

**Oracle® Financial Services Model
Management and Governance
Application**

Installation and Configuration Guide

Release 8.0.8.0.0

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Document Control

This section provides the revision details of the document.

Version Number	Revision Date	Changes Done
1.1	June 2021	Added information to apply the OFS MMG 8.0.8.0.1 patch 31731063 as a prerequisite for OFS MMG installation on top of the OFS BD or OFS RRR pack.
1.0	August 2020	Captured installation and configuration steps for 8.0.8.0.0 Release.

This document includes the necessary instructions to install the OFS MMG Application Pack 8.0.8.0.0 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 Model Management and Governance (OFS MMG) 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 Model Management and Governance 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 MMG:

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

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

Related Documents

This section identifies additional documents related to OFS MMG Application Pack. You can access the following documents from the [OHC Documentation Library](#) for Oracle Financial Services Analytical Applications Infrastructure 8.x Application Pack:

- *Oracle Financial Services Analytical Applications Infrastructure Administration Guide*
- *Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide*
- *Oracle Financial Services Analytical Applications Infrastructure User Guide 8.0.8.0.0*
- *Oracle Financial Services Enterprise Modeling User Guide 8.0.8.0.0*

You can access the following generic documents from the [OHC Documentation Library](#) for OFS MMG Application Pack:

- *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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Abbreviations

The following table lists the abbreviations used in this document:

Abbreviation	Meaning
AIX	Advanced Interactive eXecutive
DBA	Database Administrator
DDL	Data Definition Language
DEFQ	Data Entry Forms and Queries
DML	Data Manipulation Language
EAR	Enterprise Archive
EJB	Enterprise JavaBean
ERM	Enterprise Resource Management
FTP	File Transfer Protocol

Abbreviation	Meaning
HDFS	Hadoop Distributed File System
HTTPS	Hypertext Transfer Protocol Secure
J2C	J2EE Connector
J2EE	Java 2 Enterprise Edition
JCE	Java Cryptography Extension
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
LHS	Left Hand Side
MFA	Multi-Factor Authentication
MOS	My Oracle Support
OFSAA	Oracle Financial Services Analytical Applications
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OFSAAAI	Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack
OFS MMG	Oracle Financial Services Model Management and Governance Application
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
RHEL	Red Hat Enterprise Linux
SFTP	Secure File Transfer Protocol
SID	System Identifier
SSL	Secure Sockets Layer
TNS	Transparent Network Substrate
URL	Uniform Resource Locator
VM	Virtual Machine
Web Archive	WAR
XML	Extensible Markup Language

About OFSAA and the OFS MMG Application Pack

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 Model Management and Governance \(OFS MMG\) 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.

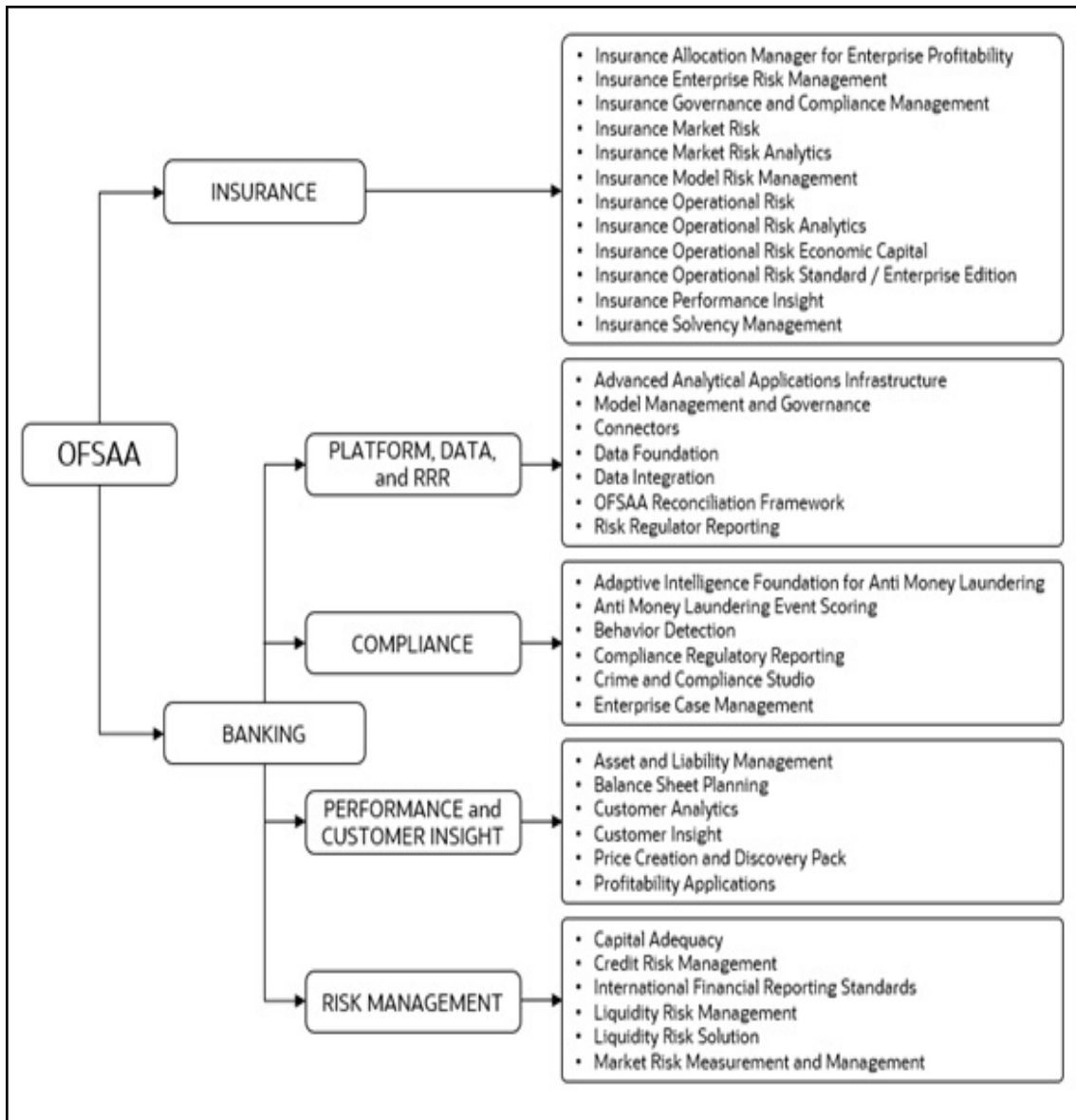
OFSAA uses industry-leading analytical methods, shared data model and applications architecture to enable integrated risk management, performance management, customer insight, and compliance management. OFSAA actively incorporates risk into decision making, enables to achieve a consistent view of performance, 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 Model Management and Governance (OFS MMG) Application Pack

The following are the components of Oracle Financial Services Model Management Governance application:

- [Sandbox Management](#)
- [Model Management](#)

For more information on how to use the application, see the [OFS Model Management and Governance User Guide](#).

Sandbox Management

Sandbox Management is where the Sandbox Administrators define datasets and make them available to modelers in Oracle Financial Services Model Management Governance. It is an environment where the data is prepared for modelers to use in their modeling creation activity.

Sandboxes are provisioned with the data required for modeling by administrators, who configure sandboxes with subsets of production data. The data in the sandbox is made available to modelers using datasets, who then build models with the dataset without any exposure being provided to the physical data tables and columns in the database. In effect, the data is ready for the modelers and they do not have to undergo the arduous task of accessing and querying the database.

Model Management

Modeling refers to the process of designing a prototype based on a structured data model, for statistical analysis and to simulate real events and processes. Models in a sandbox can be created or modified by user with access to the sandbox. Model versions are preserved in the sandbox along with execution and output histories. Once a model has been validated in the sandbox and considered fit for use, modelers can request to push the model into the production environment.

Use Model Management to create models from pre-defined models to predict business trends and validate the existing models with the help of Data Studio.

OFS MMG enables you to comply with regulatory requirements on stress testing, enables advanced customer and portfolio analytics, utilize multiple industry standard techniques, test and model with complete data integrity.

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.

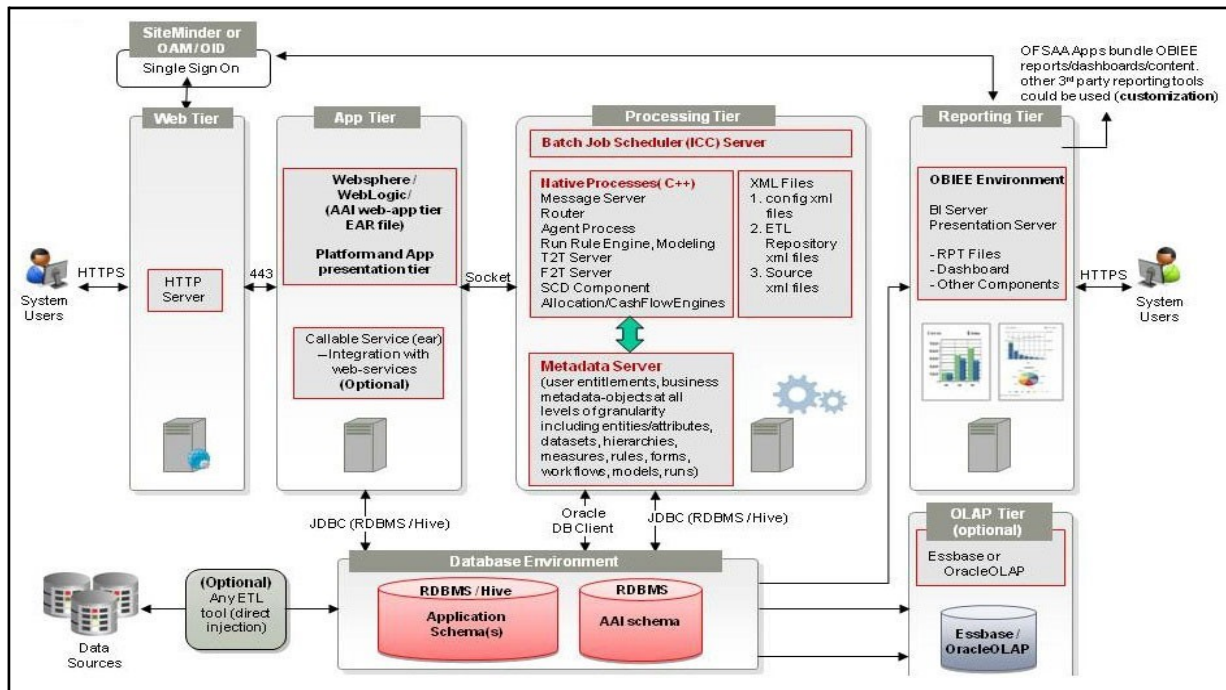
Components of OFSAAI

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](#).

Understanding OFS MMG 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 (8.0.8.0.0) of the OFS MMG Application Pack bundles the base installer. Users/Administrators who wish to install a new OFSMMG Application Pack 8.0.8.0.0 instance should download this installer. [Figure 2–1](#) shows the order of procedures required to follow to install a new OFS MMG Pack 8.0.8.0.0 instance.

Figure 2–1 Installation Overview

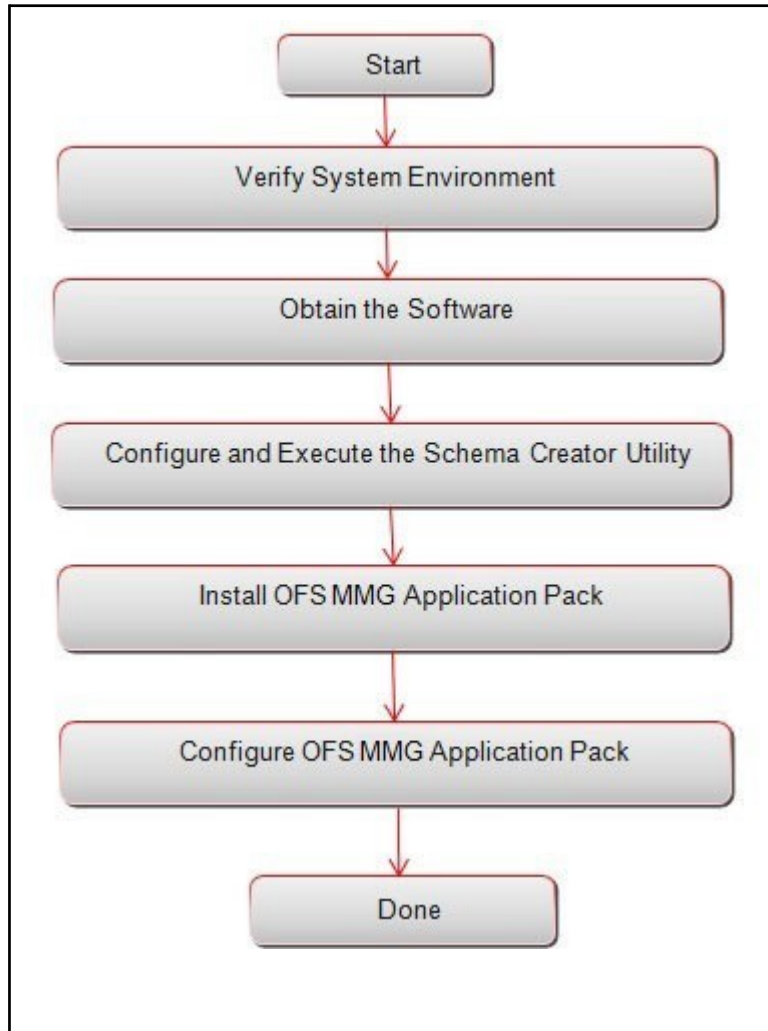


Table 2–1 provides additional information and links to specific documentation for each task in the flowchart.

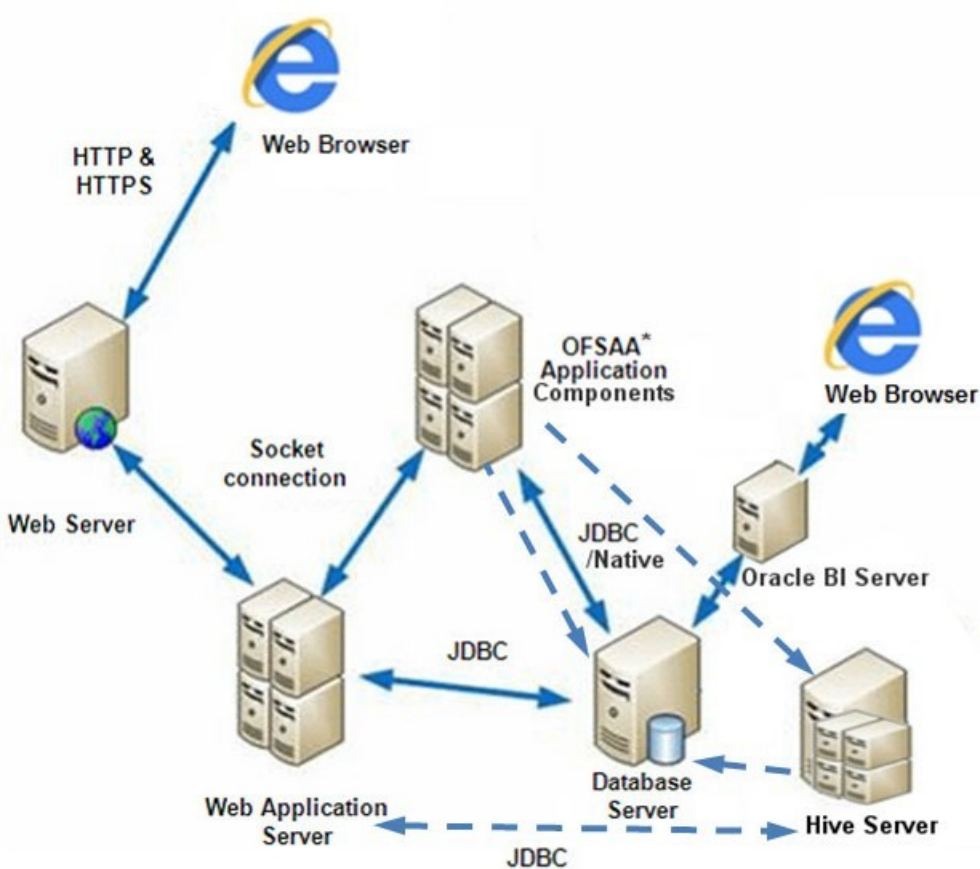
Table 2–1 OFSAA Application Pack Installation Tasks and Descriptions

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

Deployment Topology

Figure 2-2 shows the logical architecture implemented for OFS MMG 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 MMG Application Pack has been qualified.

Note: OFS MMG 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 MMG Application Pack.

