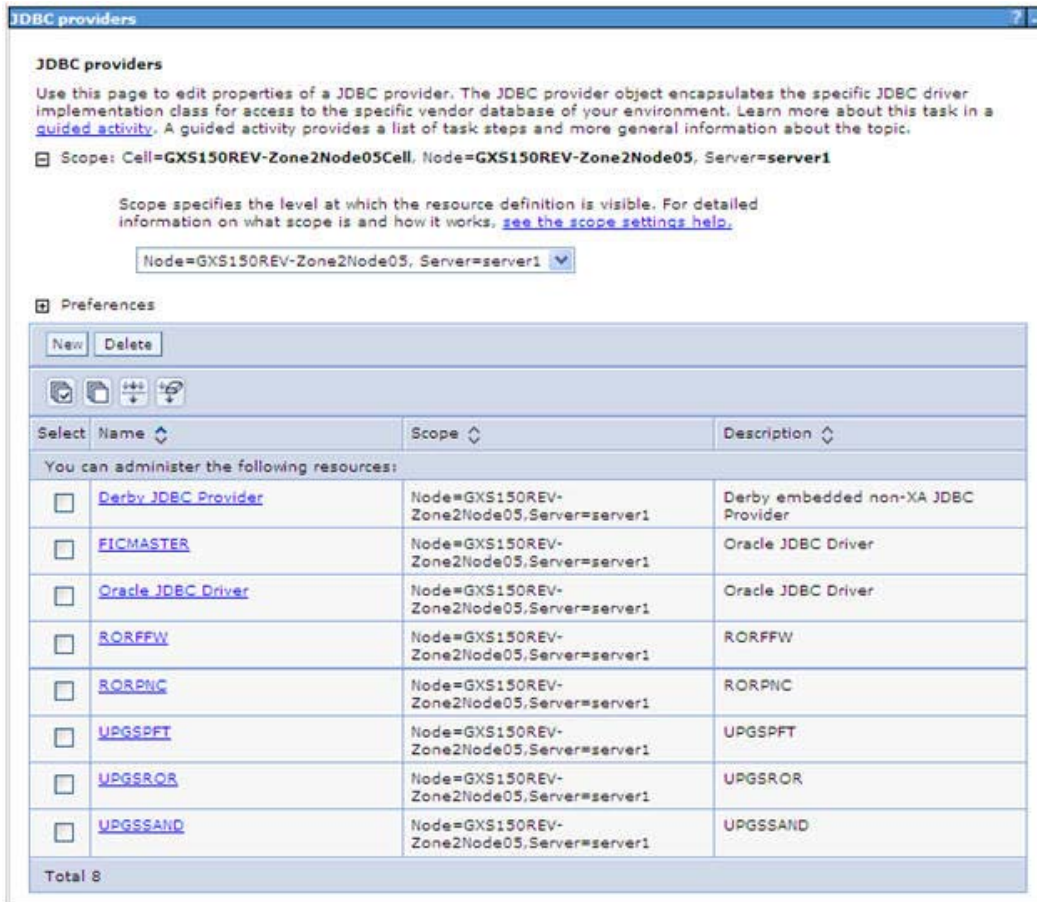
4. Select the **Scope** from the drop-down list. Scope specifies the level at which the resource definition is visible.

5. Click **New** to add new JDBC Provider under the *Preferences* section. The Create new JDBC provider window is displayed.

Create a new JDBC Provider
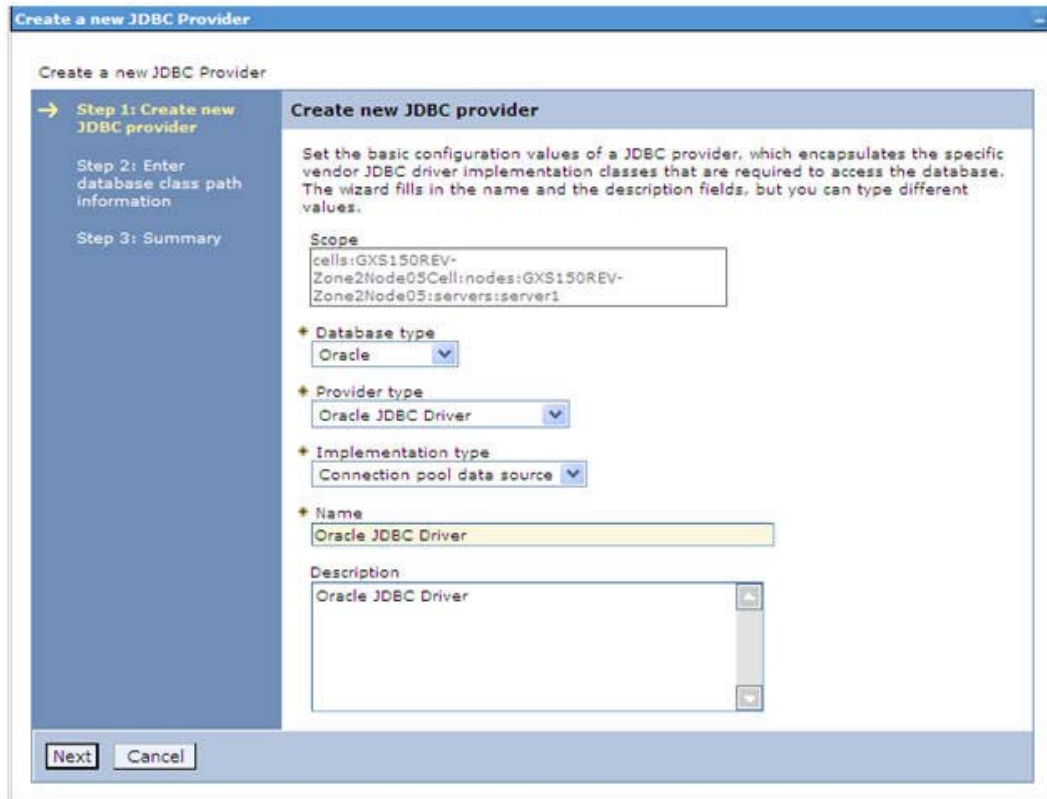
6. Enter the following details:

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.**

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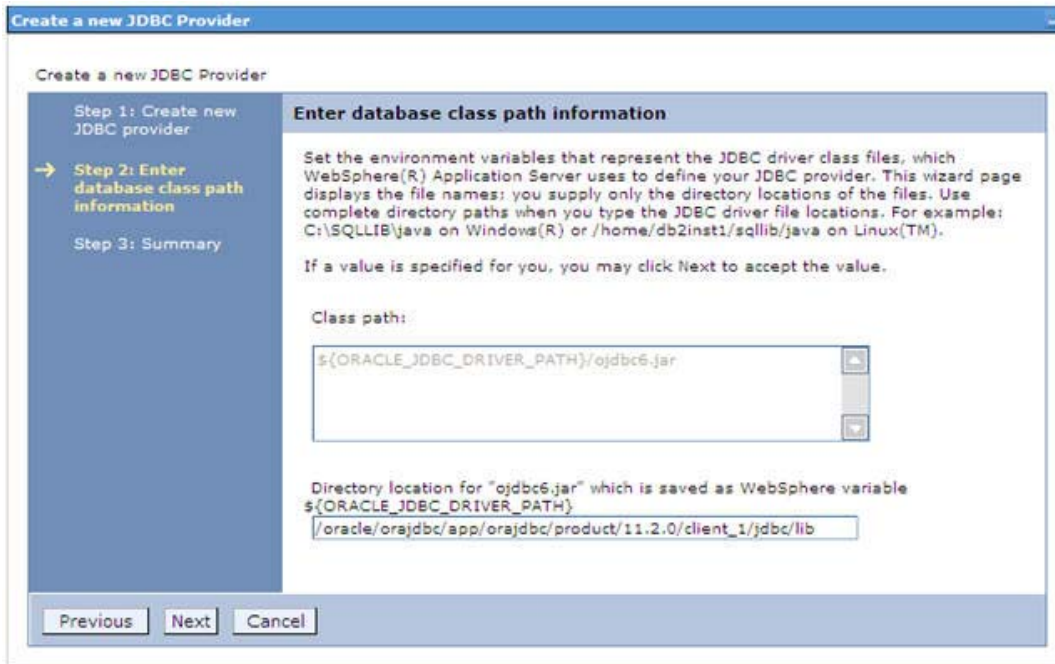
8. Specify the directory location for "`ojdbc<version>.jar`" file. Ensure that you do not use the trailing slash file separators.

   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 N for identifying the correct `ojdbc<version>.jar` version to be copied.

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

Figure 6–4   Summary
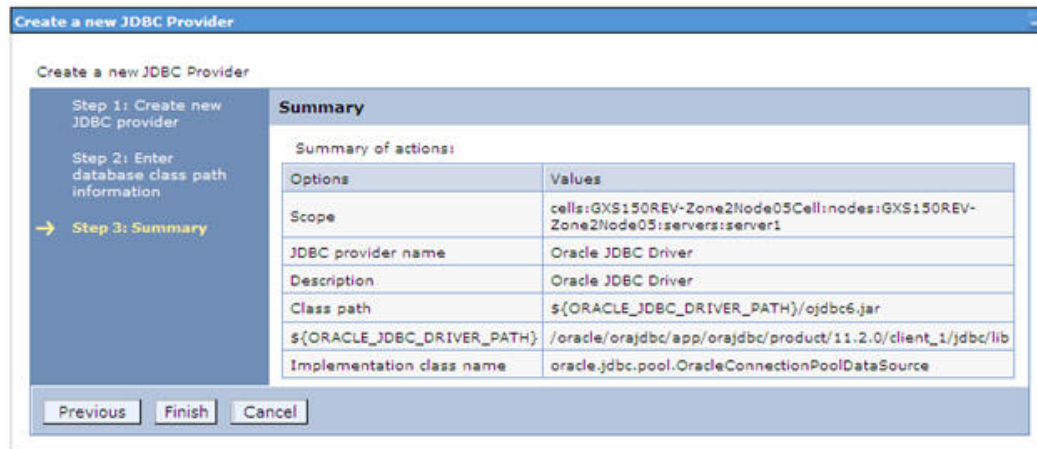
10. Verify the details and click **Finish** to create the JDBC Provider.