Configurations supported for Java 7

Table 2–2 Configurations Supported for Java 7

Operating System	
Oracle Linux / Red Hat Enterprise Linux (x86-64)	<ul style="list-style-type: none"> Oracle Linux Server release 6.0 and above - 64 bit Oracle Linux Server release 7.0 and above - 64 bit <p>Note:</p> <ul style="list-style-type: none"> Same version of RHEL is supported Oracle Solaris OS is not supported for OFS MMG.
IBM AIX (POWERPC)	<ul style="list-style-type: none"> AIX 6.1 (TL 09 and above) - 64 bit AIX 7.1 (TL 03 and above) - 64 bit
Shell	<ul style="list-style-type: none"> KORN Shell (KSH)
<p>Note:</p> <ul style="list-style-type: none"> If the OS is IBM AIX 6.1 and the file size limit for the AIX user on the target server is too small, configure the size parameter setting for "Large File Support". Follow these steps: Change the file size limit for the user that initiates the transfer on the AIX system. To change the file size limit for a particular user, add or edit the fsize attribute for the user in the /etc/security/limits file on the AIX system. Change the file size limit to unlimited (fsize = -1) or to a size equal to the size of the file being transferred. This may require the restart of the AIX server to pick up the new configuration. For more information, contact IBM Support. If the operating system is RHEL, install the package lsb_release using one of the following commands by logging in as root user: ? yum install redhat-lsb-core ? yum install redhat-lsb 	
Java Runtime Environment	
Oracle Linux / Red Hat Enterprise Linux	<ul style="list-style-type: none"> Oracle Java Runtime Environment (JRE) 1.7.x - 64 bit
IBM AIX	<ul style="list-style-type: none"> IBM AIX Runtime, Java Technology JRE 1.7.x - 64 bit
Oracle Database Server and Client	
<ul style="list-style-type: none"> Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.3.0+) - 64 bit RAC/ Non-RAC with/ without partitioning option Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.4.0+) - 64 bit RRAC/Non-RAC with/ without partitioning option, Advanced Security Option** 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** ** See the "Additional Notes" section in the 808 Tech Matrix for details. Oracle Client 11g Release 2 (11.2.0.3.0+) - 64 bit Oracle Client 12c Release 1 (12.1.0.1.0+) - 64 bit Oracle 11g Release 2 (11.2.0.3+) JDBC driver (Oracle thin driver) Oracle 12C Release 1 (12.1.0.1+) JDBC driver (Oracle thin driver) 	

Table 2–2 (Cont.) Configurations Supported for Java 7

Note: If you are upgrading the Database Server to Oracle Database 12c Release 1 or 2, see the procedure mentioned in the FAQ - <i>How do I upgrade to Oracle Database 12c Release 1 or 2, if my previous database versions are Release 11.2.0.2+, 12.1.0.1 or 12.1.0.2?</i>	
Web Server / Web Application Server	
Oracle Linux / Red Hat Enterprise Linux/ IBM AIX	Oracle HTTP Server 11.1.1.1/ Apache HTTP Server 2.2.x/ IBM HTTP Server <ul style="list-style-type: none"> • Oracle WebLogic Server 12.1.2+ - 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)
Note: <ul style="list-style-type: none"> • OFSAA Infrastructure web component deployment on Oracle WebLogic Server with Oracle JRockit is not supported. 	
Desktop Requirements	
Operating System	MS Windows 7/Windows 8/Windows 10
Browser	<ul style="list-style-type: none"> • Microsoft Internet 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	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Configuration of Directory services software for OFSAAI installation is optional. For more information on configuration, see <i>LDAP Configuration</i> section in OFSAAI Administration guide. • Open LDAP must be installed on MS Windows Server machine. 	

Configurations supported for Java 8

Table 2–3 Configurations Supported for Java 8

Operating System	
Oracle Linux / Red Hat Enterprise Linux (x86-64)	<ul style="list-style-type: none"> • Oracle Linux Server release 6.0 and above - 64 bit • Oracle Linux Server release 7.0 and above - 64 bit Note: <ul style="list-style-type: none"> • Same version of RHEL is supported • Oracle Solaris OS is not supported for OFS MMG.

Table 2–3 (Cont.) Configurations Supported for Java 8

IBM AIX (POWERPC)	<ul style="list-style-type: none"> • AIX 6.1 (TL 09 and above) - 64 bit • AIX 7.1 (TL 03 and above) - 64 bit
Shell	<ul style="list-style-type: none"> • KORN Shell (KSH)
<p>Note:</p> <ul style="list-style-type: none"> • If the OS is IBM AIX 6.1 and the file size limit for the AIX user on the target server is too small, configure the size parameter setting for "Large File Support". Follow these steps: Change the file size limit for the user that initiates the transfer on the AIX system. To change the file size limit for a particular user, add or edit the fsize attribute for the user in the /etc/security/limits file on the AIX system. Change the file size limit to unlimited (fsize = -1) or to a size equal to the size of the file being transferred. This may require the restart of the AIX server to pick up the new configuration. For more information, contact IBM Support. • If the operating system is RHEL, install the package lsb_release with one of the following commands by logging in as root user: ? yum install redhat-lsb-core ? yum install redhat-lsb 	
Java Runtime Environment	
Oracle Linux / Red Hat Enterprise Linux	<ul style="list-style-type: none"> • Oracle Java Runtime Environment (JRE) 1.8.x - 64 bit
IBM AIX	<ul style="list-style-type: none"> • IBM AIX Runtime, Java Technology JRE 1.8.x - 64 bit
Oracle Database Server and Client	
<ul style="list-style-type: none"> • Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.3.0 +) - 64 bit RAC/ Non-RAC with/ without partitioning option • Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.4.0 +) - 64 bit RAC/ Non-RAC with/ without partitioning option, Advanced Security option** • 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** • Oracle Database Server Release 19c, Version 19.3+ (19) Enterprise Edition** ** See the "Additional Notes" section in the 808 Tech Matrix for details. • Oracle Client 11g Release 2 (11.2.0.3.0+) - 64 bit • Oracle Client 12c Release 1 (12.1.0.1.0+) - 64 bit • Oracle Database Client Release 19c, Version 19.3+ (19) • Oracle 11g Release 2 (11.2.0.3+) JDBC driver (Oracle thin driver) • Oracle 12C Release 1 (12.1.0.1+) JDBC driver (Oracle thin driver) 	
Web Server/ Web Application Server	

Table 2–3 (Cont.) Configurations Supported for Java 8

Oracle Linux / Red Hat Enterprise Linux / IBM AIX	<p>Oracle HTTP Server 11.1.1.1/ Apache HTTP Server 2.2.x/ IBM HTTP Server</p> <ul style="list-style-type: none"> Oracle WebLogic Server 12.2.x+ - 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 <p>Note:</p> <ul style="list-style-type: none"> OFS Inline Processing Engine does not support Tomcat Web Application Server.
<p>Note:</p> <ul style="list-style-type: none"> OFSAA Infrastructure web component deployment on Oracle WebLogic Server with Oracle JRockit is not supported. 	
Desktop Requirements	
Operating System	MS Windows 7/Windows 8/Windows 10
Browser	<ul style="list-style-type: none"> Microsoft Internet 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	<ul style="list-style-type: none"> 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.
<p>Note:</p> <ul style="list-style-type: none"> 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. 	

Note: To upgrade an existing OFSAA 8.0.x Java 7 instance to Java 8, refer [Appendix P](#).

Table 2-4 provides the recommended software combinations for PFS BD Applications Pack deployment.

Table 2–4 Recommended Software Combinations

Operating System	Database	Web Application Server	Web Server
Oracle Linux 5.3 up to 5.10/ 6.0 and above	Oracle Database	Oracle WebLogic Server /Apache Tomcat Server	Oracle HTTP Server/ Apache HTTP Server

Table 2–4 (Cont.) Recommended Software Combinations

Operating System	Database	Web Application Server	Web Server
IBM AIX 6.1	Oracle Database	IBM WebSphere Application Server /Apache Tomcat Server	IBM HTTP Server/ Apache HTTP Server

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 mode of installation is available for the OFS MMG 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.

Preparing for Installation

This chapter provides necessary information to review before installing the Oracle Financial Services Model Management and Governance (OFS MMG) Pack v8.0.8.0.0. 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 MMG 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	<p>PATH in .profile file must be set to include the Java Runtime Environment absolute path. The path should include Java version (7 or 8) based on the configuration.</p> <p>Note:</p> <ul style="list-style-type: none"> Ensure that the absolute path to JRE/bin is set at the beginning of PATH variable. For example, <code>PATH=/usr/java/jre1.7/bin:\$ORACLE_HOME/bin:\$PATH</code> <p>Ensure that SYMBOLIC links to JAVA installation are not set in the PATH variable.</p>
	Enable unlimited cryptographic policy for Java	<p>For more information, see the section <i>Enabling Unlimited Cryptographic Policy</i> from the OFS Analytical Applications Infrastructure Administration Guide.</p>
	Oracle Database Settings	<ul style="list-style-type: none"> TNS_ADMIN must be set in .profile file pointing to appropriate tnsnames.ora file. 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.
	Oracle Essbase Settings	<ul style="list-style-type: none"> ARBORPATH, ESSBASEPATH, HYPERION_HOME to be set in the .profile pointing to an appropriate Oracle Essbase Client installation. <p>Note:</p> <p>These settings are required only if you want to use Oracle Hyperion Essbase OLAP features.</p>

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.
	Temporary Directory	Default temporary directory where installation files are stored for a short period of time to support faster installation. ? ? For installation on UNIX OS, your UNIX administrator must give you the required read-write permissions for the <i>/tmp</i> directory and disable the NOEXEC option ? ? Configure adequate space on the <i>/tmp</i> directory. It is recommended that you allocate more than 10 GB of space. Note: If NOEXEC is enabled, the extraction of files by the installer into the <i>/tmp</i> directory is prevented and the binaries will not execute in the directory, which will fail the installation.
	Staging Area/ Metadata Repository	? A directory to hold the application metadata artifacts and additionally act as 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.

Table 3–1 (Cont.) Prerequisite Information

Category	Sub-Category	Expected Value
Database Settings	Database Instance Settings	? NLS_CHARACTERSET to be AL32UTF8 ? NLS_LENGTH_SEMANTICS to be BYTE ? OPEN CURSORS limit to be greater than 1000
Web Application Server	WebSphere/ WebLogic/ Tomcat	? Web Application Server should be installed and 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 B for WebSphere Profile and WebLogic Domain creation.
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 B for web server installation.

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

Note: Oracle Labs' Data Studio does not support Solaris.

OFS AAI and OFS MMG can be installed on Linux/Solaris, but MMGStudio can't be installed on non-OEL/RHEL Operating Systems.

In case OFS AAI and OFS MMG get installed on Solaris, you need to perform following deployment steps of MMGStudio on OEL/RHEL.

Deployment Steps:

1. Copy all files from OFSAA \$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio directory to the Linux machine.
 2. Update the DATASTUDIO_URL parameter in nextgenemf_config table of the configuration schema to http(s)://<host>:7008/mmg, where host would be the Linux machine hostname.
 3. Restart OFSAA and MMGStudio services.
-

Obtaining the software

The 8.0.8.0.0 release of OFS MMG Application Pack can be downloaded from the Oracle Software Delivery Cloud (<https://edelivery.oracle.com>). You must have a valid Oracle account to download the software.

Login to <https://edelivery.oracle.com> and search for Oracle Financial Services Model Management and Governance. Download and copy the OFS MMG Application Pack v8.0.8.0.0 archive file. See the [Downloading and Copying the OFS MMG Applications Pack Installer](#) section for more information.

Performing Common Pre-Installation Tasks

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

- ? [Identifying the Installation, Download and Metadata Repository Directories](#)
- ? [Downloading and Copying the OFS MMG Applications Pack Installer](#)
- ? [Extracting the Software](#)
- ? [Setting Up the Web Application Server](#)

Identifying the Installation, Download and Metadata Repository Directories

To install OFSAA Application Pack, create the following directories:

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

Note:

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

Downloading and Copying the OFS MMG Applications Pack Installer

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

- ? The 8.0.8.0.0 release of OFS MMG Application Pack can be downloaded from the Oracle Software Delivery Cloud (<https://edelivery.oracle.com>). You must have a valid Oracle account to download the software.
- ? Search for **Oracle Financial Services Model Management and Governance**.
- ? Download the installer archive into the download directory (in Binary mode) in the setup identified for OFS MMG installation.

Note: If you want to install OFS MMG 8.0.8.0.0 on top of the OFS BD or OFS RRR installation in OFSAA, in addition to the installer archive, you must download the OFS MMG 8.0.8.0.1 patch **31731063** and perform the steps mentioned in the patch readme before installing OFS MMG 8.0.8.0.0. To download the patch, do as follows:

1. Log into [My Oracle Support](#) with a valid Oracle account.
 2. Click the **Patches and Updates** tab.
 3. Search the mandatory patch **31731063** and download it.
-
-

Note: If you have installed the OFS AAI Release 8.0.8.2.0, 8.0.8.3.0, or 8.0.9.3.0 versions, in addition to the installer archive, you must download the patch **31864700** as shown in the following:

1. Log into [My Oracle Support](#) with a valid Oracle account.
 2. Click the **Patches and Updates** tab.
 3. Search the mandatory patch **31864700** and download it.
-
-

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

Note: On the 10th of December 2021, Oracle released Security Alert CVE-2021-44228 in response to the disclosure of a new vulnerability affecting Apache Log4J prior to version 2.15. The application of the 33663417 Mandatory Patch fixes the issue. For details, see the My Oracle Support Doc ID [2827801.1](#).

Extracting the Software

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

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

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

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

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

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


For example, `chmod 751 unzip_sparc`

- 4 Extract the contents of the OFS MMG Application Pack 8.0.8.0.0 installer archive file in the download directory with the following command:

```
unzip OFS_MMG_PACK.zip
```

- 5 Extract and apply the patch **31864700** if you have installed the OFS AAI Release 8.0.8.2.0 or later versions.

See the Readme available with the patch for further instructions on how to install it.

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

```
chmod -R 750 OFS_MMG_PACK
```

Setting Up the Web Application Server

For setting up the environment based on your selected Web Application Server, see to [Appendix B](#) for more information.

Installing the OFS MMG Pack

This chapter provides instructions to install the OFS MMG 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 MMG Application Pack](#)

About Schema Creator Utility

Creating database users/schemas (RDBMS/ HIVE) is one of the primary steps in the complete OFS MMG installation process. Schema Creator utility facilitates you to quickly get started with the installation by creating Database User(s)/ Schema(s) (RDBMS/ HIVE), 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 <<APP Pack>>_SCHEMA_IN.xml file before executing the Schema Creator Utility. For more information on the xml file, refer [Configuring <<APP Pack>>_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 `<<APP Pack>>_SCHEMA_IN.xml` (as the case may be) file and execute the utility. For more information on reconfiguring these files, see [Configuring <<APP Pack>>_SCHEMA_IN.xml File](#).

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

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

3. If there are any errors during the SQL script execution, reconfigure the `<<APP Pack>>_SCHEMA_IN.xml` and execute the utility. This regenerates the scripts with corrected information.

For more information, see [Configuring <<APP Pack>>_SCHEMA_IN.xml File](#) .

4. Do not modify the `<PACK>_SCHEMA_OUT.XML` file generated after the execution of this utility.
-
-

Selecting Execution Options in Schema Creator Utility

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

Configuring and Executing the Schema Creator Utility

This section includes the following topics:

- [Prerequisites](#)
- [Configuring the Schema Creator Utility](#)
- [Executing the Schema Creator Utility](#)

Prerequisites

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

- Oracle User ID/Password with SYSDBA privileges.
- JDBC Connection URL for RAC/Non RAC database.
- HOSTNAME/IP of the server on which OFSAA is being installed.
- The following configuration is required only if you intend to use Oracle Linux/Red Hat Enterprise Linux v7.x.

For Oracle Linux/RHEL 7.x, navigate to `OFS_MMG_PACK/bin/` and modify the value for property `Linux_VERSION` to include 7 in the `VerInfo.txt` file and save the changes.

For example, `Linux_VERSION=5,6,7`

Note: Install the One-off patch for Bug **22930093** as per the instructions in the `Readme.txt` file packaged along with the patch.

- For IBM AIX 7.1, navigate to `OFS_MMG_PACK/bin/` and modify the value for property `AIX_VERSION` to include 7.1 in the `VerInfo.txt` file and save the changes.

For example, `AIX_VERSION=6.1,7.1`

Optionally, for HIVE installation, the prerequisites you must have before configuring the Schema Creator Utility are:

- HIVE connection credentials (For example: Kerberos connection properties).
- Hostname/IP of the HIVE Server installation.

Configuring the Schema Creator Utility

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

To configure the Schema Creator Utility, follow these steps:

1. Log in to the system as non-root user.
2. Navigate to the following path: `OFS_MMG_PACK/schema_creator/conf` directory.
3. Edit the `OFS_MMG_SCHEMA_IN.xml` file in a text editor.
4. Configure the elements as described in [Configuring <<APP Pack>>_SCHEMA_IN.xml File](#). For example, to create schemas only in RDBMS, populate the `OFS_MMG_SCHEMA_IN.xml` file.
5. Save the `OFS_MMG_SCHEMA_IN.xml` file.

Note: On successful execution of the utility, the entered passwords in the `OFS_MMG_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 Online Mode](#)
- [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](#)

Note: If you intend to use Oracle OLAP feature, execute the following grant on all ATOMIC schema(s) `grant olap_user to &database_username.`

Executing the Schema Creator Utility in Online Mode

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

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

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

```
./osc.sh
```

The following message is displayed:

You have chosen ONLINE mode. Triggering the utility in ONLINE mode will execute the DDLs directly on the Database. Do you wish to proceed? (Y/y or N/n).

4. Enter Y/y to proceed with the script generation
5. Enter the DB Username with SYSDBA Privileges. For example: SYS as SYSDBA.
6. Enter the User Password.

Figure 4–1 Schema Creation - Online Mode

```

$ ./osc.sh
=====
You have chosen ONLINE mode
=====
Triggering the utility in ONLINE mode will execute the DDLs directly on the Database. Do you wish to proceed? (Y/y or N/n)
y
=====
Java Validation Started ...
Java found in : /scratch/ofsaajdk1.6.0_25/jre/bin
JAVA Version found : 1.6.0_25
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
=====
DB specific Validation Started ...
Enter the DB User Name With SYSDBA Privileges:
sys as sysdba
Enter the User Password:
Oracle Client version : 11.2.0.3.0. Status : SUCCESS
Oracle Server version Current value : 11.2.0.3.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
=====

```

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

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

8. Enter Y/y to proceed with the schema creation.

The following message is displayed.

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

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

```

=====
Generating Schema Creation Scripts Started
=====
Checking OFSAA installation...
Found OFSAA installation at /scratch/ofsaadb/OFSAAI
Validating the dat file OFS_AAAI_CFG.dat started...
Sucessfully validated OFS_AAAI_CFG.dat file
Parsing /scratch/ofsaadb/OFSAAI/conf/DynamicServices.xml
Successfully connected to User - dev_conf1 URL - jdbc:oracle:thin:@ofss220623:1521:MEDIAADB
Validating the input XML file.../scratch/ofsaadb/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
=====
Validating Connection URL ..jdbc:oracle:thin:@ofss220623:1521:MEDIAADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:MEDIAADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC schema. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "ofsaainfo1". Do you want to proceed? (Y/N)
y
=====

```

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

Figure 4–3 Schema Creator Utility - Online

```

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

```

Note:

- ⌘ On successful execution of schema creator utility, the console displays the following status message:
Schema Creator executed successfully. Please proceed with the installation.
- ⌘ See log file in OFS_MMG_PACK/schema_creator/logs directory for execution status. If there are any errors, contact Oracle Support Services.

Executing the Schema Creator Utility in Offline Mode

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

Prerequisites:

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

- SELECT ON DBA_ROLES
- SELECT ON DBA_USERS
- SELECT ON DBA_DIRECTORIES
- SELECT ON DBA_TABLESPACES

- CREATE SESSION

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

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

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

```
./osc.sh -o
```
4. The following message is displayed:

You have chosen OFFLINE mode. Triggering the utility in OFFLINE mode will generate the script. Do you wish to proceed? (Y/y or N/n).
5. Enter Y/y to generate the script.
6. Enter the DB Username with SELECT privileges.
7. Enter the User Password.

Figure 4–4 Schema Creation - Offline Mode

```

osc.sh
$ ./osc.sh -o
=====
You have chosen OFFLINE mode
=====
Triggering the utility in OFFLINE mode will generate the script. Do you wish to proceed? (Y/y or N/n):
Y
=====
Java Validation Started ...
Java found in : /scratch/ofsaajdk1.6.0_25/bin
JAVA Version found : 1.6.0_25
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
=====
DB specific Validation Started ...
Enter the DB User Name with the following privileges:
1. CREATE SESSION
2. SELECT on DBA_ROLES
3. SELECT on DBA_USERS
4. SELECT on DBA_DIRECTORIES
5. SELECT on DBA_TABLESPACES
Enter the User Name:
sys as sysdba
Enter the User Password:
Oracle Client version : 11.2.0.3.0. Status : SUCCESS
Oracle Server version Current value : 11.2.0.3.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
=====

```

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 Infodomain>. Do you want to proceed? (Y/N)

Figure 4–5 Schema Creation - Offline Mode

```
=====
                          Generating Schema Creation Scripts Started
=====
Checking OFSAA installation...
Found OFSAA installation at /scratch/ofsaadb/OFSAAI
Validating the dat file OFS_AAAI_CFG.dat started...
Successfully validated OFS_AAAI_CFG.dat file
Parsing /scratch/ofsaadb/OFSAAI/conf/DynamicServices.xml
Successfully connected to User - dev_conf1 URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Validating the input XML file.../scratch/ofsaadb/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
=====
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:
MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC sche
ma. Do you want to proceed? (Y/N)
Y
You have chosen to install this Application Pack on INFODOM "ofsaaiinfo1". Do y
ou want to proceed? (Y/N)
Y
=====
```

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

Figure 4–6 Schema Creator Utility - Offline

```

=====
Generating TableSpace creation Scripts started...
Generating TableSpace creation Scripts completed...
=====
Generating Schema creation scripts started...
CONFIG User uat_conf_anurag creation script generated successfully on Default Ta
bleSpace : USERS on Temp TableSpace : TEMP
Generation of grants creation scripts started...
Generation of grants creation scripts completed...
Scripts Generation for CONFIG schema started ...
Scripts Generation for CONFIG schema completed ...
User uat_conf_anurag details updated into the dbmaster table
User uat_atm_anurag details updated into the dbmaster table
User uat_atm_anurag creation script generated successfully on Default TableSpace
 : USERS on Temp TableSpace : TEMP
User uat_atm_anurag creation is skipping as the user is already created.
Generating Schema creation scripts completed...
=====
Generating Roles creation Scripts started...
Generating Roles creation Scripts completed...
=====
Generating Grants creation scripts started...
Generating Grants creation scripts completed...
=====
Generating Schema Creation Scripts Completed
=====
Schema Creator executed Successfully.Please execute /scratch/ofsaapp/OFS_AAAI_P
ACK/schema_creator/sysdba_output_scripts.sql before proceeding with the installa
tion.

```

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

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

11. Navigate to the directory OFS_MMG_PACK/schema_creator.
12. Log in to SQLPLUS with a user having SYSDBA Privileges.

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

```

/scratch/ofsaapp/OFS_AAAI_PACK/schema_creator/bin>cd ..
/scratch/ofsaapp/OFS_AAAI_PACK/schema_creator>acle@mediadb as sysdba <

SQL*Plus: Release 11.2.0.3.0 Production on Tue Jan 13 11:01:55 2015

Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> @/scratch/ofsaapp/OFS_AAAI_PACK/schema_creator/sysdba_output_scripts.sql
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64
bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

```

13. Execute the `sysdba_output_scripts.sql` file using the following command:

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

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

14. Log in to the Hue Browser with System Administrator privileges. Execute the script mentioned under `hive_output_scripts.hql` (omitting the slash (/)) in the HIVE Query Editor. For example, the query can be as follows:

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

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

Executing the Schema Creator Utility with -s Option

If you intend to run the OFS MMG 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_MMG_PACK/schema_creator/conf/OFS_MMG_SCHEMA_IN.xml` in text editor.
2. Set the value for attribute "INFODOM" of `<SCHEMA>` tag(s) to specify a specific Information Domain name. By default, the value is empty and the utility derives the Information Domain name. If the attribute value is set, the utility/ installer configures the Information Domain against this `<SCHEMA>`.
3. Execute the utility with `-s` option.

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

Note: To execute the utility in OFFLINE mode with SILENT option, enter the following command:

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

Figure 4–8 Schema Creator Utility with -s Option

```

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

```

Figure 4–9 Schema Creator Utility with -s Option

```
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:
MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC sche
ma. Do you want to proceed? (Y/N)
Y
You have chosen to install this Application Pack on INFODOM "cfsaaainfoc1". Do y
ou want to proceed? (Y/N)
Y
=====
===
Generating TableSpace creation Scripts started...
Generating TableSpace creation Scripts completed...
=====
===
Generating Schema creation scripts started...
CONFIG User uat_conf_anurag creation script generated successfully on Default Ta
bleSpace : USERS on Temp TableSpace : TEMP
Generation of grants creation scripts started...
Generation of grants creation scripts completed...
Scripts Generation for CONFIG schema started ...
Scripts Generation for CONFIG schema completed ...
User uat_conf_anurag details updated into the dbmaster table
User uat_atm_anurag details updated into the dbmaster table
User uat_atm_anurag creation script generated successfully on Default TableSpace
 : USERS on Temp TableSpace : TEMP
User uat_atm_anurag creation is skipping as the user is already created.
Generating Schema creation scripts completed...
=====
===
Generating Roles creation Scripts started...
Generating Roles creation Scripts completed...
=====
===
Generating Grants creation scripts started...
Generating Grants creation scripts completed...
=====
===
Generating Schema Creation Scripts Completed
=====
===
Schema Creator executed Successfully.Please execute /scratch/cfsaaapp/OFS_AAAI_P
ACK/schema_creator/sysdba_output_scripts.sql before proceeding with the installa
tion.
```

Figure 4–10 Schema Creator Utility with -s Option

```

/scratch/ofsaapp/OFS_AAAI_PACK/schema_creator/bin>cd ..
/scratch/ofsaapp/OFS_AAAI_PACK/schema_creator>acle@mediadb as sysdba <

SQL*Plus: Release 11.2.0.3.0 Production on Tue Jan 13 11:01:55 2015

Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> @/scratch/ofsaapp/OFS_AAAI_PACK/schema_creator/sysdba_output_scripts.sql
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64
bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

```

Executing the Schema Creator Utility while Installing Subsequent Applications Pack

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

Note: OFS MMG Application Pack can be installed on any Information Domain /Atomic schema where any OFS Application Packs are installed.

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

1. Repeat the steps 1 to 9 from the [Executing the Schema Creator Utility](#) section.

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

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

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

```

=====
                          Generating Schema Creation Scripts Started
=====
Checking OFSAA installation...
Found OFSAA installation at /scratch/ofsaadb/OFSAAI
Validating the dat file OFS_AAAI_CFG.dat started...
Successfully validated OFS_AAAI_CFG.dat file
Parsing /scratch/ofsaadb/OFSAAI/conf/DynamicServices.xml
Successfully connected to User - dev_conf1 URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Validating the input XML file.../scratch/ofsaadb/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
=====
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:
MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC sche
ma. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "ofsaaiinfo1". Do y
ou want to proceed? (Y/N)
y
=====

```

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

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

```

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_MMG_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 MMG Application Pack

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

This section includes the following topics:

- [Installing in SILENT Mode](#)
- [Verifying the Log File](#)

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 MMG in SILENT mode, follow these steps:

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

```
FIC_HOME=< OFSAA Installation Directory >  
export FIC_HOME
```
3. Execute the user `.profile`.
4. Navigate to `OFS_MMG_PACK` directory.
5. Edit the `OFS_MMG_PACK/conf/OFS_MMG_PACK.xml` to enable the product licenses.

Note: See [Configuring <<APP Pack>>_PACK.xml File](#) section for details on configuring this XML file.

6. Rename the `OFS_MMG_PACK/schema_creator/conf/OFS_MMG_SCHEMA_IN.xml.Template` to `OFS_MMG_PACK/schema_creator/conf/OFS_MMG_SCHEMA_IN.xml`.
7. Edit the `OFS_MMG_PACK/schema_creator/conf/OFS_MMG_SCHEMA_IN.xml` file to set the appropriate attribute values.

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

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

Note:

- This step can be ignored if an installation of OFSAA 8.0 already exists.
 - 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. Add TNS entries in the `tnsnames.ora` file for every schema created for the Application Pack. Connect to the CONFIG schema and execute the following query:

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

11. Rename the `Silent.template` file in the `OFS_MMG_PACK/OFS_MMG/conf/` directory path to `Silent.props` and edit the file to set the appropriate attribute values.
12. Enter the following command in the console to execute the application pack installer with Silent option.

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

Figure 4–13 Silent Mode Installation

```

/scratch/ofsaapp/OFS_AAAPACK/bin>ls
install.jar OFSAAPACK.jar pack_install_silent.bin setup.sh
/scratch/ofsaapp/OFS_AAAPACK/bin>./setup.sh SILENT
FIC_HOME : /scratch/ofsaapp/OFSAAI
Environment check utility started...
=====
Java Validation Started ...
Java found in : /usr/bin
JAVA Version found : 1.6.0_45
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
=====
Environment Variables Validation Started ...
ORACLE_HOME : /scratch/OracleClient11g/product/11.2.0/client_1
TNS_ADMIN : /scratch/ofsaapp
Environment Variables Validation Completed. Status : SUCCESS
=====
OS specific Validation Started ...
Unix shell found : /bin/ksh. Status : SUCCESS
Total file descriptors : 16240. Status : SUCCESS
Total number of process : 16240. Status : SUCCESS
OS version : 5. Status : SUCCESS
OS specific Validation Completed. Status : SUCCESS
=====
DB specific Validation Started ...
Oracle Client version : 11.2.0.3.0. 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 V_$nls_parameters view. Current value : SELECT.
Status : SUCCESS
NLS_LENGTH_SEMANTICS : BYTE. Current value : BYTE. Status : SUCCESS
NLS_CHARACTERSET : AL32UTF8. Current value : AL32UTF8. Status : SUCCESS
SELECT privilege is granted for V_$parameter view. Current value : SELECT. Stat
us : SUCCESS
Open cursor value is greater than 1000. Current value : 1200. Status : SUCCESS
SELECT privilege is granted for USER_IS_QUOTAS view. Current value : SELECT. St
atus : SUCCESS
Schema is granted with at least 500 MB table space. Current value : 10239.60113
52539063 MB. Status : SUCCESS
Oracle Server version Current value : 11.2.0.3.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
=====
Environment check utility Status : SUCCESS
=====

```

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

Figure 4–14 Silent Mode Installation

```

*****
* Welcome to Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) 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 :

```


14. Enter the HIVE Server SFTP/FTP password value, when prompted at the command prompt.

Figure 4–15 Silent Mode Installation (contd.)

```

*****
* Welcome to Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) 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 :

Please enter HIVE Server SFTP/FTP password :
    
```

Table 4–1 Console Prompts - Silent Mode installation

Console Prompts	User Inputs
Please enter Infrastructure Application/Database component FTP/SFTP password	Enter the password to access Product Staging/Metadata repository directory in the application server. Note: In case the prompt reads as follows, enter the username/ password for accessing the product Staging/ Metadata Repository FTPSHARE ? Kerberos username [user] ? Kerberos password for user:
Please enter HIVE Server SFTP/FTP password	Enter the password to access the HIVE Server.

15. Enter Always, when prompted to add host key fingerprint.
The OFSAAI License Agreement is displayed.

Figure 4–16 Silent Mode Installation

```

OFSAA APPLICATION PACK LICENSE AGREEMENT
*****
* Oracle Financial Services Analytical Applications (OFSAA) application packs are groups of OFSAA products packaged together into a single installer. Each applicati
on pack contains OFSAA applications that address specific functional domains.*
* Every application pack also includes the following OFSAA infrastructure application options which are automatically installed by every application pack installer:

1. Oracle Financial Services Analytical Applications Infrastructure
2. Oracle Financial Services Enterprise Modeling
3. Oracle Financial Services In-line Processing Engine
4. Oracle Financial Services Big Data Processing
* Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) is the base infrastructure for all OFSAA applications and is therefore automatically
installed and enabled by the application pack installer.*
* The application pack installer always installs Oracle Financial Services Enterprise Modeling, Oracle Financial Services In-line Processing Engine and Oracle Fin
ancial Services Big Data Processing application options along with the application pack applications, but enables them only if any application that requires their
functionality is enabled.*
* Any OFSAA application that is enabled must be licensed for use. Oracle Financial Services Analytical Applications Infrastructure, Oracle Financial Services Enterp
rise Modeling, Oracle Financial Services In-line Processing Engine and Oracle Financial Services Big Data Processing are individually licensable application optio
ns.*
* Application products once enabled cannot be disabled. Application products not enabled on installation, may later be enabled using the "Manage OFSAA Product Lic
ense(s)" feature of the platform.*
*****
Are you accepting the terms and conditions mentioned above? [Y/N]:
    
```

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

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

Figure 4–17 Silent Mode Installation

```
Starting installation...
Preparing to install...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...

Preparing SILENT Mode Installation...

=====
OFSAAInfrastructure                               (created with InstallAnywhere)
=====

Installing...
-----

[=====|=====|=====|=====]
[-----|-----|-----|-----]

Installation Complete.

*****
Welcome to OFS_AAAI PACK Installation
*****

Starting OFSAA Service...
nohup: appending output to `nohup.out'
OFSAA Service - OK
Preparing to install...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...