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. Login 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
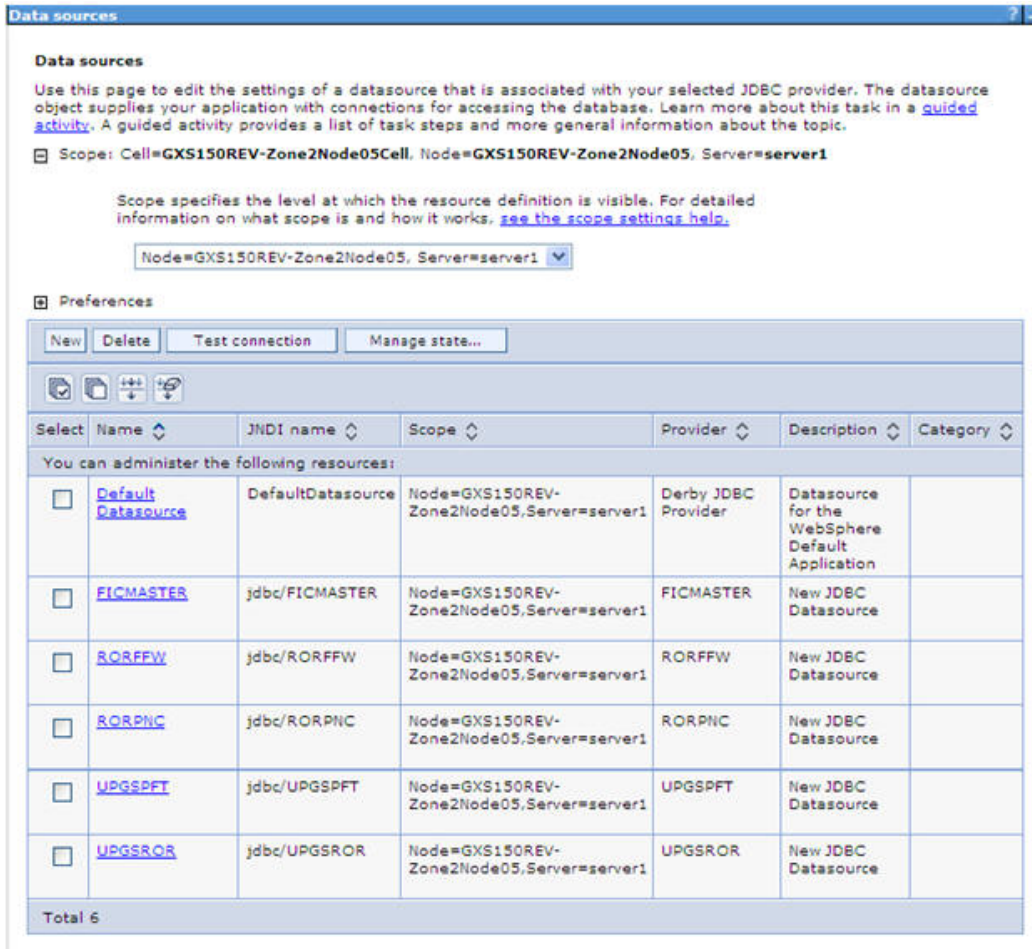
4. Select the **Scope** from the drop down list. Scope specifies the level at which the resource definition is visible.

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
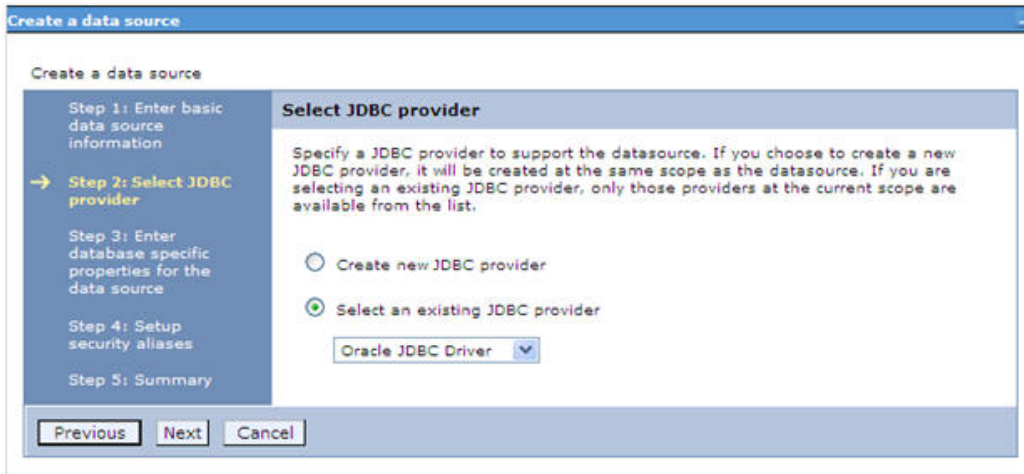
9. Specify the database connection URL.

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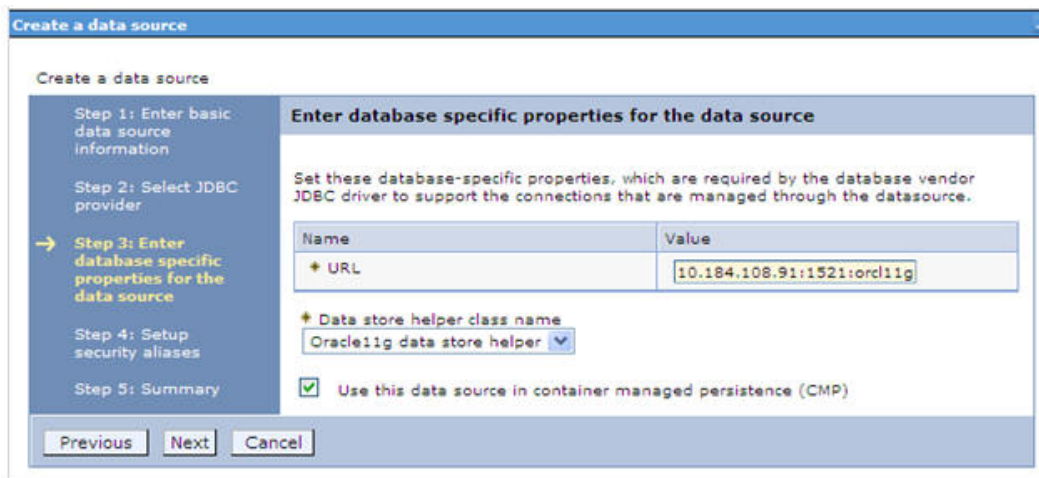
12. Map the J2C authentication alias, if already created. If not, you can create a new J2C authentication alias by accessing the link given (**Global J2C authentication alias**) or you can continue with the data source creation by clicking **Next** and then **Finish**.

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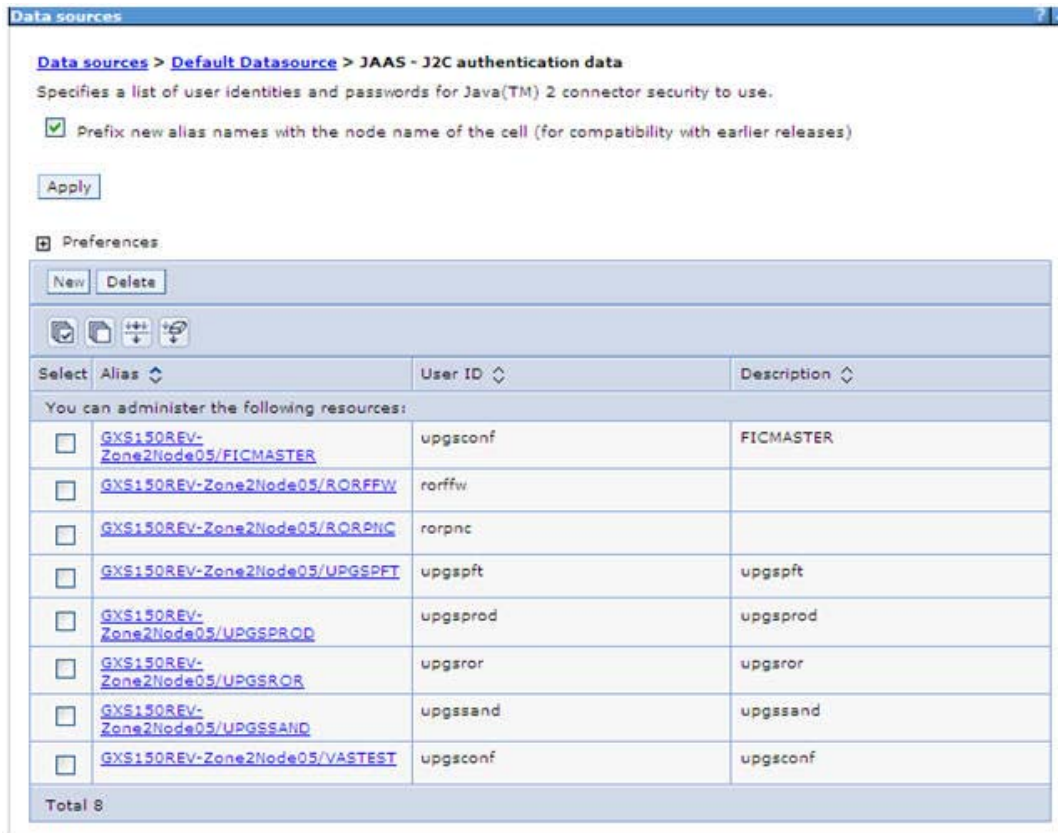
2. Click **New** under the *Preferences* section.

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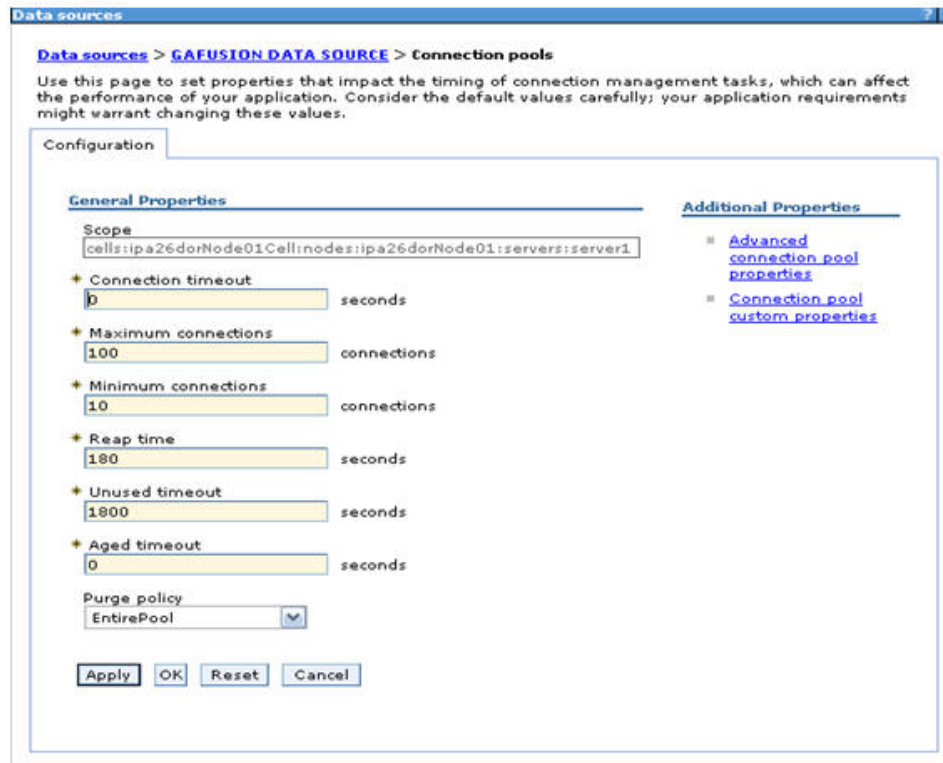
3. Set the values for **Connection timeout** to 0 seconds, **Maximum connections** to 100 connections, and Minimum connections to 10 connections as shown in the preceding figure. You can also define **Reap Time, Unused Timeout,** and **Aged Timeout** as required.