Preparing SILENT Mode Installation...
```

Figure 4–18 Silent Mode Installation

```

=====
pack_installsilent                                     (created with InstallAnywhere)
-----

Installing...
-----

[=====|=====|=====|=====]
[-----|-----|-----|-----]

Installation Complete.
*****
CTRL characters removal started ...
CTRL characters removal over ...
Windows executable files removal started ...
Windows executable files removal over ...
We are now in /scratch/ofsaapp ...
*****
executing "ant"
Unable to locate tools.jar. Expected to find it in /scratch/jre1.6.0_45/lib/tool
s.jar
Buildfile: /scratch/ofsaapp/OFSAAI/ficweb/build.xml
Trying to override old definition of datatype resources

existstest:
  [echo] Checking for file /scratch/ofsaapp/OFSAAI/ficweb/AAA.war existence

createwar:
  [echo] Creating /scratch/ofsaapp/OFSAAI/ficweb/AAA.war freshly..
  [war] Building war: /scratch/ofsaapp/OFSAAI/ficweb/AAA.war

BUILD SUCCESSFUL
Total time: 35 seconds
OFSAA App Layer Services start-up check started...
Starting startofsaai.sh service...
nohup: appending output to `nohup.out'
OFSAA Service - OK
Starting icc service...
nohup: appending output to `nohup.out'
ICC service - OK
Shutting down icc service...
nohup: appending output to `nohup.out'
Shutting down OFSAA service...
nohup: appending output to `nohup.out'
OFSAAI App Layer Services check Status: SUCCESSFUL.
OFSAAI DB Layer Services check started...
checking Router service...
Router Service - OK
checking AM service...
AM Service - OK
Checking MessageServer service...
DEBUG: main started.
DEBUG: TraceFileName = /scratch/ofsaapp/OFSAAI/ficdb/log/msg_trace_file.log
DEBUG: OpenFiles done.
MessageServer Service - OK
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.

18. The following message is displayed in the console:
Installation completed...
19. On completion of installation, see the installation log files.
For more information, see [Verifying the Log File](#).
20. Perform the steps mentioned in [Post Installation Configurations](#) section.
21. To enable Transparent Data Encryption (TDE), see [Appendix R, "Configuring Transparent Data Encryption \(TDE\) and Data Redaction in OFSAA"](#).
22. To enable Data Redaction, see *Data Redaction* section in the *Data Security and Data Privacy* in the [OFS Analytical Applications Infrastructure Administration Guide 8.0.8.0.0](#).

Verifying the Log File

Verify the following logs files for more information:

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

Post Installation Configurations

On successful installation of the Oracle Financial Services Model Management and Governance Application Pack, follow these post installation steps:

Note: After completing the post installation configurations described in this section, complete the mandatory procedure in the [Data Studio Mandatory Configurations for OFS MMG](#) section.

This chapter includes the following sections:

- [Configuring Resource Reference](#)
- [Starting OFSAA Infrastructure Services](#)
- [Adding TNS entries in the TNSNAMES.ORA File](#)
- [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 C](#) 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 E](#) for details on Start/Stop OFSAA Services.

Adding TNS entries in the TNSNAMES.ORA File

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

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

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

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

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 D](#).

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

Accessing the OFSAA Application

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

Refer to [Appendix F](#) 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 G](#).

Data Studio Mandatory Configurations for OFS MMG

This section provides information for configurations required for Data Studio with OFS MMG.

The sections in this chapter are:

- [Installing Data Studio for OFS MMG and Integrating with OFSAA](#)
- [Configurations for Process Modeling Framework](#)
- [R Interpreter Installation for Studio](#)

Installing Data Studio for OFS MMG and Integrating with OFSAA

The Data Studio for OFS MMG is a browser-based workbench to create Models and publish to OFSAA. The integration allows for rapid creation and deployment of Models. The topics in this chapter provides details for the installation of the Data Studio for OFS MMG and the configurations required to integrate it with OFSAA.

Note: The integration of OFS MMG with OFSAA works for both Java 7 and 8.

This section includes the following subsections:

1. [Release v8.0.8.0.0 to v8.0.8.0.1](#)
2. [Release v8.0.8.0.2 and Later](#)
3. [Starting and Stopping of Data Studio for OFS MMG](#)

Release v8.0.8.0.0 to v8.0.8.0.1

The prerequisites, configuration activities, and installation for OFS MMG v8.0.8.0.0 to v8.0.8.0.1 is explained in this section.

This section includes the following subsections:

1. [Prerequisites](#)
2. [Configuring Data Studio for OFS MMG](#)
3. [Installing and Configuring Python Package](#)

Prerequisites

The following are the prerequisites to configure the Data Studio for OFS MMG v8.0.8.0.0 and v8.0.8.0.1:

For Python Package

The following are the prerequisites for the Python package.

1. OFSAA must be up and running. For OFSAA installation, see Chapters 1 - 5 in this guide.
2. Install the following libraries in the OEL box where the Data Studio is deployed:
 1. Python 3.7.x and 3.6.x
 2. cx-Oracle 7.0.0+
 3. pandas 0.17.1

Configuring Data Studio for OFS MMG

The following is the procedure to configure Date Studio for OFS MMG Service:

- 1 Copy all files from OFSAA \$FIC_HOME/conf directory to \$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/conf directory.
- 2 Copy the following JAR files from the \$FIC_HOME/ficweb/webroot/WEB-INF/lib directory to the \$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/server/lib and \$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/interpreter-server/interpreter/emfpy directories:
 - aai-core.jar
 - AESCryptor.jar
 - FICServer.jar
 - ojdbc8.jar
 - commons-logging-1.2.jar
 - commons-pool2-2.4.2.jar
- 3 In the nextgenmf_config table of the configuration schema, update the parameters as shown in the following table:

Table A-1 Update nextgenmf_config table

V_NAME	V_VALUE	V_VALUE to be replaced
DATASTUDIO_URL	http(s)://<host>:7008/mmg	? http(s) - the HTTP configuration. Configure this value to HTTP or HTTPS based on the configuration in the server. ? <host> - IP address or host name on which the Data Studio will be configured.

Table A-1 Update nextgenemf_config table

V_NAME	V_VALUE	V_VALUE to be replaced
EMFSTUDIO_SERVICE_URL	http(s)://<ofsa web host>:<port>/<context>/rest-api/emf-service/v1	? http(s) - the HTTP configuration. Configure this value to HTTP or HTTPS based on the configuration in the server. ? <ofsa web host> - the host on which OFSAA application is installed. ? <port> - port number for the installed OFSAA application. ? <context> - the context name of the OFSAA application deployment.
STUDIO_AUTH_TYPE	Set to DEFAULT MMG Studio integration. For integration with FCC Studio, set this to FCC_SSO. Refer to FCCS User Guide for further details.	
FCC_API_USER	Applicable only for FCC Studio integration scenarios (when STUDIO_AUTH_TYPE is FCC_SSO).	
SSO_TOKEN	Applicable only for FCC Studio integration scenarios (when STUDIO_AUTH_TYPE is FCC_SSO).	

- 4 Update the `application.yml` file in the `$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/server/conf` directory for the following parameters:

```
ofsaaUrl: "http://<ofsa web host>:<port>/<context>/rest-api"
metaserviceUrl: "http(s)://<ofsa web host>:<port>/<context>/rest-api/emf-service/v1"
```

Where,

- http - the HTTP configuration. Configure this value to HTTP or HTTPS based on the configuration in the server.
 - <ofsa web host> - the host on which OFSAA application is installed.
 - <port> - port number for the installed OFSAA application.
 - <context> - the context name of the OFSAA application deployment.
- 5 Update the `emfpy.json` file in the `$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/interpreter-conf` directory for the following parameter:

```
"defaultValue": "http(s)://<ofsa web host>:<port>/<context>/rest-api/emf-service/v1"
```

Where,

- http - the HTTP configuration. Configure this value to HTTP or HTTPS based on the configuration in the server.
- <ofsa web host> - the host on which OFSAA application is installed.
- <port> - port number for the installed OFSAA application.
- <context> - the context name of the OFSAA application deployment.

Installing and Configuring Python Package

This section provides information to install and configure the Python package. The following is the procedure:

Note: The integration of MMG with OFSAA works for both Java 7 and 8.

- 1 Navigate to the `FIC_HOME/utility/mmgstudio/nextgenemf/python` directory.
- 2 Extract (unzip) `OFSAEmf-0.0.2.tar.gz` using `tar -xvzf OFSAEmf-0.0.2.tar.gz`.
- 3 Navigate to the directory `OFSAEmf-0.0.2`.
- 4 Execute the `python3 setup.py install --user` command to install the Python package.

Release v8.0.8.0.2 and Later

The prerequisites and configuration of Data Studio 20.2 for OFS MMG is explained in this section.

This section includes the following subsections:

1. [Prerequisites](#)
2. [Configure Data Studio 20.2 for OFS MMG](#)
3. [Configure the Data Studio on the Remote Server](#)
4. [Deploy the Data Studio 20.2 on WebLogic Server](#)

Prerequisites

The following are the prerequisites to configure Data Studio 20.2 for OFS MMG v8.0.8.0.2+:

1. Stop previous versions of Data Studio running on the server.
2. Configure the following prerequisites for the Python package:
 - a. OFSAA must be up and running. For OFSAA installation, see Chapters 1 - 5 in this guide.
 - b. Install the following libraries in the OEL box where the Data Studio is deployed:
 - Python 3.7+
 - Py4J

Configure Data Studio 20.2 for OFS MMG

To configure Data Studio 20.2 for OFS MMG, follow these steps:

1. Configure the Data Studio 20.2 as follows:
 - a. Copy the following jars from the `$OFSAA_HOME/ficweb/webroot/WEB-INF/lib` directory to the `$OFSAA_HOME/utility/mmgstudio/datastudio_distribution/datastudio/mmg-lib` directory:
 - aai-core.jar
 - aai-core.jar
 - AESCryptor.jar
 - commons-dbcp2-2.4.0.jar
 - commons-pool2-2.4.2.jar
 - FICServer.jar
 - JSON_parser.jar
 - ojdbc8-19.3.0.0.jar (already packaged)
 - h2-1.4.200.jar (already packaged)
 - b. Update the default value for URL configuration for python interpreters in the `python.json` file in the `$OFSAA_HOME/utility/mmgstudio/datastudio_distribution/datastudio/conf/interpreter-conf/` directory:


```
"URL": {
            "envName": "URL",
            "propertyName": "URL",
            "defaultValue": "http(s)://<ofsa web
host>:<port>/<context>/rest-api/emf-service/v1",
            "description": "URL"
          }
```
 - c. Copy the `$OFSAA_HOME/conf` directory from the OFSAA instance to the `$OFSAA_HOME/utility/mmgstudio/datastudio_distribution/datastudio/OFSAAconf` directory.

Note: The OFSAAconf directory must now contain a conf directory.

- d. Create a server.keystore as follows. This is required to run datastudio on HTTPS instead of HTTP.


```
keytool -genkey -v -alias demoalias -keyalg RSA -keysize 2048 -keystore server.keystore -validity 3650 -keypass secret -storepass secret -storetype PKCS12
```
2. Configure the Data Studio 20.2 with Oracle Database (Oracle DB) 12+ as follows:
 - a. Configure the Data Studio 20.2 with Oracle Database (Oracle DB) 12+ as follows:
 - a. Create the required tablespaces as follows:


```
CREATE TABLESPACE tbs_datastudio_perm
          DATAFILE 'tbs_datastudio_perm.dat'
```

```

SIZE 1G
ONLINE;

```

```

CREATE TEMPORARY TABLESPACE tbs_datastudio_tmp
  TEMPFILE 'tbs_datastudio_tmp.dbf'
  SIZE 100M;

```

b. Create a user for the Data Studio as follows:

```

CREATE USER datastudio
  IDENTIFIED BY "<strong password>"
  DEFAULT TABLESPACE tbs_datastudio_perm
  QUOTA 1G ON tbs_datastudio_perm
  TEMPORARY TABLESPACE tbs_datastudio_tmp;

GRANT CONNECT, CREATE TABLE, CREATE VIEW, CREATE SEQUENCE TO
datastudio;

```

b. Configure the Data Studio for Oracle DB as follows by selecting from one of the following options:

To configure the Wallet-based option, follow these steps:

a. Open the application.yml file in the \$OFSAA_HOME/utility/mmgstudio/datastudio_distribution/datastudio/conf/ directory and replace the spring section in the file with the following:

- For Oracle DB 12.2 or earlier versions, replace as follows:

```

spring:
datasource:
  url: jdbc:oracle:thin:@<TNS ALIAS>
  driverClassName: oracle.jdbc.driver.OracleDriver
  hikari:
    data-source-properties:
      oracle.net.wallet_location: '<WALLET LOCATION>'
      oracle.net.tns_admin: '<TNS ADMIN PATH>'
  jpa:
    database-platform: org.hibernate.dialect.Oracle12cDialect

```

- For Oracle DB 18.3, replace as follows:

```

spring:
datasource:
  driverClassName: oracle.jdbc.OracleDriver
  url: jdbc:oracle:thin:@<TNS ALIAS>?TNS_ADMIN=<TNS ADMIN PATH>
  jpa:
    database-platform: org.hibernate.dialect.Oracle12cDialect

```

- b. Update the URL accordingly and ensure that your credentials are stored in the wallet.

To configure the Password-based option, follow these steps:

To configure the Password-based option, follow these steps:

spring:

datasource:url: jdbc:oracle:thin:@myhost:1521:orcl

username: scott

password: tiger

driverClassName: oracle.jdbc.OracleDriver

jpa:

database-platform: org.hibernate.dialect.Oracle12cDialect

- 3. In the `nextgenemf_config` table of the configuration schema, update the parameters as shown in the following table:

Table A-2 Update nextgenemf_config table

V_NAME	V_VALUE	V_VALUE to be replaced
DATASTUDIO_URL	http(s)://<host>:7008/mmg	<ul style="list-style-type: none"> ? https - the HTTP configuration. Configure this value to HTTPS. ? <host> - IP address or host name on which the Data Studio will be configured.
EMFSTUDIO_SERVICE_URL	http(s)://<ofsa web host>:<port>/<context>/rest-api/emf-service/v1	<ul style="list-style-type: none"> ? http(s) - the HTTP configuration. Configure this value to HTTP or HTTPS based on the configuration in the server. ? <ofsa web host> - the host on which OFSAA application is installed. ? <port> - port number for the installed OFSAA application. ? <context> - the context name of the OFSAA application deployment.

- 4. Update the server configurations as follows in the `application.yml` file in the `$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/server/conf` directory for the following parameters:

ofsaaUrl: "http://<ofsa web host>:<port>/<context>/rest-api"

metaserviceUrl: "http(s)://<ofsa web host>:<port>/<context>/rest-api/emf-service/v1"

Where,

- http - the HTTP configuration. Configure this value to HTTP or HTTPS based on the configuration in the server.
- <ofsa web host> - the host on which OFSAA application is installed.
- <port> - port number for the installed OFSAA application.
- <context> - the context name of the OFSAA application deployment.

5. Update the parameters in the SSL section in the file as follows:

```
ssl:key-store-type: PKCS12
key-store: <path to your KeyStore>
key-store-password: <KeyStore password>
key-alias: <key alias>
```

Where,

- key-store-type: is the type of keystore to store cryptographic tokens.
- key-store: is the name of the key-store.
- key-store-password: is the password for the keystore.
- key-alias: is the alias of the keystore.

In case of WebLogic server, use the following configuration:

- key-store: identity.jks (mentioned in build.xml)
- Do not execute the below command:

```
keytool -genkey -v -alias demoalias -keyalg RSA -keysize 2048
-keystore server.keystore -validity 3650 -keypass secret
-storepass secret -storetype PKCS12
```

Note: Enter the details for the parameters in the SSL section as entered in the step 1.d. of the [Configure Data Studio 20.2 for OFS MMG](#) section.

Use the Python Virtual Environments with Python Interpreter

You can use Python Interpreter with Python Virtual Environments.

To use Python Virtual Environments with Python Interpreter, follow these steps:

1. Create a Virtual Environment with Conda.
2. Update the Interpreter Properties

Create a Virtual Environment with Conda.

1. Ensure that you have conda and conda-Pack installed.
2. Create your virtual environment using the following command:

```
conda create -y -n <environment-name>
python=<python-version><additional-packages>
```

The <environment-name> can be chosen freely and subsequently has to be substituted in further commands.

3. Activate your virtual environment using the following command:


```
conda activate <environment-name>
```

- Execute the following to obtain the path to your virtual environment:
which python

The obtained result is referred to as <environment-abs-path>.

Update the Interpreter Properties

The interpreter properties can either be configured in the interpreter JSON files or from the Interpreters page of the MMG Studio application UI after starting the MMG Studio application.

- In the Python Interpreter Settings page of the MMG Studio application UI (or python.json), change the following:
 - Change the value of the `zeppelin.python` property to `./<environmentname>/bin/python`

Table A-3 Known Issues and Solution

Issue	Solution
Python Interpreter: Fails With py4j Error	The python interpreter needs the py4j package, exact steps to install it depend on the operating system. If you use pip, it can be done with: If necessary to install the package for all users, root user can run this command without --user.
Python Cancellation Fails With kill Error	The python interpreter needs the kill utility to perform cancellation. It comes pre-installed by default in most Unix Operating Systems, but if it is not available in your environment, install the procs package: <code>yum install -y procs-ng</code>
The ipython library used by the Python interpreter has a known issue with Python 3.8 .	Use another Python version, such as Python 3.7, where ipython does not have this issue.

Configure Datastudio 20.2 SSL in an OFSAA instance on WebLogic Server

If the OFSAA instance runs on a WebLogic server, configure the following for Data Studio 20.2:

- Configure the `build.xml` file in the `$OFSAA_HOME/ficweb` after taking a backup of the current file.

```
<project name="Generate Keystores" default="all" basedir=".">
  <property name="alias" value="OEL807"/>
  <property name="dname" value="CN=<<hostname of weblogic/>
  <property name="identity.jks" value="identity.jks" />
  <property name="storepass" value="storepass" />
  <property name="cert.cer" value="OEL807.cer" />
  <property name="trust.jks" value="trust.jks" />
```

```

<property name="jdk.home" value="<<JAVA_HOME, eg. '/usr/java/jdk1.8.0_
172' "/>
<target name="all" depends="create-keystores"/>
<target name="create-keystores">
<echo>Generating Identity of the Server</echo>
<exec executable="${jdk.home}/bin/keytool">
<arg line='-genkey -alias ${alias} -keyalg RSA -keysize 2048 -dname
"${dname}" -keypass ${storepass} -keystore ${identity.jks} -storepass
${storepass} -storetype PKCS12' />
</exec>
<echo>Self Signing the Certificate</echo>
<exec executable="${jdk.home}/bin/keytool">
<arg line='-selfcert -alias ${alias} -dname "${dname}" -keypass
${storepass} -keystore ${identity.jks} -storepass ${storepass}' />
</exec>
<echo>Exporting the Server certificate</echo>
<exec executable="${jdk.home}/bin/keytool">
<arg line='-export -alias ${alias} -file ${cert.cer} -keystore
${identity.jks} -storepass ${storepass}' />
</exec>
<echo>Creating Trust Store</echo>
<exec executable="${jdk.home}/bin/keytool">
<arg line='-import -alias ${alias} -file ${cert.cer} -keystore
${trust.jks} -storepass ${storepass} -noprompt' />
</exec>
</target>
</project>

```

Note: Here, the hostname should be the same as that configured for OFSAA WebLogic server.

- 2 Open command prompt and run the ant.sh file that exists in the \$OFSAA_HOME/ficweb directory.

Note: Recheck if identity.jks, OEL807.cer, and trust.jks files generated in the \$OFSAA_HOME/ficweb directory.

- 3 Create a mycertificates directory in the WebLogic domain directory.
- 4 Place identity.jks, OEL807.cer, and trust.jks files in this new mycertificates directory.
- 5 Log in to the **WebLogic Admin Console** and configure the certificates as follows.

- 6 Click **Home**, click **Summary of Servers**, click **AdminServer**, and then click **General** in the Navigation Tree Nodes.
- 7 Select **SSL Listen Port** to enable it.
- 8 Ensure the value for **SSL Listen Port** is **7002**.
- 9 Click **Home**, click **Summary of Servers**, click **AdminServer**, and then click **Keystores** in the Navigation Tree Nodes.
- 10 Select **Keystores: Custom Identity Custom Trust**.
Configure the following in the **Identity** section:
 1. Enter the value `<path>/identity.jks` in the **Custom Identity Keystore** field.
 2. Enter **JKS** in the **Custom Identity Keystore Type** field.
 3. Enter **storepass** in the **Custom Identity Keystore Passphrase** field.
 4. Enter **storepass** in the **Confirm Custom Identity Keystore Passphrase** field.Configure the following in the **Trust** section:
 1. Enter the value `<path>/trust.jks` in the **Custom Trust Keystore** field.
 2. Enter **JKS** in the **Custom Trust Keystore Type** field.
 3. Enter **storepass** in the **Custom Trust Keystore Passphrase**.
 4. Enter **storepass** in the **Confirm Custom Trust Keystore Passphrase** field.
- 11 Click **SAVE**.
- 12 Click **Home**, click **Summary of Servers**, click **AdminServer**, and then click **SSL** in the Navigation Tree Nodes.
- 13 Select **Identity and Trust Locations:Keystores**.
 1. Enter **OEL807** in the **Private Key Alias** field.
 2. Enter **keypass** in the **Private Key Passphrase** field.
 3. Enter **keypass** in the **Confirm Private Key Passphrase** field.
- 14 Click **SAVE**.
- 15 Access the Admin Console on an HTTPS port in the following example format:
`https://<weblogic_host>:7002/console`

Deploy the Data Studio 20.2 on WebLogic Server

If you want to deploy the Data Studio 20.2 on an OFSAA instance on WebLogic Server, follow these steps:

1. See the Support ID [2785117.1](#). Follow the instructions on the page and deploy Data Studio on a WebLogic server.
2. Unzip the WAR file and open the `/WEB-INF/lib/ol-datstudio-client-20.1.1.jar/META-INF/resources/en-US/` directory to build for the client.
3. Copy the `otnExtension` JAR file to the `/WEB-INF/lib/` directory.
4. Copy the `emfpy.json` file to the `WEB-INF/classes/interpreter-conf/standalone` directory.

Note: The server log is saved in the `nohup.out` file in the `Oracle/Middleware/Oracle_Home/user_projects/domains/MMG808/bin` directory.

5. Copy the `interpreter-server` directory from the standalone deployment of the Data Studio.
6. Create the `start-interpreters` and `stop-interpreters` scripts as follows:
 1. Create the `Start-interpreters` script as follows:

```
#!/bin/bash

DIR=$(dirname "$0")

mkdir "$DIR"/logs

export DS_HOME="$DIR/OFSAAconf"nohup
"$DIR"/interpreter-server/emfpy-interpreter-20.1.2/bin/emfpy-interpreter >> "$DIR"/logs/emfpy-interpreter.log &

nohup
"$DIR"/interpreter-server/python-interpreter-20.1.2/bin/python-interpreter >> "$DIR"/logs/python-interpreter.log &

nohup
"$DIR"/interpreter-server/markdown-interpreter-20.1.2/bin/markdown-interpreter >> "$DIR"/logs/markdown-interpreter.log &

nohup
"$DIR"/interpreter-server/spark-interpreter-20.1.2/bin/spark-interpreter >> "$DIR"/logs/spark-interpreter.log &

nohup
"$DIR"/interpreter-server/shell-interpreter-20.1.2/bin/shell-interpreter >> "$DIR"/logs/shell-interpreter.log &

nohup
"$DIR"/interpreter-server/jdbc-interpreter-20.1.2/bin/jdbc-interpreter >> "$DIR"/logs/jdbc-interpreter.log &

nohup
"$DIR"/interpreter-server/pgx-algorithm-interpreter-20.1.2/bin/pgx-algorithm-interpreter >> "$DIR"/logs/pgx-algorithm-interpreter.log &

nohup
"$DIR"/interpreter-server/pgql-interpreter-20.1.2/bin/pgql-interpreter >> "$DIR"/logs/pgql-interpreter.log &
```

2. Create the `Stop-interpreters` script as follows:

```
#!/bin/bash

DIR=$(dirname "$0")

rm -rf "$DIR"/logs/*

I7009=`ps -eaf | grep java | grep RemoteInterpreterServer | grep 7009 | awk '{print $2}'`

kill -9 $I7009
```

```
I7010=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7010 | awk '{print $2}'`
kill -9 $I7010

I7011=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7011 | awk '{print $2}'`
kill -9 $I7011

I7012=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7012 | awk '{print $2}'`
kill -9 $I7012

I7013=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7013 | awk '{print $2}'`
kill -9 $I7013

I7014=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7014 | awk '{print $2}'`kill -9 $I7014

I7016=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7016 | awk '{print $2}'`
kill -9 $I7016

I7017=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7017 | awk '{print $2}'`
kill -9 $I7017

I7021=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7021 | awk '{print $2}'`
kill -9 $I7021

I7780=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7780 | awk '{print $2}'`
kill -9 $I7780

I7779=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7779 | awk '{print $2}'`
kill -9 $I7779

I7781=`ps -eaf | grep java | grep RemoteInterpreterServer | grep
7781 | awk '{print $2}'`
kill -9 $I7781
```

Configure the Data Studio on the Remote Server

Configure the Data Studio on the Remote Server as follows:

- 1 Copy the `.profile` and `tnsnames.ora` files from the OFSAA instance to the remote server.
- 2 Copy all files from the OFSAA `$FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio` directory to the remote server.
- 3 Configure as in the OFSAA instance of the Data Studio. Follow the steps in the Configure OFS MMG for Data Studio 20.2 section.

- 4 Update the `DATASTUDIO_URL` parameter in the `nextgenemf_config` table of the Configuration Schema to `http(s)://<host>:7008/mmg`, where `<host>` is the remote server's hostname.
- 5 Restart the OFSAA and Data Studio for OFS MMG services. See the [Starting and Stopping of Data Studio for OFS MMG](#) section.

Starting and Stopping of Data Studio for OFS MMG

This section provides information to start and stop Data Studio or OFS MMG:

- 1 Navigate to the `FIC_HOME/utility/mmgstudio/datastudio_distribution/datastudio/bin` directory and execute the `./datastudio-starter` command.

Configurations for Process Modeling Framework

See the [OFS Analytical Applications Infrastructure Administration Guide](#) for information on configuration for Process Modeling Framework.

R Interpreter Installation for Studio

Prerequisite

R and Rserve need to be installed. `JAVA_HOME` must be defined pointing to the installed location of java.

R Installation

R installed should be of version `> 1.5.0`. We can obtain install related information from <https://cran.r-project.org/>.

Key Generation and Import

Use R directory to create configuration information that can be changed by the you and corresponding changes need to be reflective in starter scripts.

Inside the R directory, configure the `Rserve.conf` file to enable the attributes of connecting to R server. Also, the keys used are configured in `R/creds` directory which is also configurable by user whose reference is made in `Rserve.conf` file. Store a `Rserve.pwd` file that contains rserver user and password (Default Value, for example: "oml password") inside the `R/creds` directory.

The R directory consists the necessary config file that needs to be configured in `.profile` with with `$R_INSTALLED_HOME` which will be used for reference in startup scripts.

Execute the following commands to generate the key and certificate inside the creds folder:

- `openssl genrsa -out server.key 2048`
- `openssl req -new -key server.key -out server.csr # password <<enter a password`
- `openssl x509 -req -days 365 -in server.csr -signkey server.key -out server.crt`

The `Rserve.conf` file is configured in R folder with following params:

`auth required`

`plaintext <enable/disabled>`

```

pwdfile <Rserve.pwd file>
remote enable
switch.qap.tls enable
tls.port <Rserve port : default 6311>
qap disable
interactive no
rsa.key <key file>
tls.key <key file>
tls.cert <certificate file>

```

Example:

```

auth required
plaintext enable
pwdfile /R/creds/Rserve.pwd
remote enable
switch.qap.tls enable
tls.port 6311
qap disable
interactive no
rsa.key /R/creds/server.key
tls.key /R/creds/server.key
tls.cert /R/creds/server.crt

```

The server.key and server.crt point to the files those are generated in the previous step.

Once the keys are generated, import them in java

Prompt password : Change it is the default password which can be configured and if so need to reflected while importing.

- `$JAVA_HOME/bin/keytool -import -alias rserveConfig -file /R/creds/server.crt -keystore $JAVA_HOME/jre/lib/security/cacerts -storepass <<changeit>> -noprompt`
- `keytool -v -list -keystore $JAVA_HOME/jre/lib/security/cacerts`

Interpreter Configuration

The files of r interpreter need to be placed in the datastudio installed directory with /bin and /lib structure where /lib contains all the jars and /bin contains the startup r script (start-r-interpreter.sh).

Also, the plainr.conf file inside the interpreter conf folder where it is configured with reserve user (default : oml)and password (default : passsword) and the port the remote server start which is 29914 by default.

Configuring Web Server

This section covers the following topics:

- [Configuring Web Server](#)
- [Configuring Web Application Servers](#)
- [Additional Configurations for Web 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](#)
- ⌘ [Configuring WebSphere Application Server to Use a Load Balancer or Proxy Server](#)
- ⌘ [Deleting WebSphere Profiles](#)
- ⌘ [Configuring WebSphere HTTPS](#)
- ⌘ [Configuring WebSphere Memory Settings](#)

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

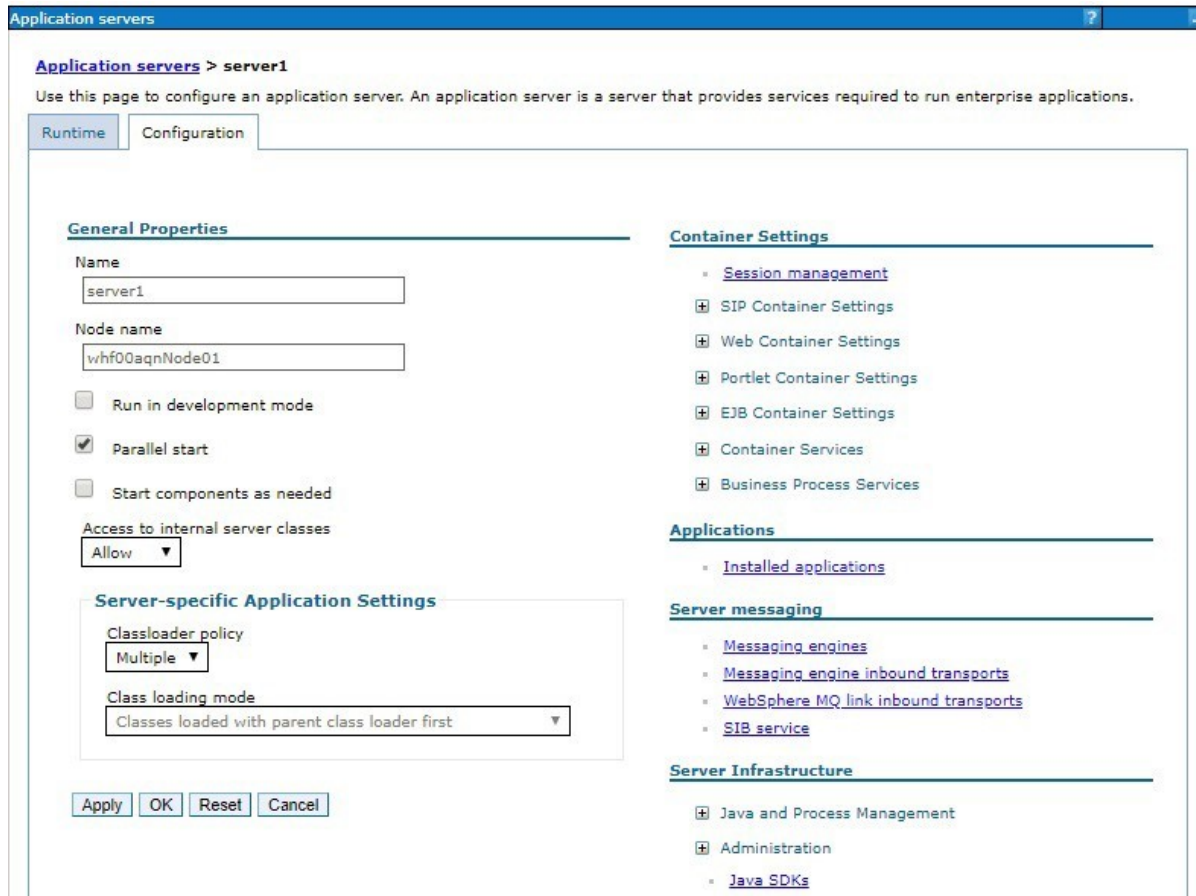
By default, WebSphere Application Server V8.5.5.X uses the Java 6.0 SDK. You must upgrade to Java 7.X SDK or JAVA 8.X SDK.