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:

- Creating Data Source
- Creating GridLink Data Source
- Configuring Multi Data Sources
- Configuring Advanced Settings for Data Source
- Defining JDBC Connection Pooling

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 6–5   Create a New JDBC Data Source
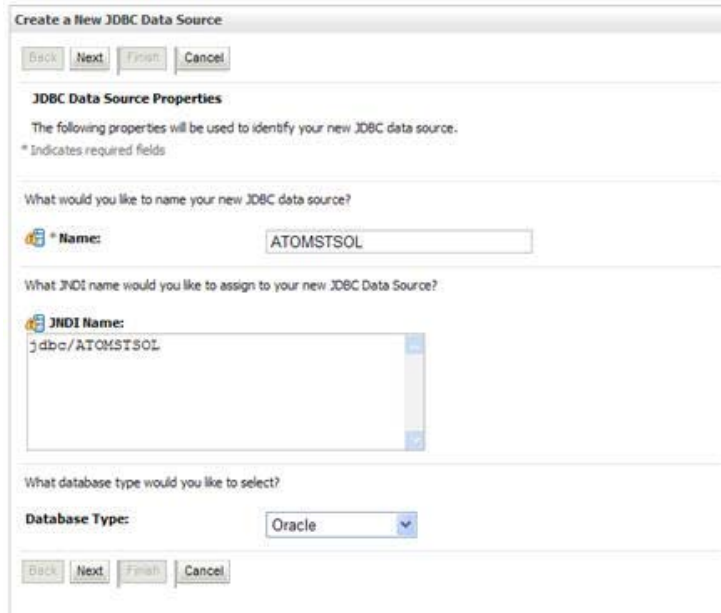
5. Enter JDBC data source **Name**, **JNDI Name**, and select the **Database Type** from the drop-down list. Click **Next**.

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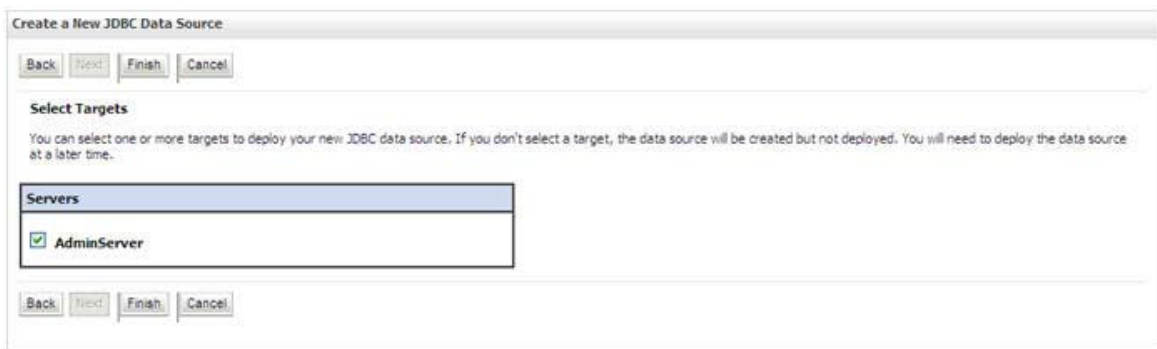
14. Select the **AdminServer** option and click **Finish**.

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 6–6   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 6–7   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 6–8   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 6–9   Configure the Multi Data Source
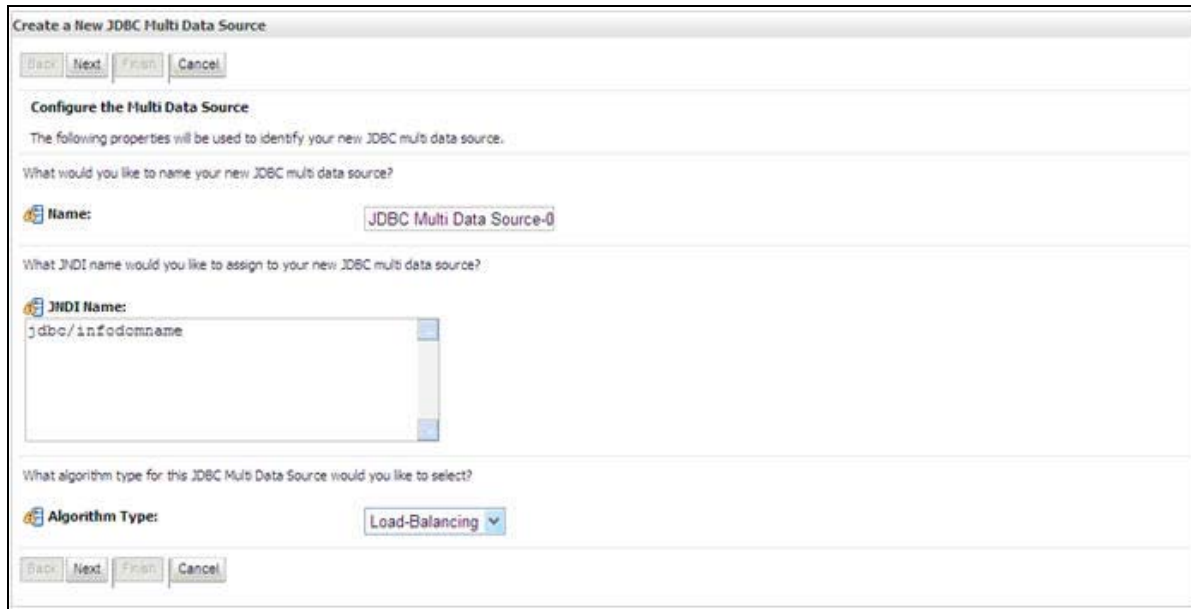
5. Enter the JDBC Source **Name**, **JNDI name**, and select the **Algorithm Type** from the drop-down list. Click **Next**.

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 6–10   Select Targets

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

Figure 6–11   Select Data Source Type

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

Figure 6–12   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 6–13   Settings for <Data Source Name>
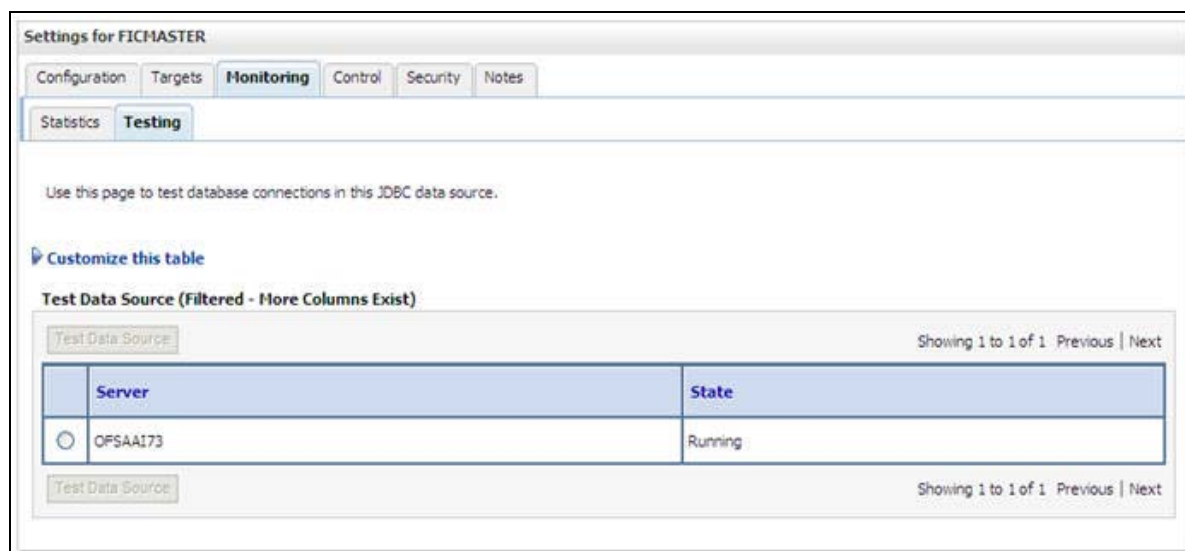
4. Select the server and click **Test Data Source**.

   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 N 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 `OFS AMLES_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 N 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:

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
- Deploying EAR/WAR File

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.

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
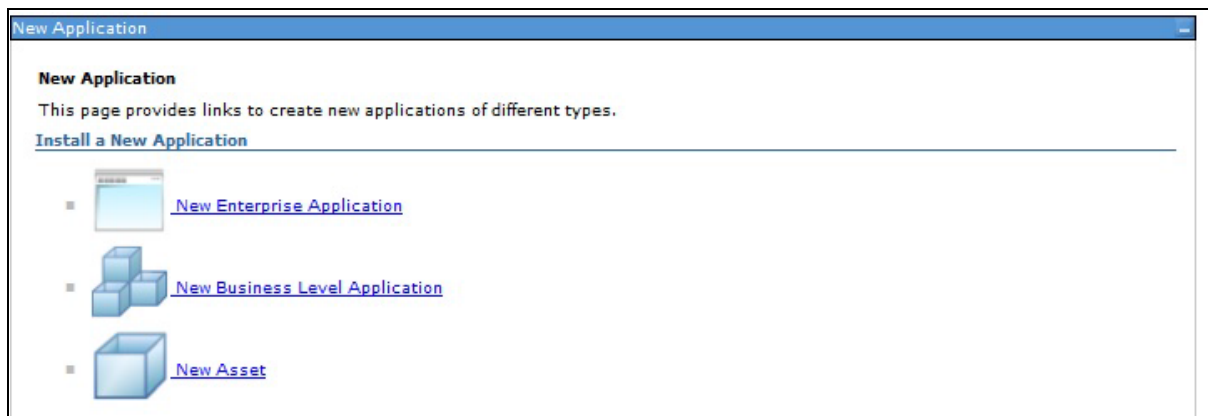
5. Click **New Enterprise Application**. The *Preparing for the application installation* window is displayed.

Figure C–4   Preparing for the application installation
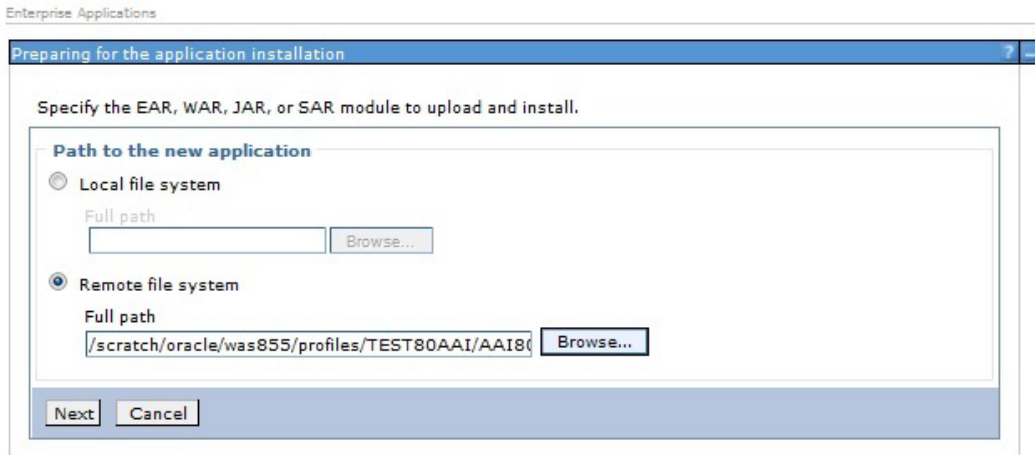
6. Select **Remote File System** and click **Browse**. Select the EAR file generated for OFSAAI to upload and install. Click **Next**.

Figure C–5   Installation Options
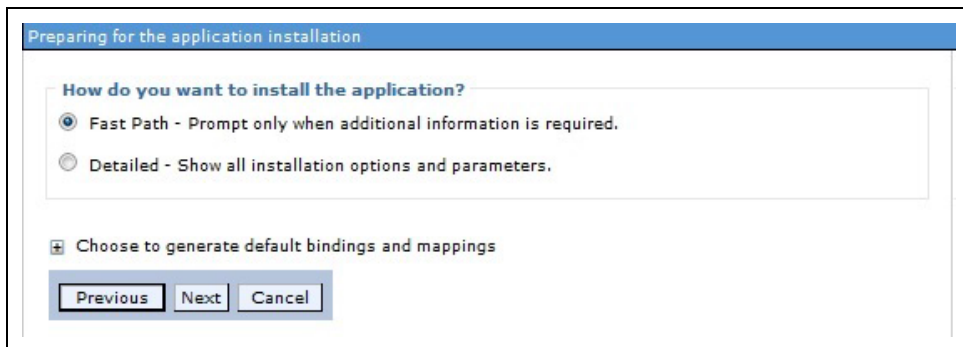
7. Select the **Fast Path** option and click **Next**. The *Install New Application* window is displayed.

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
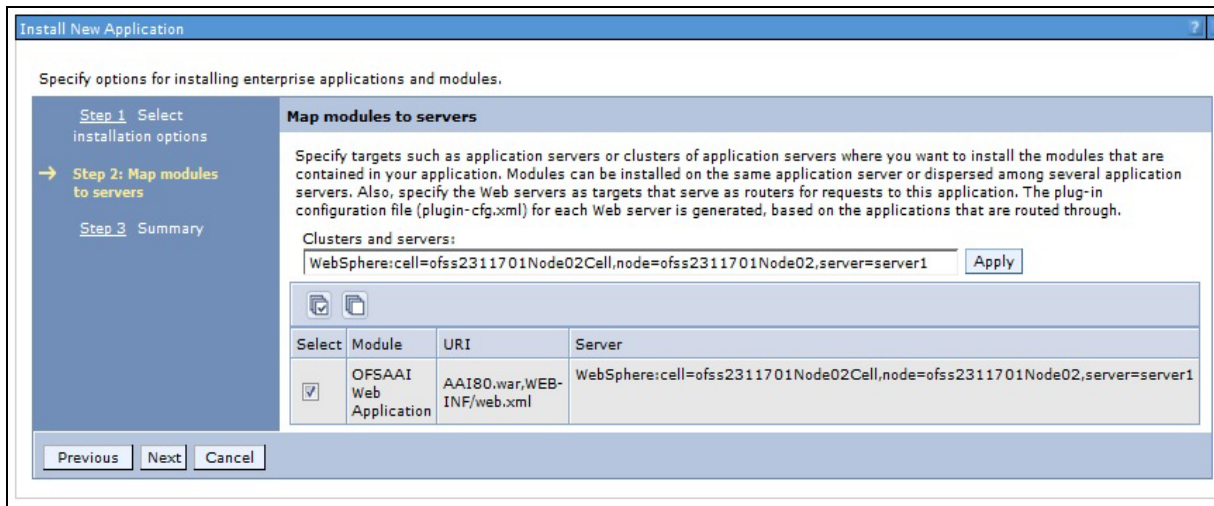
9.   Select the **Web Application** and click **Next**. The *Map Resource References to Resources* window is displayed.

Figure C–8   Map Resource References to Resources
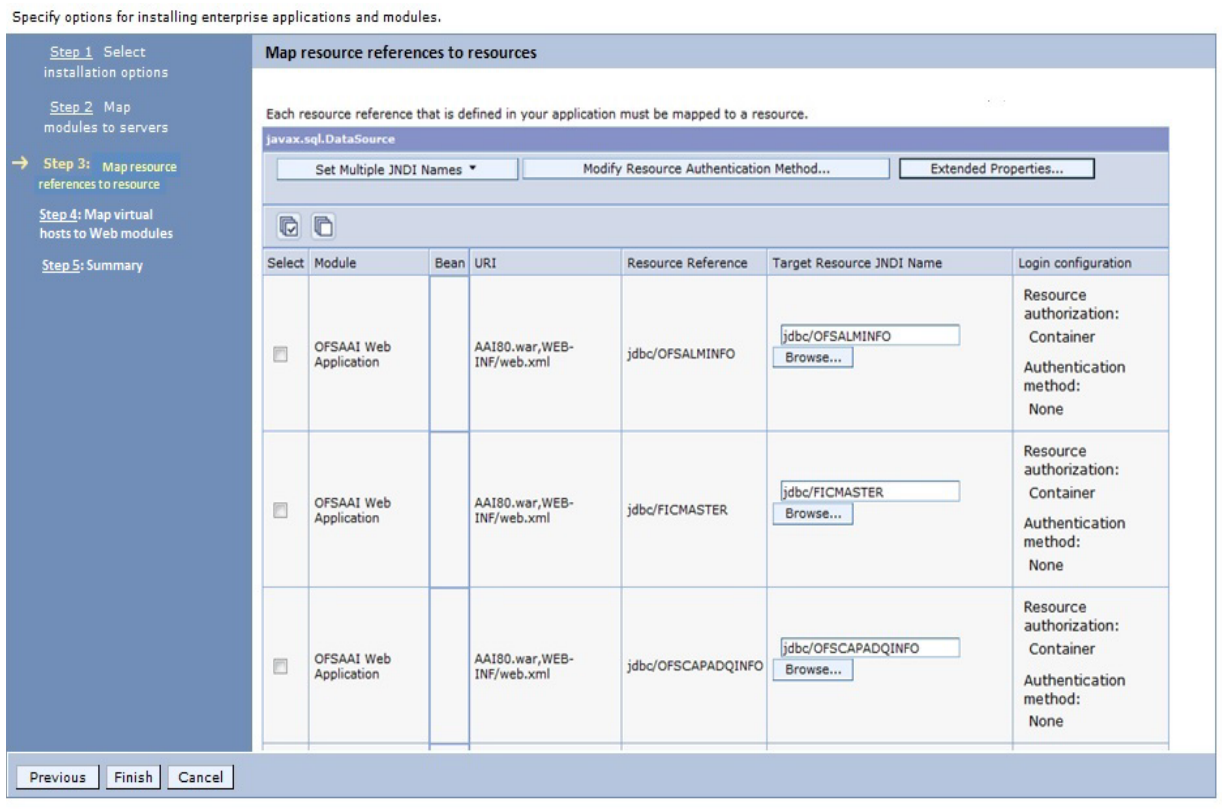
10. Map each resource defined in the application to a resource JNDI name defined earlier.

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
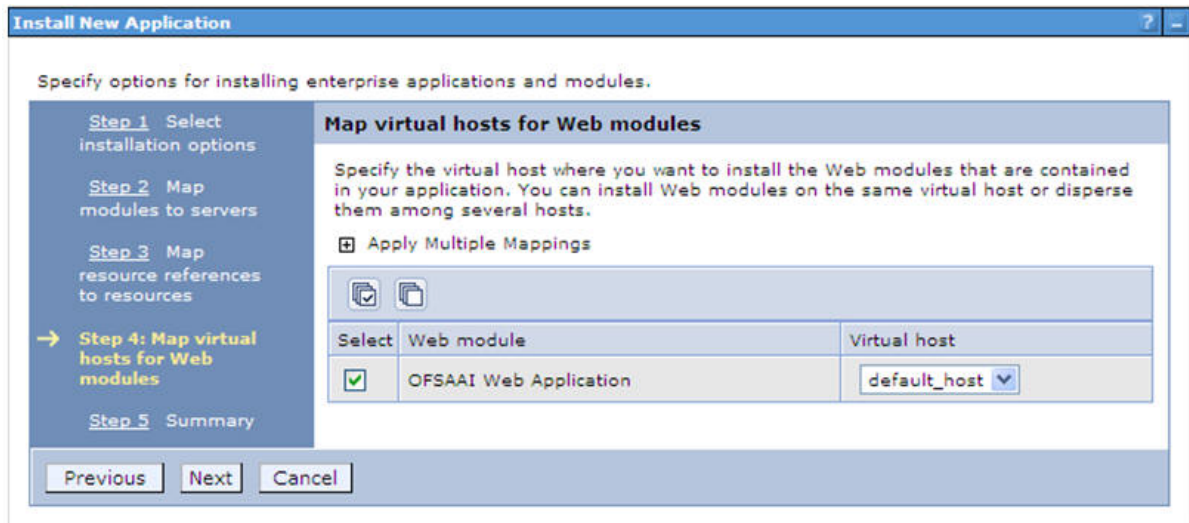
13. Select the **Web Application** check box and click **Next**. The *Summary* window is displayed.

Figure C–10   Summary
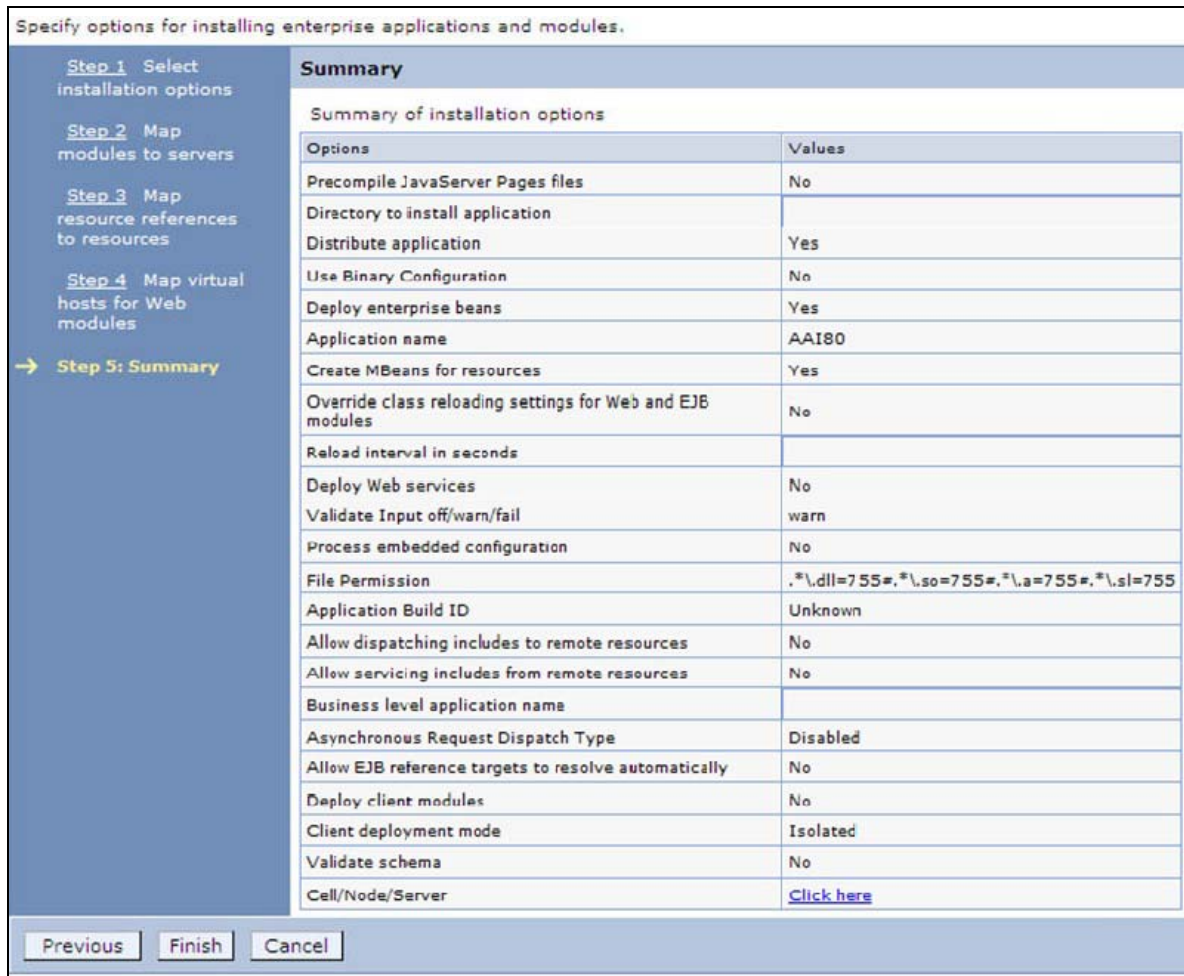
14. Click **Finish** and deploy the Infrastructure Application on WebSphere.