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:

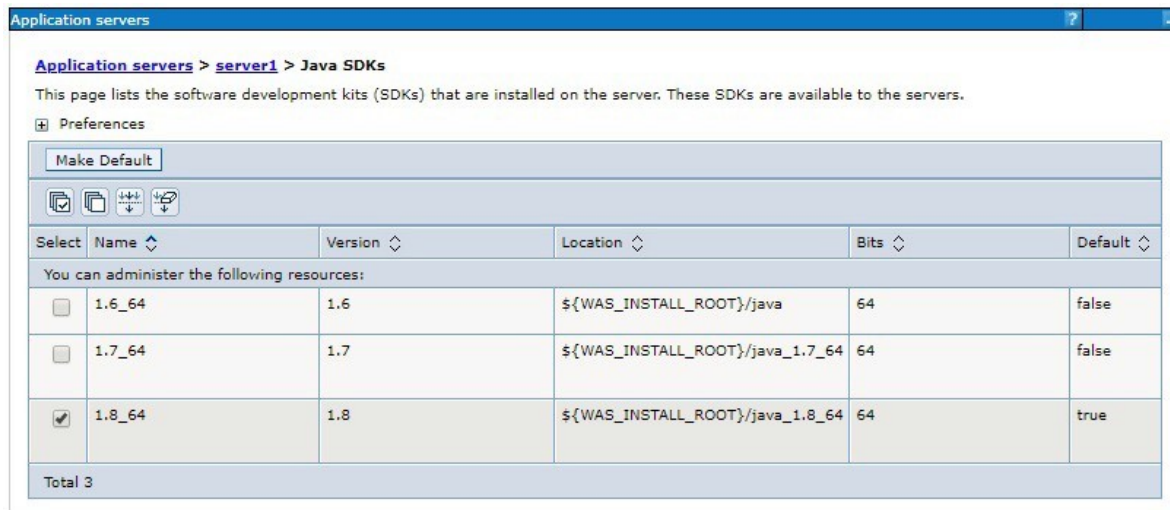
- 1 Enter the WebSphere URL in the format `http://HOST_NAME:PORT_NUMBER/ibm/console` (use `https` if SSL is enabled.). For example, `http://192.168.1.0:9000/ibm/console`.
- 2 Login with your administrator user ID and password.
- 3 From the LHS menu, click **Servers** to expand and view the menu.
- 4 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 B-1 Application Server - Java SDKs



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

Figure B-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:

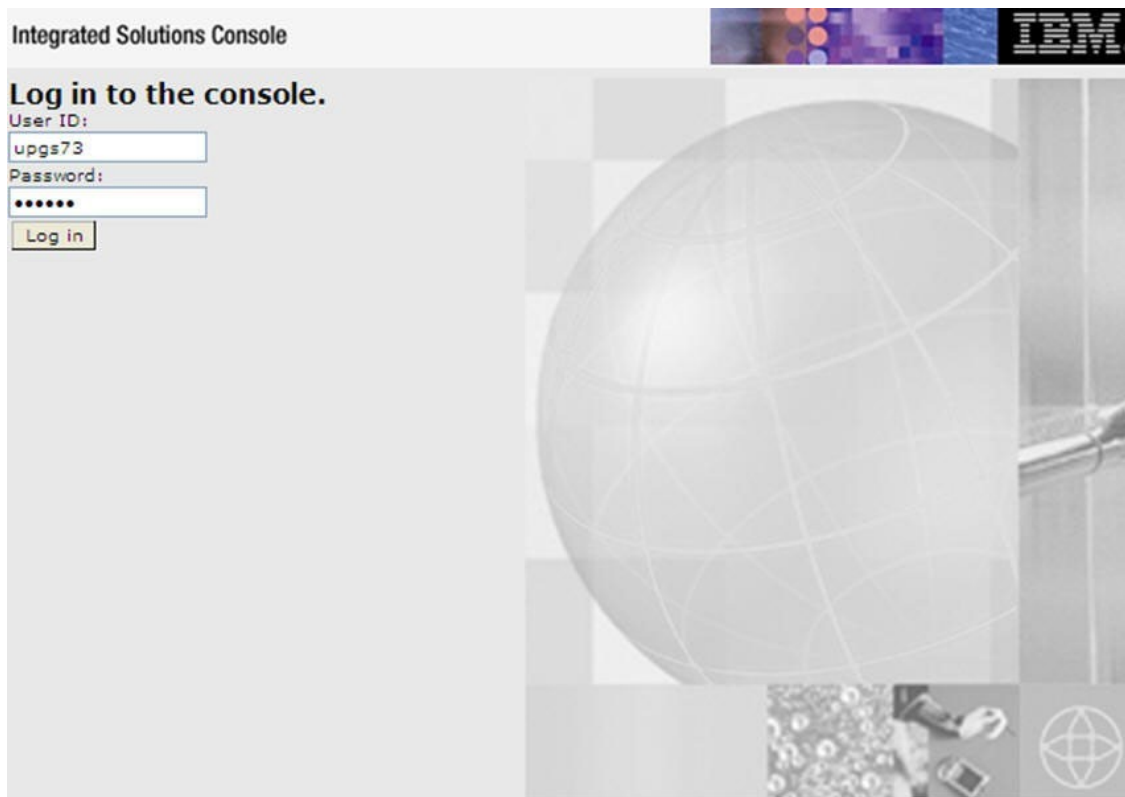
`http://<ipaddress>:<Administrative Console Port>/ibm/console`

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.

Integrated Solutions Console Login

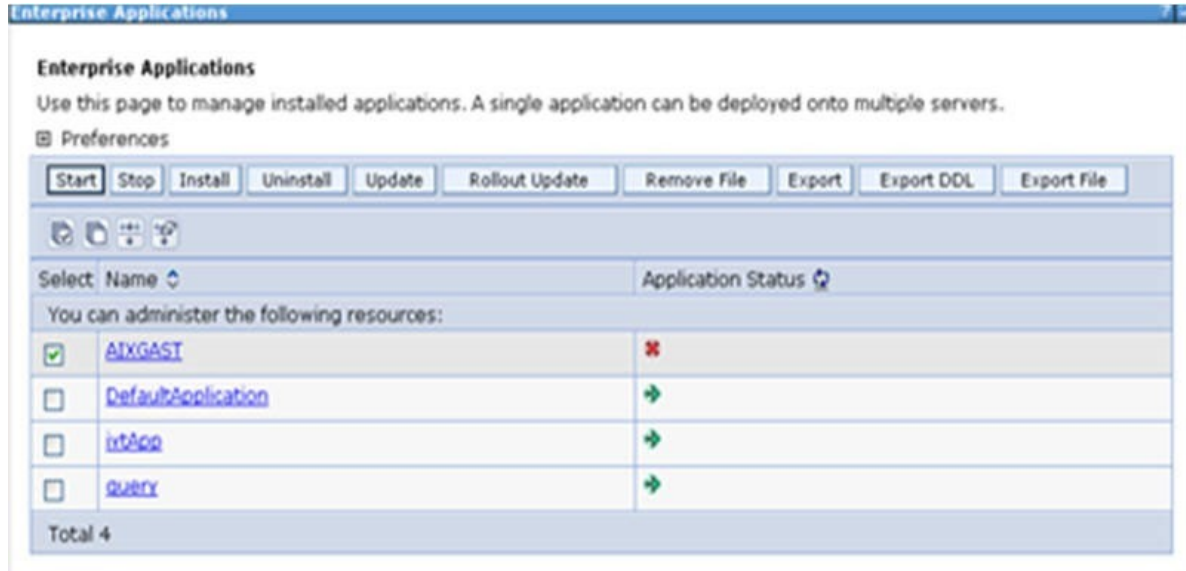


2. Log on with the **User ID** provided with the admin rights.

- From the LHS menu, expand the **Applications > Application Type > WebSphere Enterprise Applications**.

The *Enterprise Applications* window is displayed.

Enterprise Applications



This Enterprise Applications window helps you to:

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

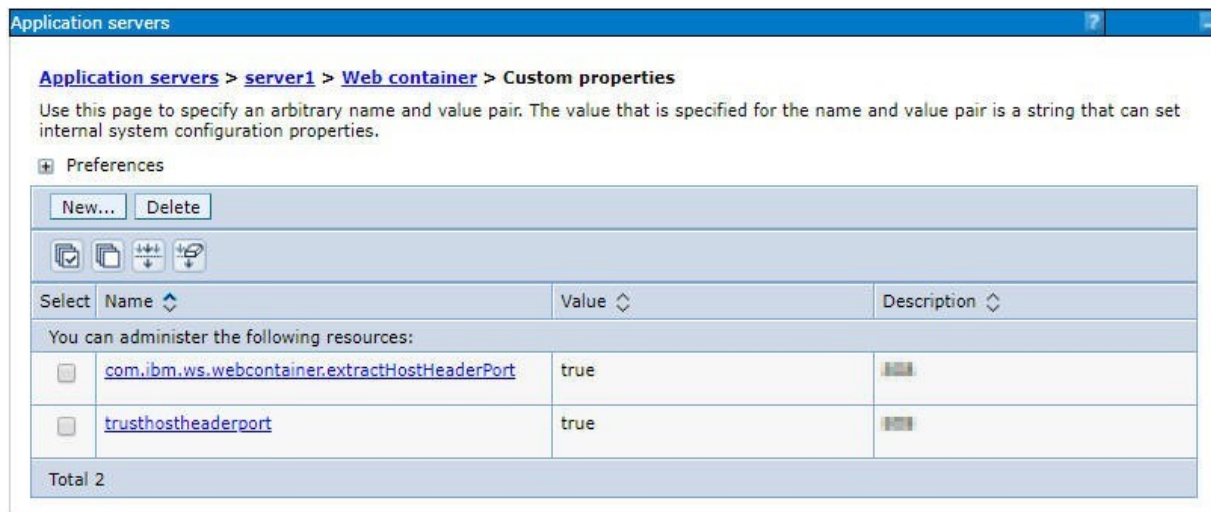
Configuring WebSphere Application Server to Use a Load Balancer or Proxy Server

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

The following steps describe the configuration:

- 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`.
- Login with your administrator user ID and password.
- From the LHS menu, click **Servers** to expand and view the menu.
- Click **Server Types** to expand the menu further and then click **WebSphere Enterprise Application Servers** to view the *Application servers* window.
- On *Application servers* window, click the required Application Server link. For example, server1 in the following illustration:

Figure B-3 Application Servers - Load Balancer Proxy Server



- 6 Click **Web Container Settings > Custom Properties**.
- 7 Add the following properties:
 - ⌵ Name: trusthostheaderport
Value: true
 - ⌵ Name: com.ibm.ws.webcontainer.extractHostHeaderPort
Value: true
- 8 Restart the WebSphere Application Server to apply the changes.

Deleting WebSphere Profiles

To delete a WebSphere profile, follow these steps:

1. Select the checkbox adjacent to the required application and click **Stop**.
2. **Stop** the WebSphere profile to be deleted.
3. Navigate to WebSphere directory:
`<WebSphere_Installation_Directory>/AppServer/bin/`
4. Execute the command:
`manageprofiles.sh -delete -profileName <profile_name>`
5. Delete the profile folder.
 Example: `<WebSphere_Installation_Directory>/AppServer/profiles/<profile_name>`
6. Execute the command:
`manageprofiles.sh -validateAndUpdateRegistry`

Configuring WebSphere 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 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 12.2.x+ (64 bit) with Java 8, download and install patch 18729264.

This section covers the following topics:

- [Creating Domain in WebLogic Server](#)
- [Deleting Domain in WebLogic](#)
- [Configuring WebLogic Memory Settings](#)

Creating Domain in WebLogic Server

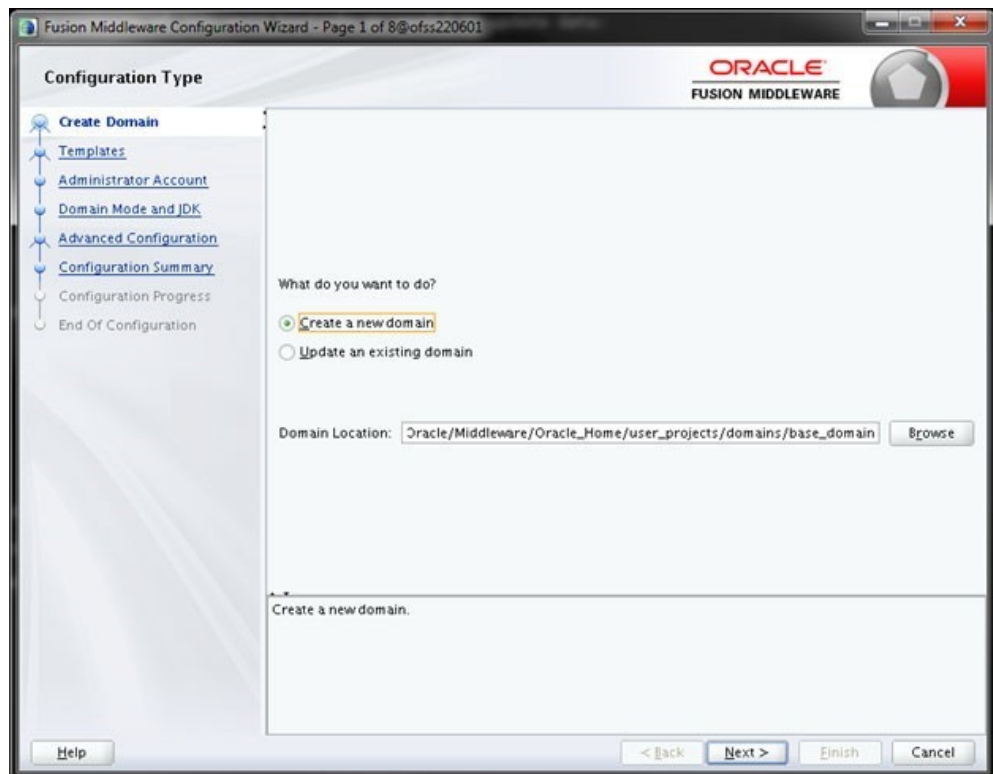
To create a new domain using Configuration Wizard in WebLogic, follow these steps:

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

```
./config.sh
```

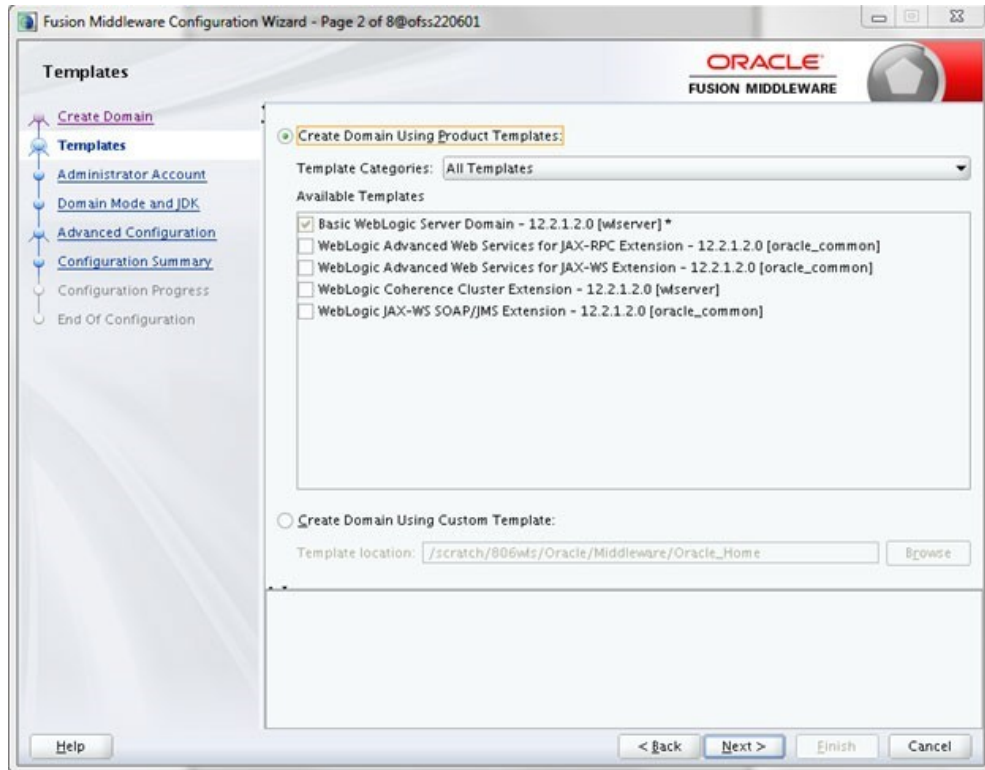
The *Welcome* window of the Configuration Wizard is displayed.

Figure B-4 Configuration Type



2. Select **Create a new domain** option and click **Next**.
The *Templates* window is displayed.

Figure B–5 Templates



3. Select the **Create Domain Using Product Templates** option and click **Next**. The *Administrator Account* window is displayed.

Figure B–6 Administrator Account

Fusion Middleware Configuration Wizard - Page 3 of 8@ofss220601

ORACLE
FUSION MIDDLEWARE

Administrator Account

- Create Domain
- Templates
- Administrator Account
- Domain Mode and JDK
- Advanced Configuration
- Configuration Summary
- Configuration Progress
- End Of Configuration

Name

Password

Confirm Password

User name may not contain commas, tabs, or any of the following characters: <>#|&?()

Help < Back Next > Finish Cancel

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

The *Domain Mode and JDK* window is displayed.