    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
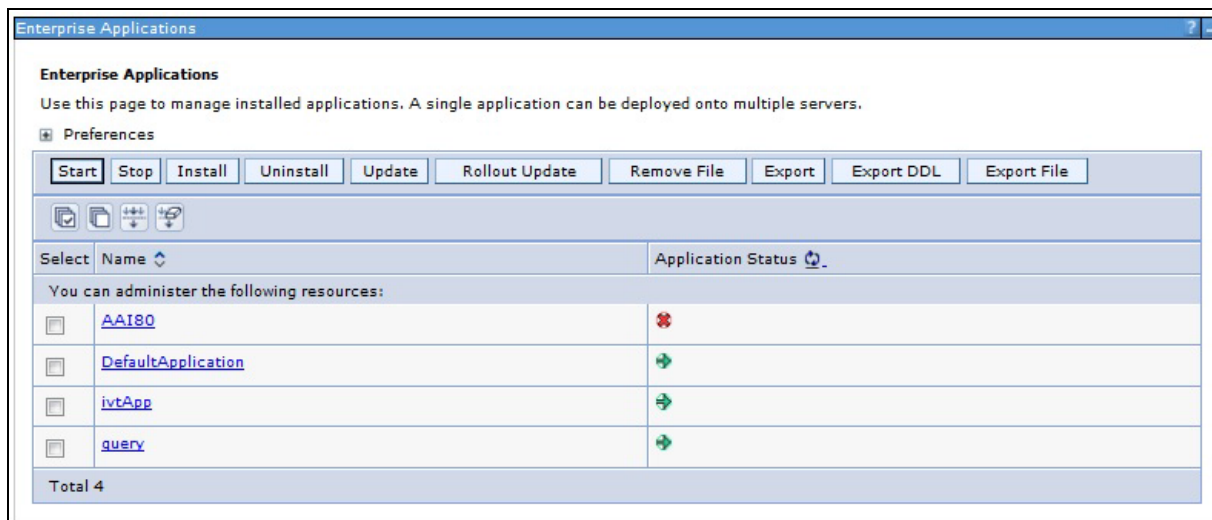
2. Select the installed application and click **Start**.

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 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
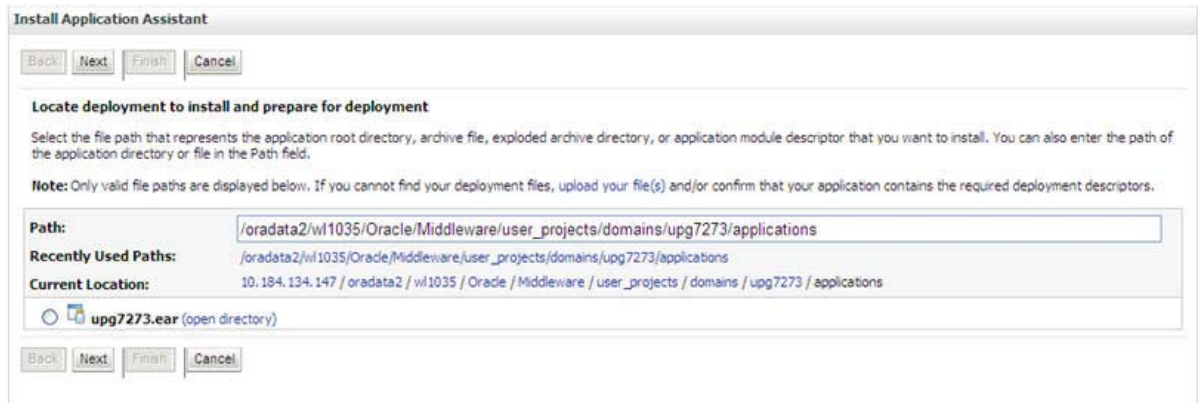
2. Click **Next**.

Figure C–14   Install Application Assistant
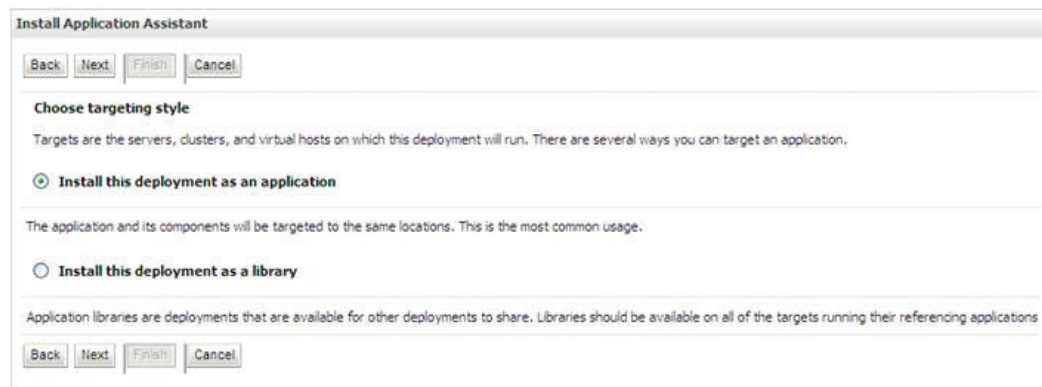
3. From the Choose targeting style section, select the **Install this deployment as an application** option and click **Next**.

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 Infrastructure Services for more details.

D

Starting/ Stopping Infrastructure Services

This section details about how to start and stop Infrastructure services. This appendix 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 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 would hold ICC component.

3. Start Back-end Services:

   ■ On the machine on which Infrastructure Database components have been 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: 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 D–1   Webserver start up options

Start up Option	Description
Starting WebSphere profile	On the machine in which Web sphere 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 have been installed, navigate to `$FIC_APP_HOME/common/FICServer/bin` and execute the command:.

   ```
   ./stopofsaai.sh
   ```

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

   ```
   ./iccservershutdown.sh
   ```

   Note: Only Infrastructure Default Application Server would hold ICC component.

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

```
./agentshutdown.sh
```

E

Accessing OFSAA Application

This section details about 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 E–1   OFSAA Login Window
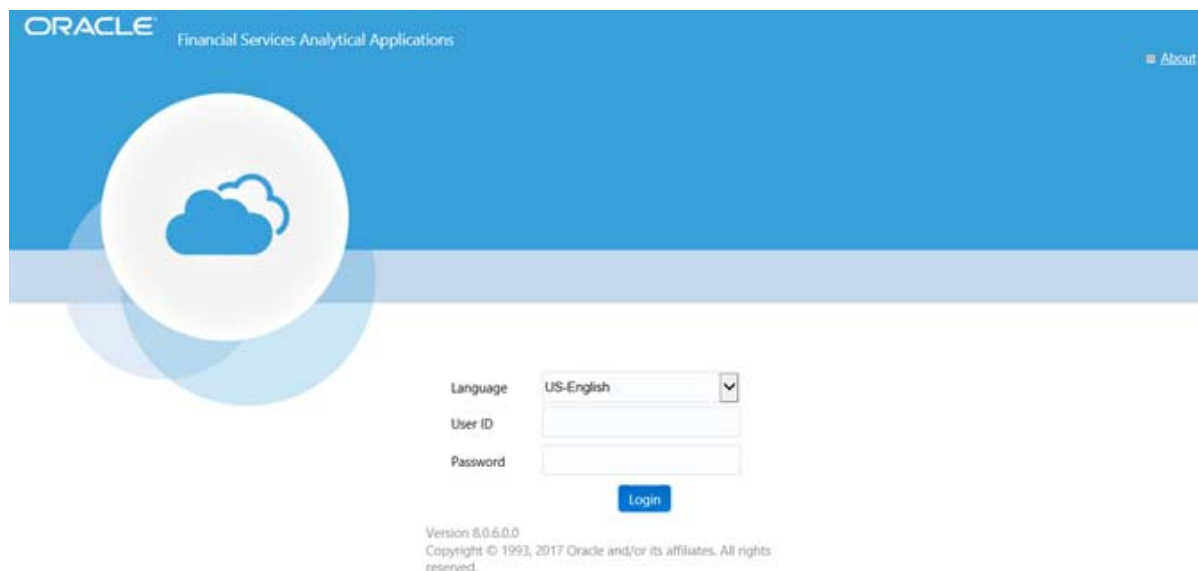
2. With installation of every OFSAA Application Pack, there are two seeded user profiles configured in the system:

    SYSADMN - System Administrator

    SYSAUTH - System Authorizer

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

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

F

Post Deployment Configurations

This section provides detailed information about the Post Deployment Configurations.

Post Deployment Configurations

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

- Creating Application Users
- Mapping Application User(s) to User Group

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 every OFSAA 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.

User Groups seeded with the OFS AMLES Application Pack are listed in Table F–1.

Table F–1   Seeded User Groups

Name	Description
AO Administrator Group	User mapped to this group has access to all the menu items and actions for AMLES.
AO Approver Group	User mapped to this group has access to all the menu items and approver actions for AMLES.
AO Authorization Group	User mapped to this group has access to all the menu items and actions for authorization of various functions in AMLES.
AO Creator Group	User mapped to this group has access to all the menu items and actions for creation of event scoring functions in AMLES.

Table F–1   Seeded User Groups

Name	Description
Identity Administrator	User mapped to this group has access to all the menu items for managing User entitlements, User Group Entitlements and Access Management configurations.
Identity Authorizer	User mapped to this group has access to all the menu items for authorizing User entitlements, User Group Entitlements and Access Management configurations.
System Administrator	User mapped to this group has access to all menu items for managing the setup configurations.
Object Administrator	User mapped to this group has access to all menu items for managing object migration and metadata traceability using metadata browser.
Guest Group	User mapped to this group has access to certain menu items with only access privileges.

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.

G

Cloning 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, see OFSAA Cloning Reference Guide.

H

OFSAA Application GUI

After successful installation and configuration, you can access the OFSAA application. The topics in this chapter provide information to access the application, and to perform user and administration functions.

This section includes the following topics:

- OFSAA Landing Window
- Enabling a Product within an Application Pack

OFSAA Landing Window

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

For detailed information on the landing window, see the OFS AMLES User Guide on `OHC`.

The landing window includes multiple buttons in the header with specific links to OFSAA Infrastructure and/or Application modules. The menu items and links are displayed based on the OFSAA Application accessed and the access roles mapped to the logged in user.