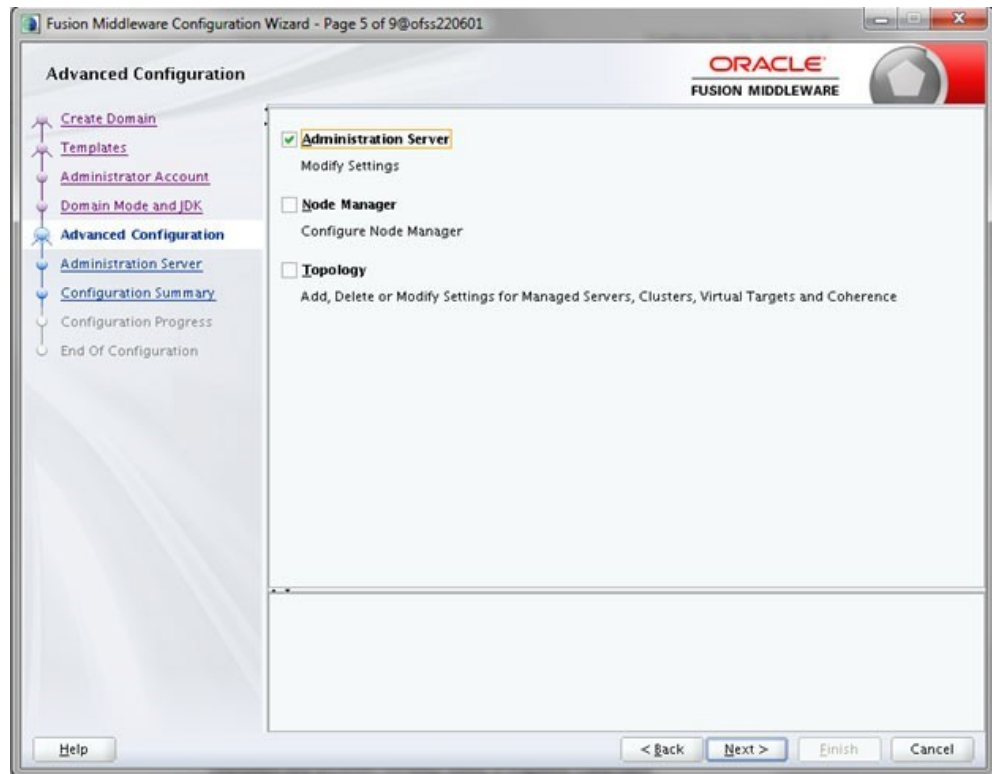
Figure B-7 Domain Mode and JDK



5. Select from the following options:
 1. In the *Domain Mode* section, select the required mode (Development or Production).
 2. In the *JDK* section, select the required option. If you select **Other JDK Location**, click **Browse**, navigate to the JDK location, and select. Click **Next**.

The *Advanced Configuration* window is displayed.

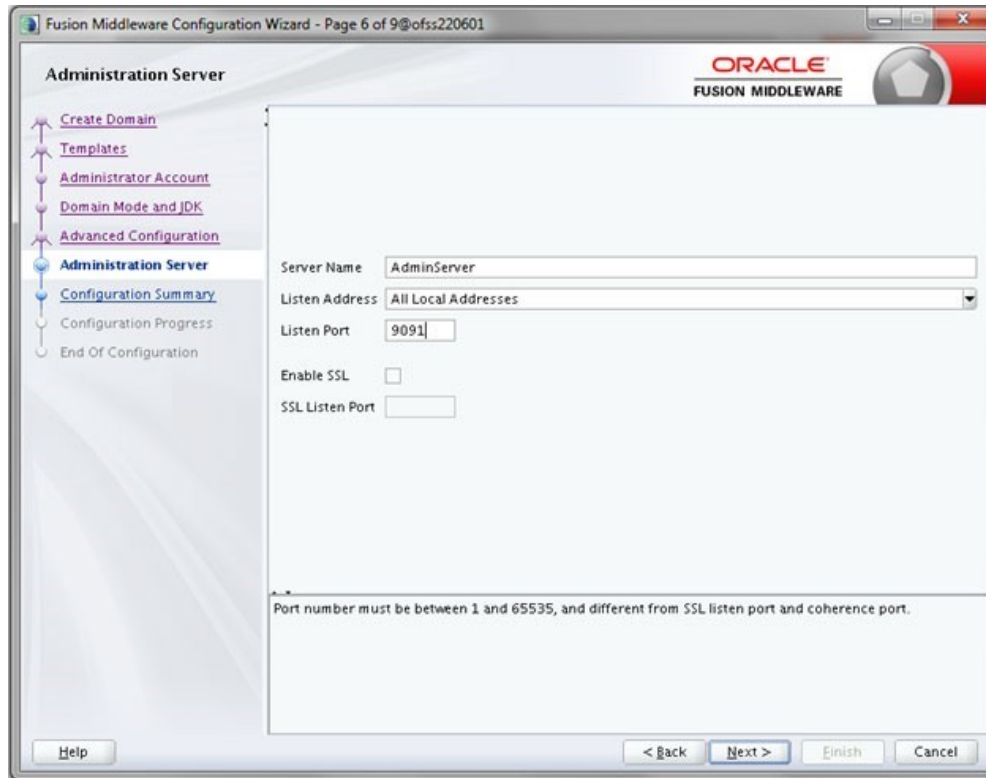
Figure B–8 Advanced Configuration



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 B–9 Administration Server

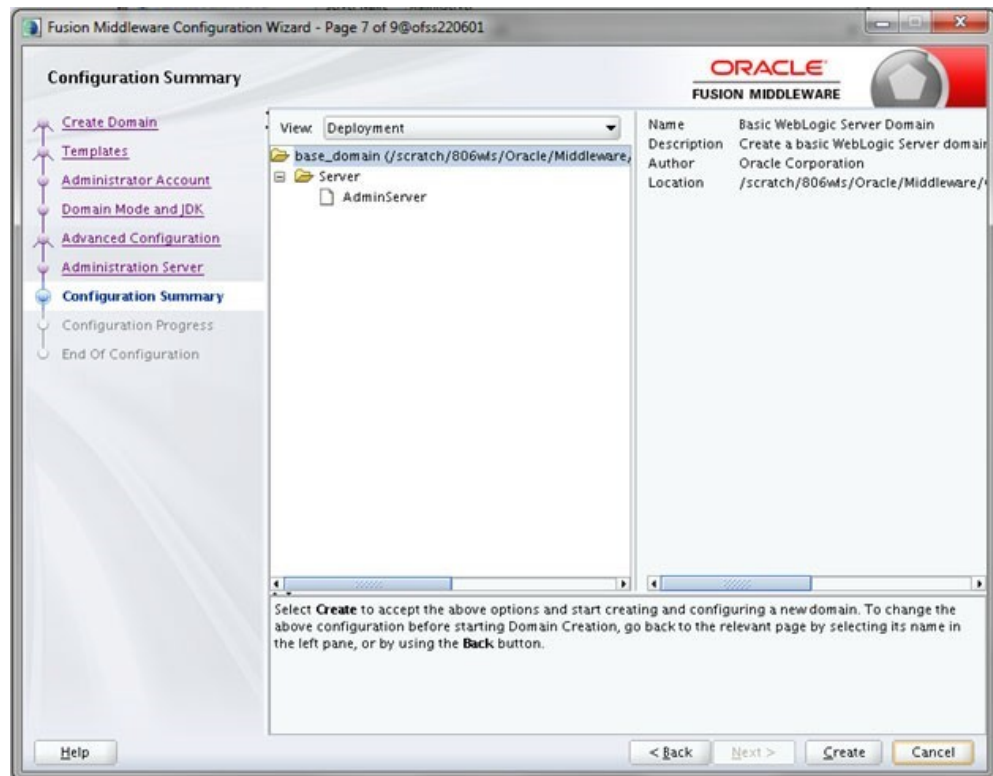


7. Enter Administration Server details such as the **Server Name**, **Listen address**, **Listen Port**, **Enable SSL** (for secure login using https, select this check box), and **SSL Listen Port**. Click **Next**.

The *Configuration Summary* window is displayed.

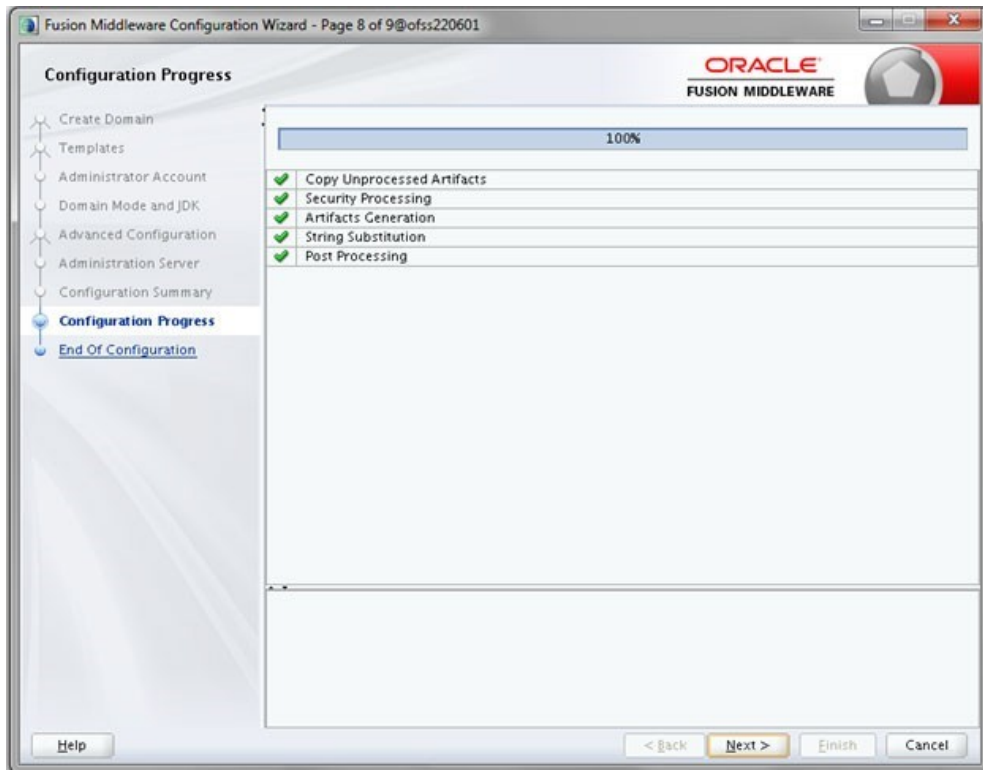
Note: Make a note of the Listen Port or SSL Listen Port value (for example: 7007), since the same has to be re-entered in the Servlet port field during Infrastructure installation.

Figure B–10 Configuration Summary



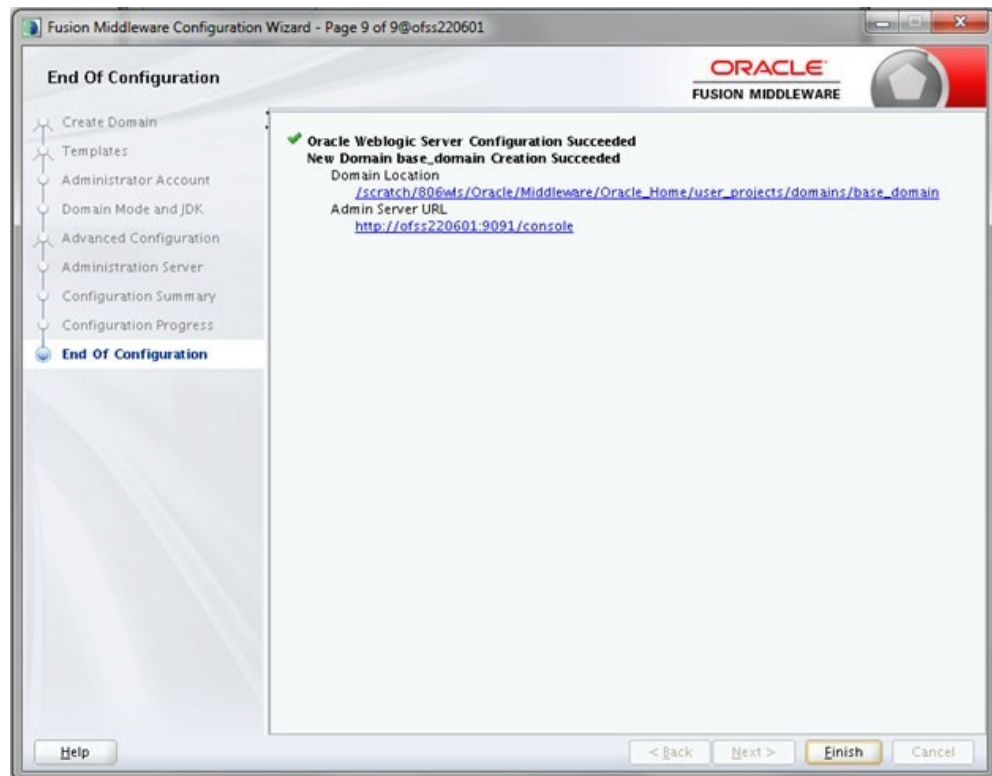
8. Verify the configuration details of the WebLogic domain and click **Create**.
The *Configuration Progress* window is displayed with the status indication of the domain creation process.

Figure B–11 Creating Domain



9. Click **Next** when 100% of the activity is complete.
The *End of Configuration* window is displayed

Figure B–12 End of Configuration



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 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](#)
- ? [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
```

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, Data Mapping, and Disabling WADL for the Web Service

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 `$FIC_WEB_HOME/webroot/WEB-INF/` 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 To disable the WADL for the Web Service, navigate to the following snippet in the `web.xml` file

```
<servlet>
<servlet-name>CommonRETServlet</servlet-name>
<servlet-class>org.glassfish.jersey.servlet.ServletContainer</servlet-
class>
<init-param>
<param-name>javax.ws.rs.Application</param-name>
<param-
value>com.ofs.fsapps.commonapps.util.ApplicationResourceConfig</param-
value>
</init-param>
<load-on-startup>1</load-on-startup>
</servlet>
```

- 4 Add the following snippet before the `<load-on-startup>1</load-on-startup>` attribute