The following window buttons are available on the Landing window header:

- Applications
- Administration
- Reports

Applications

This window lists the various OFSAA Applications that are installed in the OFSAA setup. The window displays the OFSAA Applications in a Tiles menu, 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.

For more information, see the OFS AMLES User Guide on `OHC`.

Administration

This window lists the OFSAA Infrastructure System Configuration, Identity Management, Manage OFSAA Product Licenses modules and so on. These modules

work across Applications/Information Domains. Links to modules that allow the maintenance of setup installation and identity management tasks are displayed in menus on this window.

> **Note:** For more details on how to operate the specific tiles on this window, see OFSAAI User Guide available in `OHC Documentation Library`.

Reports

This window lists the various reports available in the application in a tiles menu. For more information about accessing and using reports, see the OFSAAI User Guide available in `OHC Documentation Library`.

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:
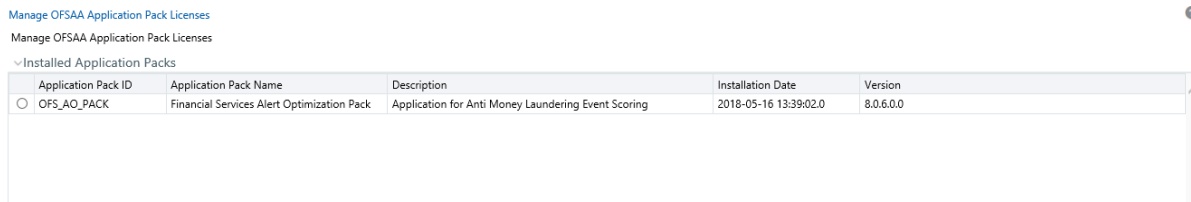
1. Login to the application as SYSADMN user or any user with System Administrator privileges.

2. Click ![lock icon] from the header to display the Administration tools in a Tiles menu.

3. Click **Manage OFSAA Product Licenses** tile. The *Manage OFSAA Product Licenses window* is displayed.

Figure H–1 Manage OFSAA Product Licenses window

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

Figure H–2   Manage OFSAA Product Licenses window- Part 2
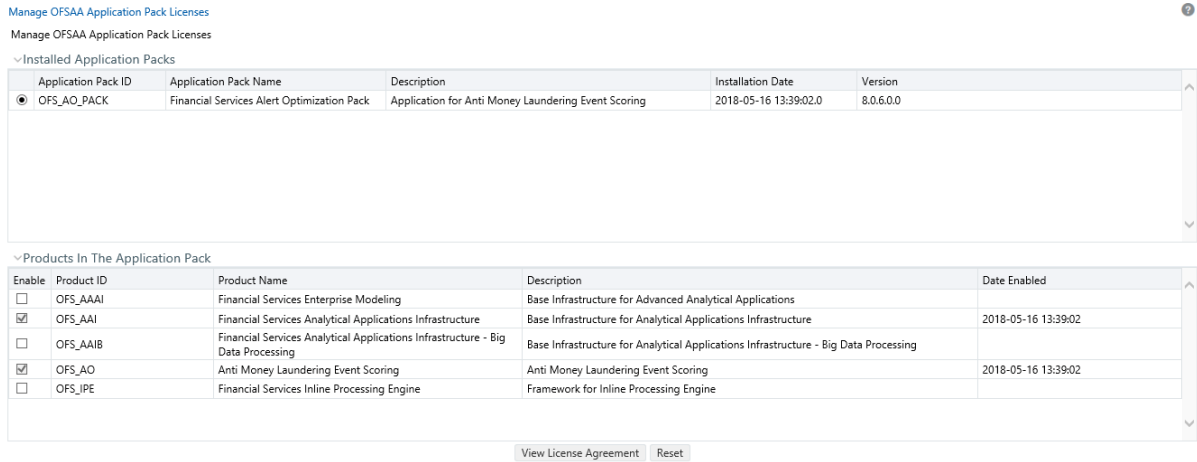
5. Select the checkbox to enable a product within the Application Pack which is not enabled during installation.

6. Click **VIEW LICENSE AGREEMENT** to view the license information. The *License Agreement* section is displayed.

Figure H–3   License Agreement
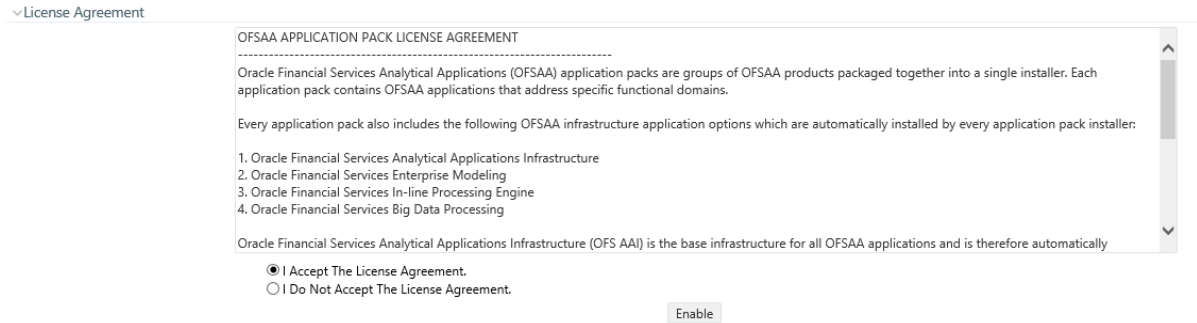
7. Select the option **I ACCEPT THE LICENSE AGREEMENT** and click **ENABLE**. A pop-up message confirmation is displayed showing that the product is enabled for the pack.

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 `OHC Documentation Library`.

- 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.

I

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
- Configuring Infrastructure Server Memory
- Configuring Internet Explorer Settings
- Retrieving Patch Information
- Setting OLAP Data Server Configuration
- Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance
- Executing OFSAAI Setup Information Fetching Tool
- Executing Encryption Changer
- Setting Infrastructure LDAP Configuration
- Configuring Message Details in Forms Designer
- Clearing Application Cache
- Configuring Password Changes
- Configuring Java Virtual Machine
- Configuring Internal Service (Document Upload/ Download)

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. Login 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

Login 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

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 I–1   Internet Options
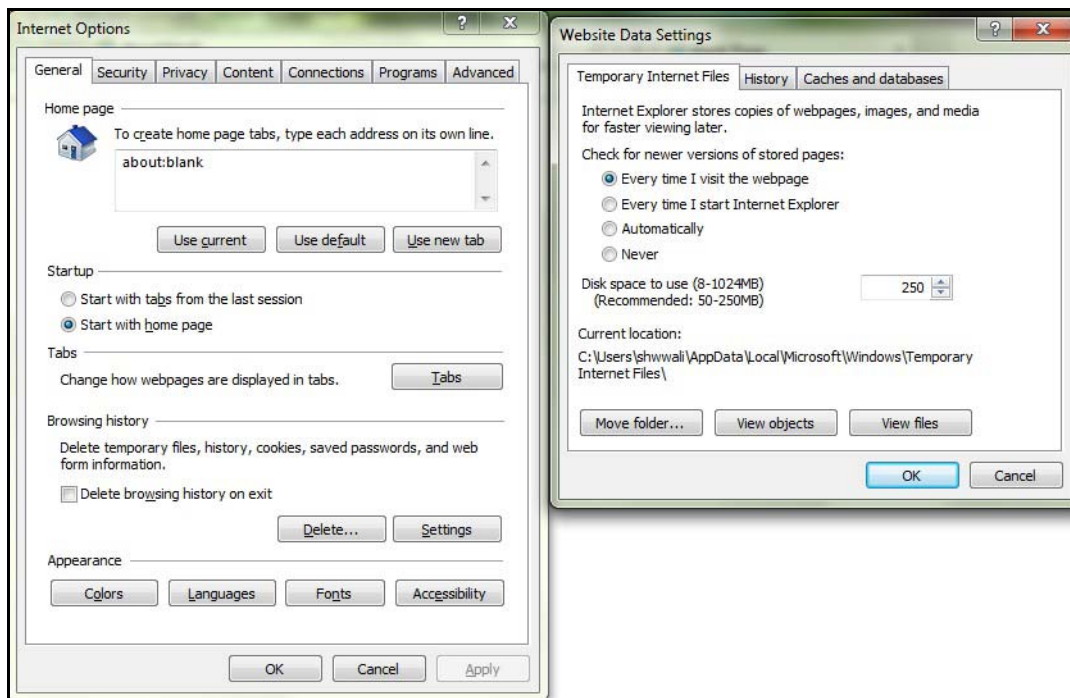
4. In the *Internet Options* window, select the **Security** tab and select the **Internet option** under **Select a zone to view or change the security settings**.

5. Click **Default Level** under **Security level for this zone**.

Figure I–2   Internet Options-Security tab
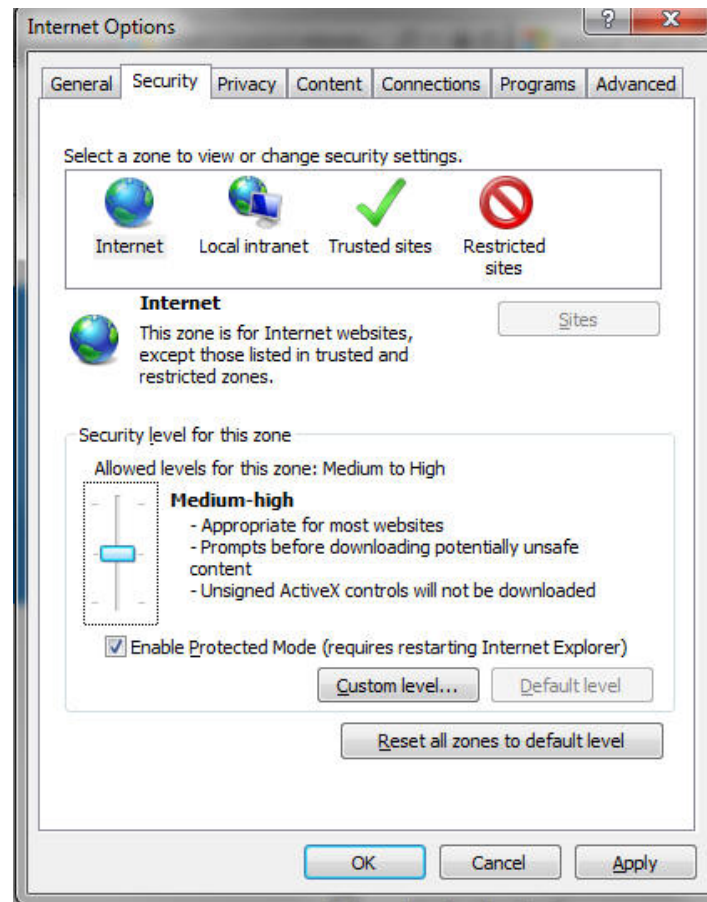
6. Click **Apply** to save.

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 I–3   Internet Options-Popup Blocker Settings
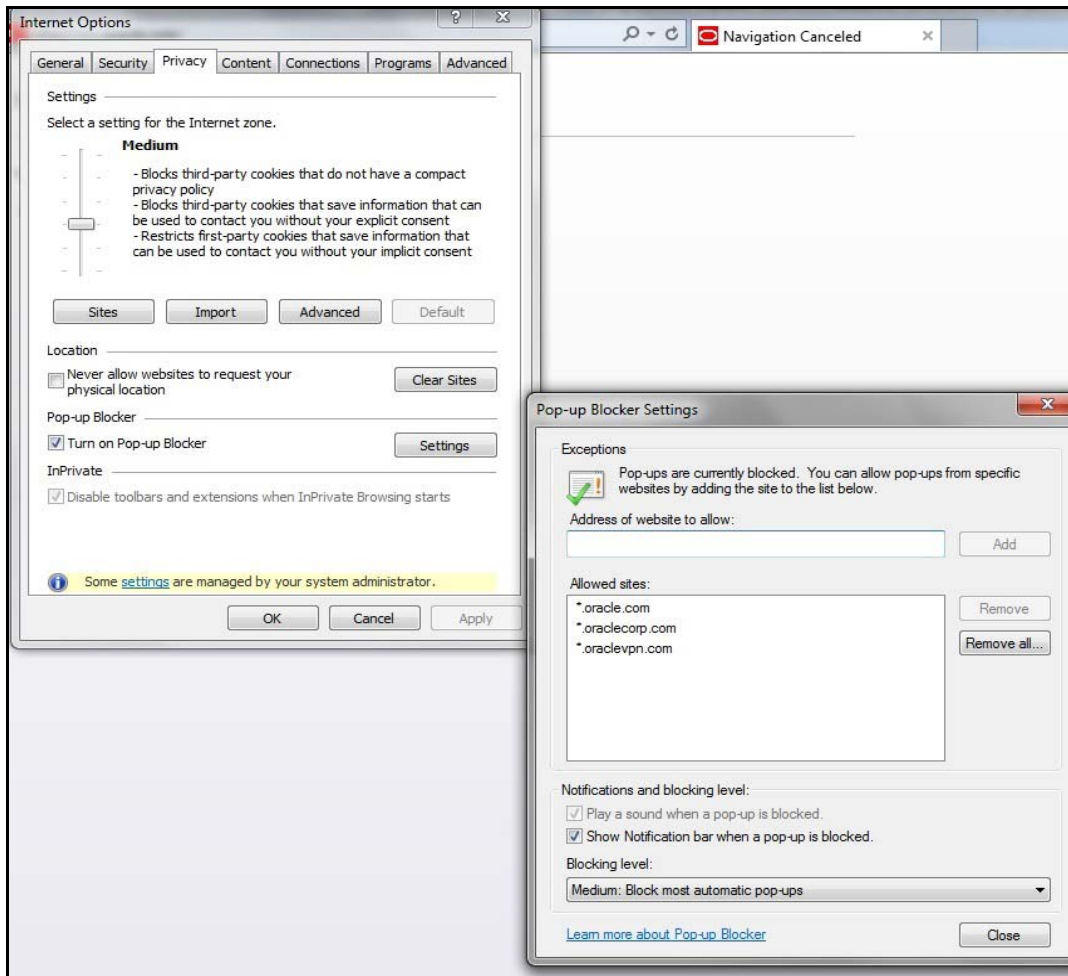
8. Click **Settings**. The *Pop-up Blocker Settings* window is displayed.

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. Login 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 OHC Documentation Library.

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 the OFSAAI Administration Guide.

Setting Infrastructure LDAP Configuration

For more information on LDAP configuration, see OFSAAI Administration Guide.

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 I–1   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` folder. (In case of Tomcat only Atomic <Resource> will 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 ![edit] button from the toolbar.

     a. Click ![edit] 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` folder. (In case of Tomcat only Atomic <Resource> will 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
     ```

J

Patching 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.

K

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
/
```

Configuring Grants for Config Schema Entities for Atomic Users

Atomic Schema creation requires certain grants for config schema object access. This can be located in `$FIC_HOME/config_table_privileges_for_atomic_user.sql` file.

L

Configuring Application Pack XML Files

This section explains configuration of OFS_AO_PACK.xml and OFS_AO_SCHEMA_IN.xml files.

This section includes the following topics:

- Configuring OFS_AO_PACK.xml File
- Configuring OFS_AO_SCHEMA_IN.xml File

Configuring OFS_AO_PACK.xml File

The `OFS_AO_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 L–1   OFS_AO_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.
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.

Table L–1   OFS_AO_PACK.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
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 OFS_AO_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 `OFS_AO_SCHEMA_IN.xml` file contains details on the various application schemas that should be created prior to the Application Pack installation.

Note: This file should be configured only in case of OFS AMLES Application Pack installation for *RDBMS ONLY* target. This file is not required to be configured for an *HDFS ONLY* target 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 L–2   OFS_AO_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 L–2   OFS_AO_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>/ APPLYSAMEFO RALL	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 L–2   OFS_AO_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandat ory (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/SAN DBOX/ADDON Note: SANDBOX AND ADDON schemas are not applicable for OFS AMLES 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>/DEFAUL T 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 L–2   OFS_AO_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandat ory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ DEFAULTTABL ESPACE	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>/ TEMPTABLESP ACE	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 of characters is between six to 16 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>/TD E	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 L–2   OFS_AO_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. Note: Do not change the default value AO_ TABLE_SPACE.
<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="FALSE"/>
>
>     <OPTION NAME="DATA_REDACT" VALUE="FALSE" />
>
> </ADV_SEC_OPTIONS>
>
> <TABLESPACES>
>
>      <TABLESPACE NAME="OFS_AAI_TBSP_1" VALUE="TS_USERS1"
> DATAFILE="/scratch/ora12c/app/oracle/oradata/OFSPQA12CDB/ts_
> users1.dbf" SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />
>
>     <TABLESPACE NAME="OFS_AAI_TBSP_2" VALUE="TS_USERS2"
> DATAFILE="/scratch/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>
> ```

M

Configuring InstallConfig.xml File

This section gives details about configuring the `InstallConfig.xml` files. The following topics are discussed in this section:

- Configuring OFSAAI_InstallConfig.xml file
- Configuring InstallConfig.xml file

Configuring OFSAAI_InstallConfig.xml file

To configure the `OFSAAI_InstallConfig.xml` file, follow these steps.

1. Navigate to `OFS_AO_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 Table M-1.

   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 M–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"		

Table M–1   (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
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"		
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 N 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, you may choose to ignore this recommendation and 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 is **22** (SFTP). Specify value as **21** or any other PORT value if value for `SFTP_ ENABLE` is set as **0**. For example, `<InteractionVariable name="FILE_TRANSFER_ PORT">21</InteractionVariable>`	Yes
InteractionGroup name="Locale Detail"		

Table M–1   (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
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
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

Table M–1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
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
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

Table M–1   (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
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
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

Table M–1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
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

Configuring InstallConfig.xml file

Integrating Event Scoring with applications such as BD requires configuration changes in the *InstallConfig.xml* file.

Note: Currently, only Single-match alerts are being considered for historic load and prediction.

Perform the following procedure to configure the *InstallConfig.xml* file:

1. Navigate to the file *OFS_AO_PACK/OFS_AO/conf/InstallConfig.xml* and open it.

2. Enter the details mentioned in the following tags:

```
<! -- Start: User input required for silent installer.  --> as
mentioned below:


<! -- Start: User input required for silent installer.  -->

<Variable name="BIG_DATA_ENABLE">FALSE</Variable>

<Variable name="ES_SOURCE">##ES_EXTERNALSYSTEMSOURCE##</Variable>

<Variable name="ES_LOADTYPE">##ES_EXTERNALSYSTEMLOADTYPE##</Variable>

If the data is from different schema then pass the 'DBLINK_
NAME'.....LOADTYPE = DBLINK

For example,

<Variable name="ES_SOURCE">AMLDBL</Variable>

<Variable name="ES_LOADTYPE">DBLINK</Variable>
```

3. Save and close the file.

N

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 N–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

O

Configuring Transparent Data Encryption (TDE) and Data Redaction in OFSAA

There are two features that mainly comprise Oracle Advanced Security: Transparent Data Encryption and Oracle Data Redaction.

■ Transparent Data Encryption (TDE)

■ 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 AMLES fresh installation

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.

> **Note:** 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:

1. Password-based Software Keystores

2. Auto-login Software Keystores

3. 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. Login to the database instance. In a multitenant environment, login to 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. 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: Set 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

This section is applicable only if you want to enable TDE during installation.

Run the schema creator utility by including the **encrypt=on** option in the Tablespace tag in the AMLES_SCHEMA_IN.xml Schema in xml file. You have to perform this procedure manually as it is not a part of the schema AMLES_SCHEMA_IN.xml.TEMPLATE template originally.

Following is an example for OFS _AAAI_PACK_ SCHEMA_IN.xml.

```
<APPPACKSCHEMA>

<APP_PACK_ID>OFS_AAAI_PACK</APP_PACK_ID>

<JDBC_URL>jdbc:oracle:thin:@whf00ajn<DB_Server_IP>:1521:OFSPQA12CDB<DB_
NAME></JDBC_URL>

<JDBC_DRIVER>oracle.jdbc.driver.OracleDriver</JDBC_DRIVER>

<HOST>ofss220608<OFSAA_Server_IP/HOST Name></HOST>

<SETUPINFO NAME="t608<PREFIX_NAME>" PREFIX_SCHEMA_NAME="Y"/>

<PASSWORD APPLYSAMEFORALL="Y" DEFAULT="password123<PASSWORD>"/>

<TABLESPACES>
```

```
<TABLESPACE NAME="OFS_AAI_TBSP" VALUE="TS_USERS1"
DATAFILE="/scratch/ora12c/app/oracle/oradata/OFSPQA12CDB<ABSOLUTE PATH to
TABLESPACE>/ts_users1<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 or not in the ENCRYPTED column:

```
TABLESPACE_NAME                 ENCRYPTED

----------------------------- ---

SYSTEM                          NO

SYSAUX                          NO

UNDOTBS1                        NO

TEMP                            NO

USERS                           NO

ENCRYPTED_TS                    YES


6 rows selected.
```

The above example indicates TABLESPACE ENCRYPTED_TS is created with encryption **ON**.

Configuring TDE for AMLES upgrade installation

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.

   > **Note:** 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 in Appendix D.

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 for AMLES upgrade

This section details about the configurations required in case you want to enable Data Redaction in OFSAA applications after upgrading 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 AMLES 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 8.0.6.0.0.

P

Removing OFSAA

This chapter includes the following sections:

- Uninstalling OFSAA Infrastructure
- Uninstalling EAR Files in WebSphere
- Uninstalling EAR Files in WebLogic
- Uninstalling WAR Files in Tomcat

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. Login 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 6–14   Uninstalling OFSAA Infrastructure

```
/scratch/ofsaadb/OFSAAI>./Uninstall.sh
Uninstallation Started  [time : Tue Jun 10 14:20:27 IST 2014 ]
*********************************************************
*** Driver loaded with Driver oracle.jdbc.driver.OracleDriver

 Please enter Configuration schema Password :
Connected to Config Schema
Cleaning config schema ....
config schema cleaned ...
Cleaning up Infrastructure Home Dir !
Please wait ..
Uninstallation Completed ! Thank You  [time : Tue Jun 10 14:21:59 IST 2014 ]
****************************************************************************
/scratch/ofsaadb/OFSAAI>
```

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 6–15 *Enterprise Applications*
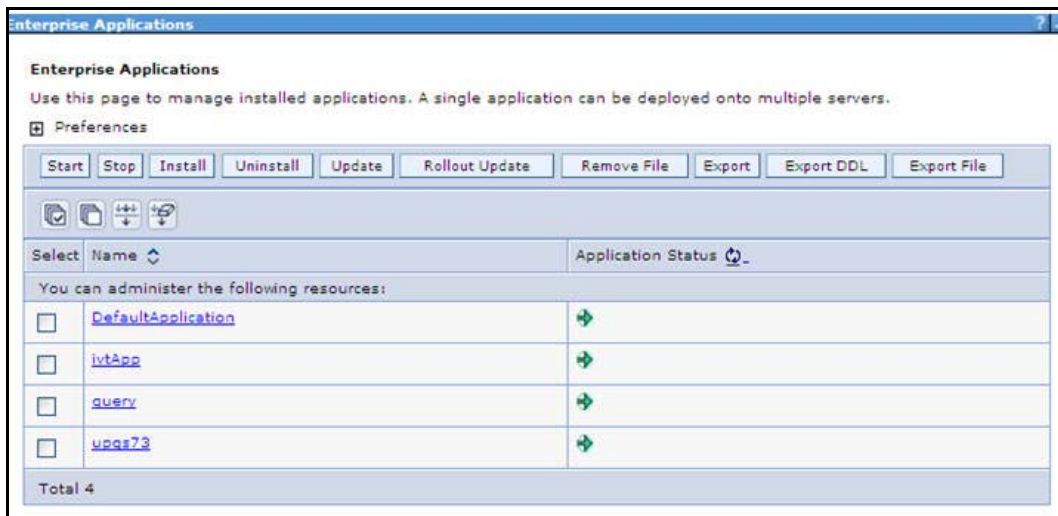
4. Select the checkbox adjacent to the application to be uninstalled and click **Stop**.

5. Click **Uninstall**. The *Uninstall Application* window is displayed.

Figure 6–16 *Uninstall Application*
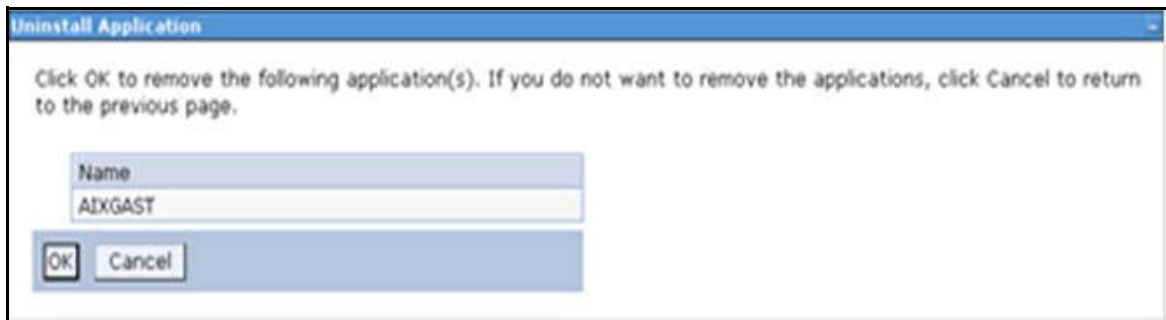
6. Click **OK** to confirm.

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 6–17 *Summary of Deployments*
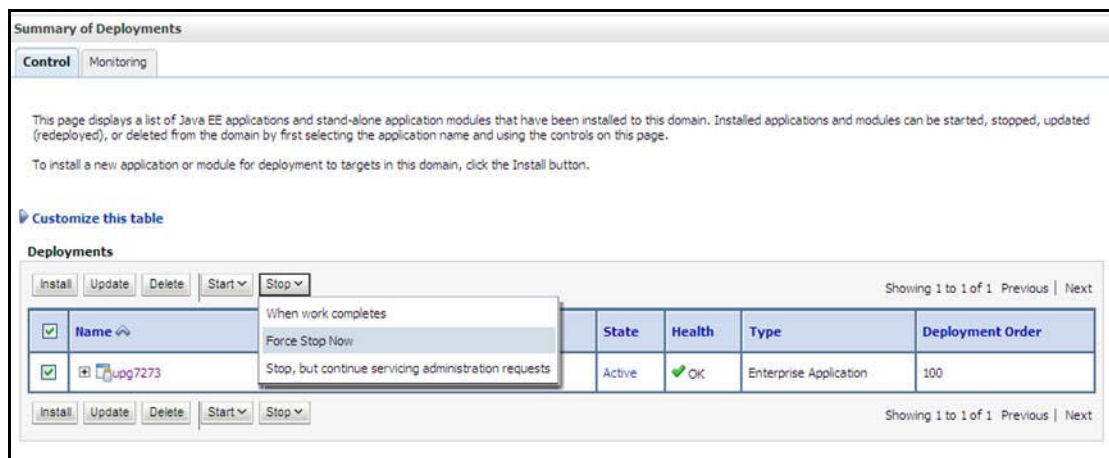
4. Select the checkbox adjacent to the application to be uninstalled and click **Stop> Force Stop Now**.

5. Click **Yes** in the confirmation dialog to stop the selected deployment.

Figure 6–18 *Summary of Deployments- Messages*
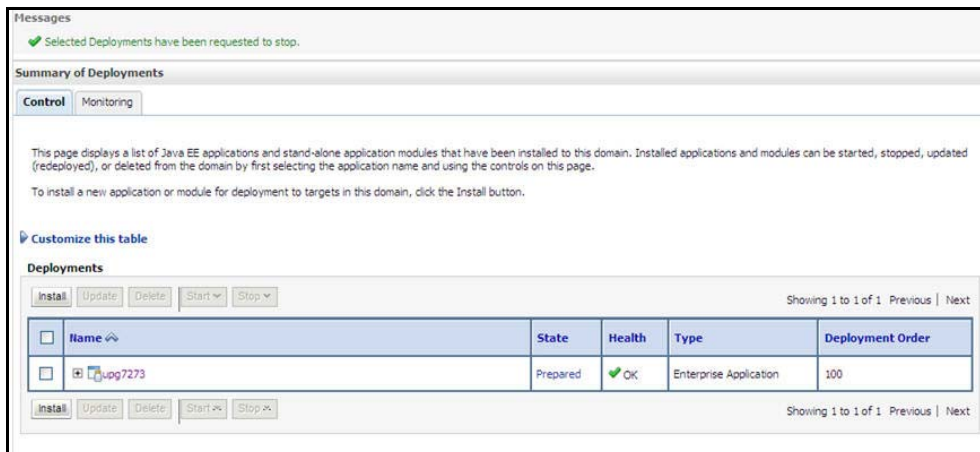
6. Select the checkbox adjacent to the application and click **Delete** to delete the selected deployment.

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 6–19   *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.

R

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".

What are the different modes of OFSAAI installation?

OFSAAI can be installed in two modes, Silent Mode, and GUI mode.

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_80500` 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.

- Login to 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 `OHC Documentation Library`.

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, login 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_80500`.

   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!`

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 *Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance* section in OFS Analytical Applications Infrastructure Administration User Guide in `OHC Documentation Library`.

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 now supports ERwin version 9.2 and 9.5 generated xmls in addition to ERwin 4.1, ERwin 7.1, ERwin 7.3 and ERwin 9.0 formats.

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 `OHC Documentation Library`.

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 Q–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 Q–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"-Xms2048m -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

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 `OHC Documentation Library`.

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.

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 like "ORA-28002: the password will 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?

> For more details, see the HTTPS section in the `OFSAAI Administration Guide`.

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.ja
va:283)

at
org.apache.hadoop.security.UserGroupInformation.setConfiguration(UserGroupInfor
mation.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"/>

    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 Documentation Library.

How do we identify the list of ports that are used by/configured in an OFSAA environment?

1. Navigate to $FIC_HOME directory on Target.

   The file PortsDef.log will be available in the $FIC_ HOME directory. It will contain the ports information.

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.

What should I do if I get the error "FATAL ERROR-Problem with OFSAA Service" during OFS_AO_PACK installation?

Increase the sleep counter (default value is 80) to a higher value in the following section of the *OFS_AO_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 `

    fi

    if [[ $count -gt 0 ]] ; then

        echo OFSAA Service - OK

    else

        echo FATAL ERROR-Problem with OFSAA Service

        exit 1

    fi
```

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 My Oracle Support (https://support.oracle.com/.

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 Documentation Library` 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 Documentation Library` 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.

What mode of installations OFSAA Application Pack supports? [that is., Silent, GUI]

OFSAA Application Packs supports both GUI and Silent Mode.

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.

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.

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.

Is OFS AMLES Application Pack version 8.0.7.0.0 supported on Java 8?

Yes. To install this release of the OFS AMLES 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 SILENT Mode.

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:
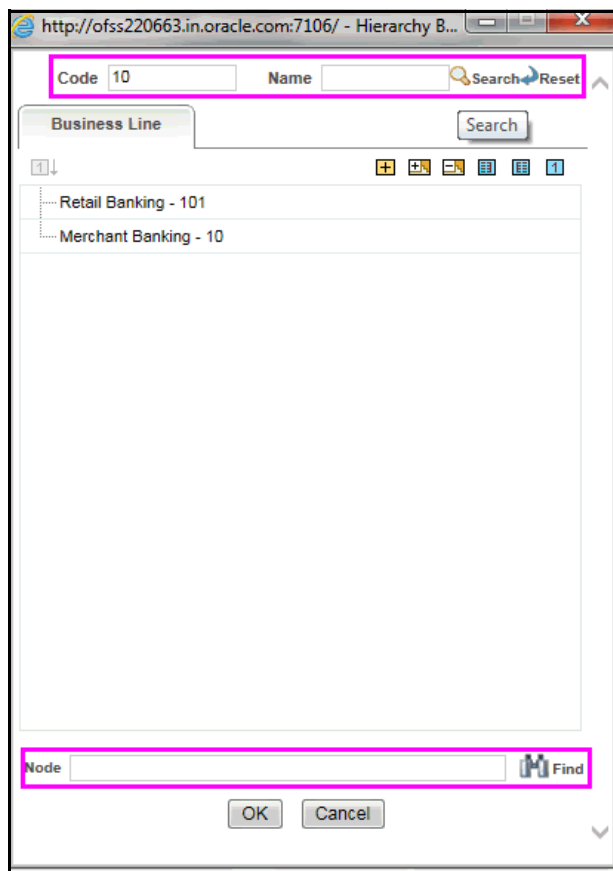
- **DB Search (Top search container):** It will search the required node in database and displays the result as shown below. This search is performed on full hierarchy nodes.

- **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
- Error Code Dictionary

Accessing Error Dictionary

Instead of scrolling through the document to find the error code, you can use the PDFsearch 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 Q–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 Q–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 Q–3   Error code - OFSAAI-1002

Cause	No proper arguments are available.
Resolution	Provide proper arguments. Invoke Setup.sh using either SILENT or GUI mode.
	Example: ./Setup.sh SILENT or ./Setup.sh GUI

Error code - OFSAAI-1004

Table Q–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 Q–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 Q–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 Q–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 Q–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 Q–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 Q–10   Error code - OFSAAI-1010

Cause	Unknown error occurred.
Resolution	Make sure to provide proper argument (SILENT or GUI) to the `Setup.sh` file.

Error code - OFSAAI-1011

Table Q–11   Error code - OFSAAI-1011

Cause	XML validation failed.
Resolution	Check InfrastructurePreValidations.Log for more details.

Error code - OFSAAI-1012

Table Q–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 Q–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 Q–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 Q–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 Q–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 Q–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.