```
<init-param>
<param-name>jersey.config.server.wadl.disableWadl</param-name>
<param-value>>true</param-value>
</init-param>
```

- 5 Save and close the file.

Uninstalling WAR Files in Tomcat

To uninstall WAR files in Tomcat, refer [Uninstalling WAR Files in Tomcat](#).

Additional Configurations for Web Servers

This section provides information for additional configuration required for the web servers on OFS MMG.

Note: The instructions in this section are applicable if you are upgrading from an earlier version of OFS AAI to 8.0.8.0.0.

Configuration for Tomcat

For successful execution of Data Mapping in Tomcat, perform the configurations

mentioned in *Configuration for Tomcat* section in [OFS Analytical Applications Infrastructure Administration Guide](#).

For additional configurations, see [Section , "Configuring Apache Tomcat Server for Application Deployment"](#).

Configuration for WebLogic

To configure WebLogic, see [Section , "Configuring WebLogic for Application Deployment"](#). Additionally, configure for REST services. For details, see *Configuring WebLogic for REST Services Authorization* section in [OFS Analytical Applications Infrastructure Administration Guide](#).

Additionally, you need to configure Work Manager in WebLogic. For details, see *Work Manager Configurations* section in [OFS Analytical Applications Infrastructure Administration Guide](#).

Configuration for WebSphere

To configure WebSphere, see [Section , "Configuring WebSphere Application Server for Application Deployment"](#). Additionally, configure for REST services. For details, see *Configuring WebSphere for REST Services Authorization* section in [OFS Analytical Applications Infrastructure Administration Guide](#).

Additionally, you need to configure Work Manager in WebSphere and map it to OFSAA instance. For details, see *Work Manager Configurations* section in [OFS Analytical Applications Infrastructure Administration Guide](#).

Configuring Application Security in WebSphere

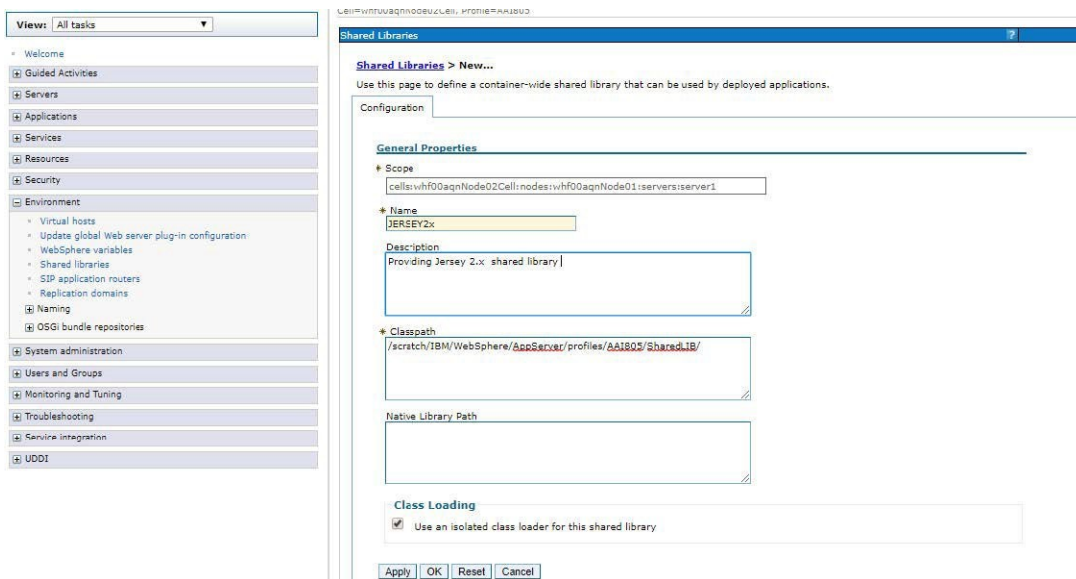
This is a mandatory security procedure for WebSphere to restrict the unauthorized access of configuration files in directories. For detailed information, see the [Oracle Financial Services Analytical Applications Infrastructure Security Guide](#).

Configuring 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.

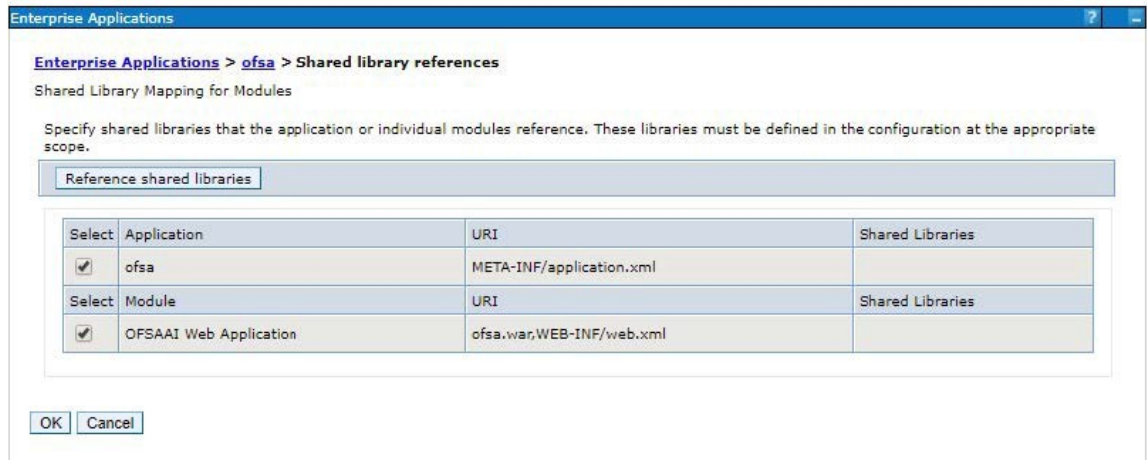
1. Click **Environment** from the menu on the left to expand and view the list. Click **Shared Libraries** to open the *Shared Libraries* window.

Figure B–13 WebSphere - Shared Libraries



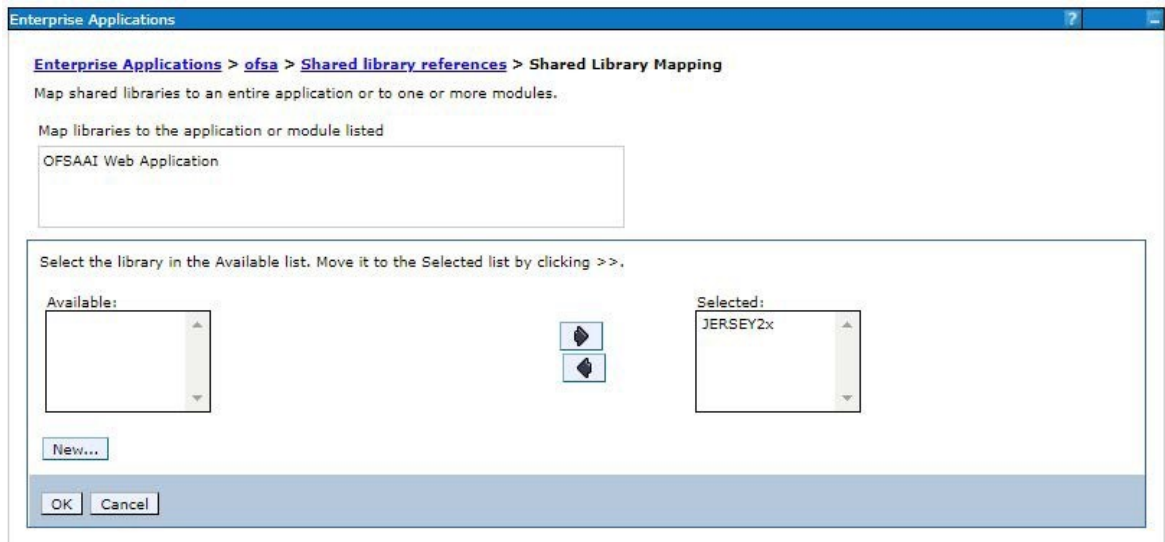
2. Enter details as shown in the following:
 - ⌘ **Name:** Enter a unique identifiable name.
 - ⌘ **Description:** Enter a valid description.
 - ⌘ **Classpath:** Enter the absolute path where the JARs related to Jersey 2.x and Jackson 2.9x are copied. These jars are available in the `<OFSAA_HOME>/utility/externallib/WEB-INF/lib` 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.



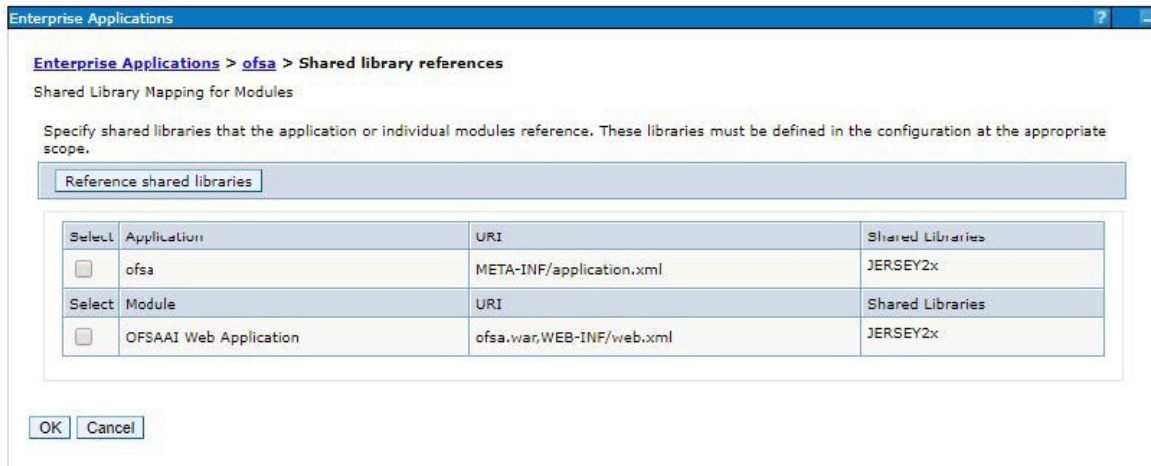
6. From the *Shared Library Mapping* window, move the required shared libraries from **Available** to **Selected**. In the following illustration, **JERSEY2x** is selected.

Figure B-14 WebSphere - Shared Libraries Mapping Selection



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

Figure B–15 WebSphere - Shared Libraries Select Next Application



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


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

Configuring 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.

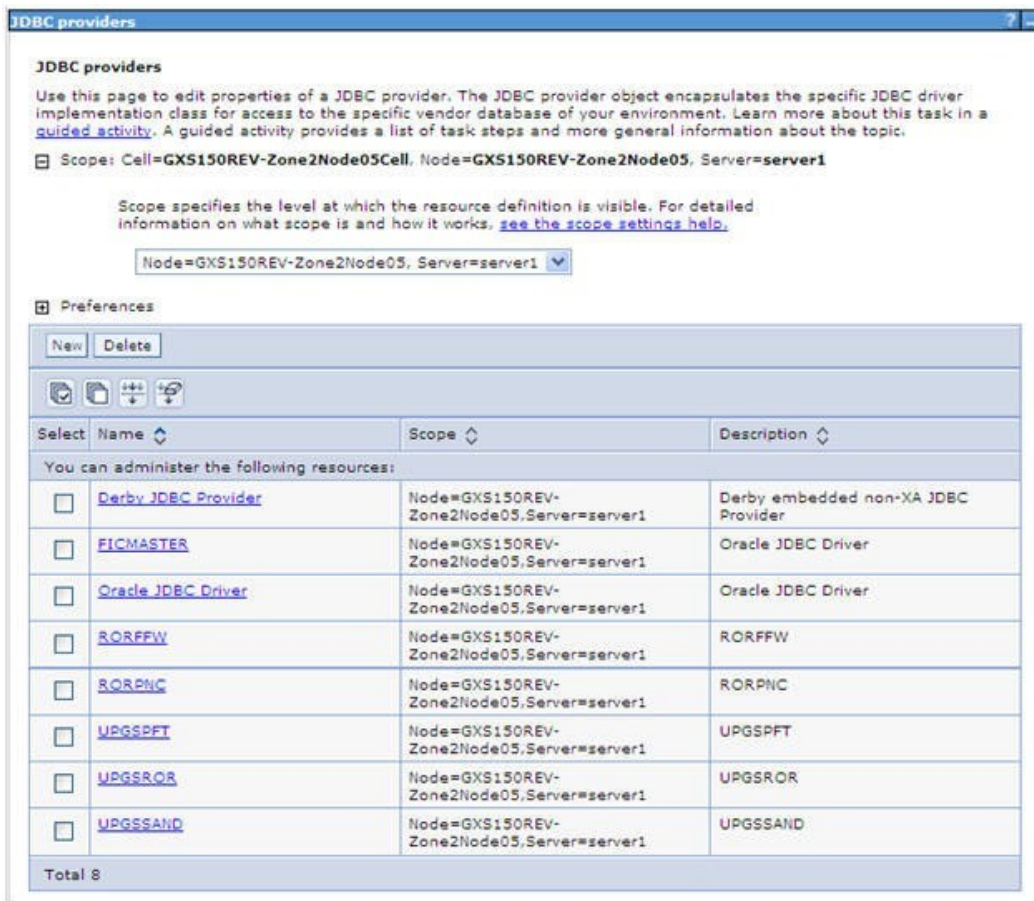
This section covers the following topics:

- [Creating JDBC Provider](#)
- [Creating a Data Source](#)
- [Creating J2C Authentication Details](#)
- [Defining JDBC Connection Pooling](#)

Creating JDBC Provider

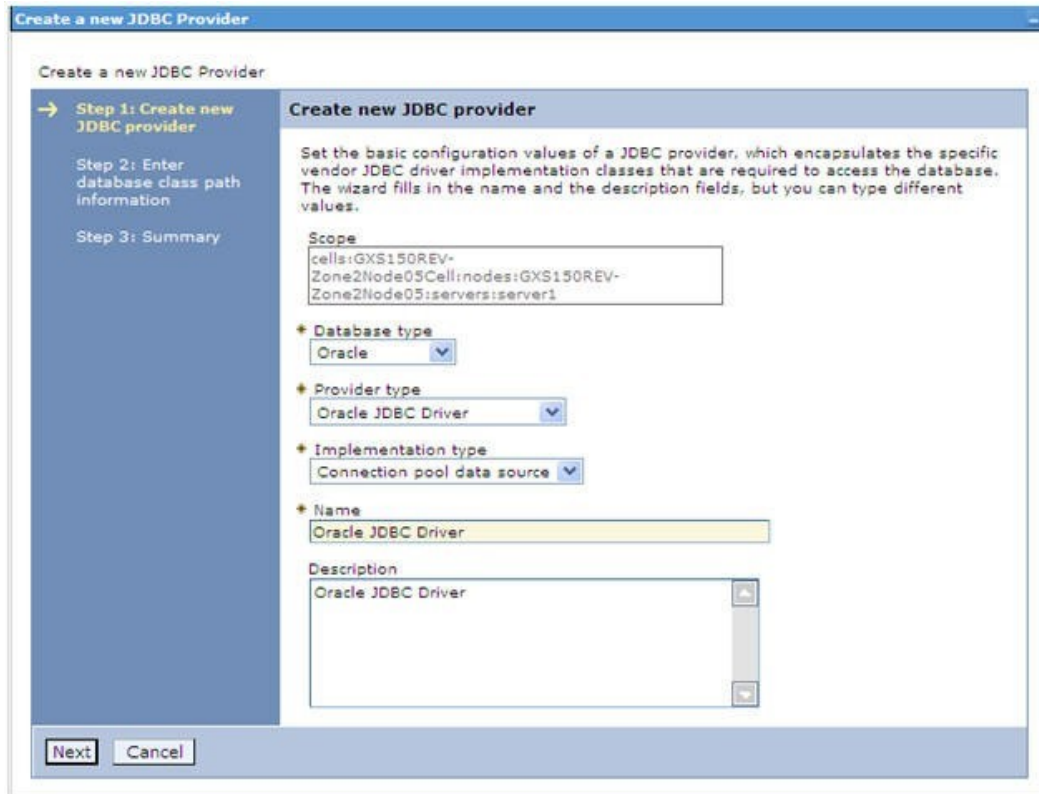
1. Open the WebSphere admin console in the browser window:
`http://<ipaddress>:<administrative console port>/ibm/console`. (https if SSL is enabled). The *Login* window is displayed.
2. Login with the user id that has admin rights.
3. Expand the **Resources** option in the LHS menu and click **JDBC >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

Figure 5–1 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



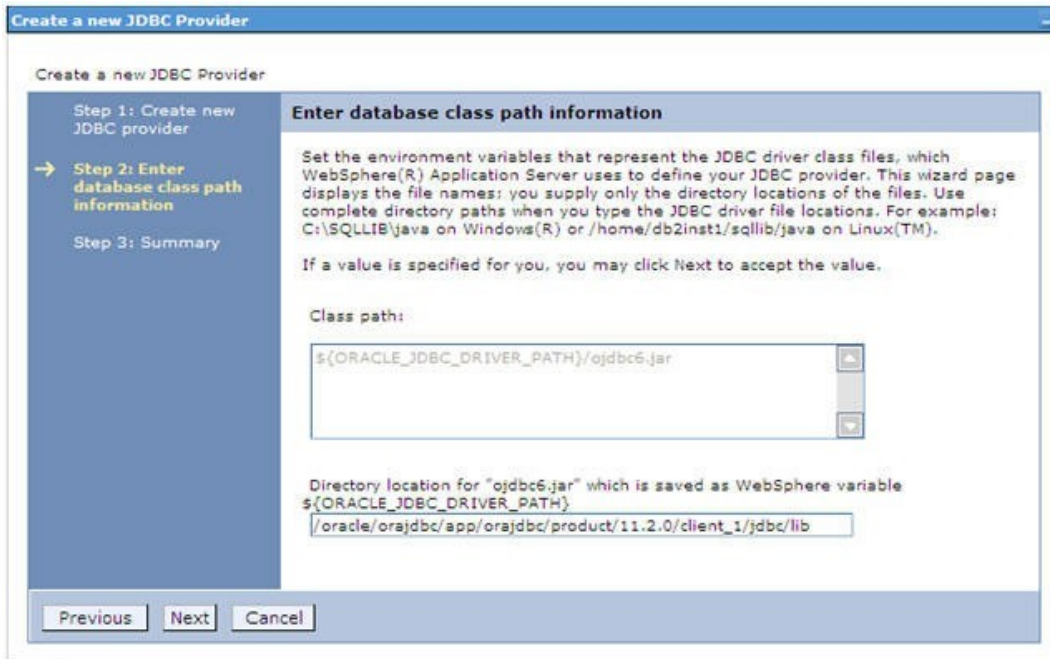
6. Enter the following details:

Table C-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:

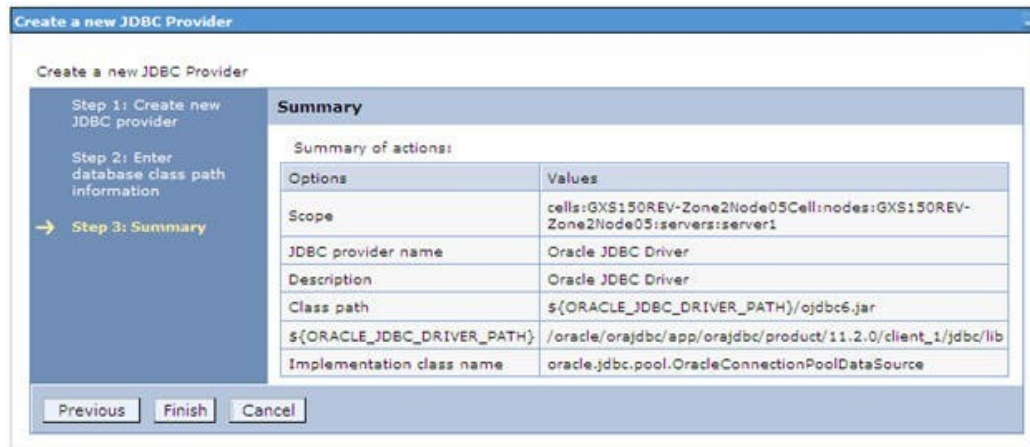
- [Oracle Database 11g Release 2 \(11.2.0.4\) JDBC Drivers](#)
- [Oracle Database 12c Release 1 \(12.1.0.1\) JDBC Drivers](#)

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

Note: Refer [Appendix O](#) for identifying the correct ojdbc<version>.jar version to be copied.

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

Figure 5–2 Summary



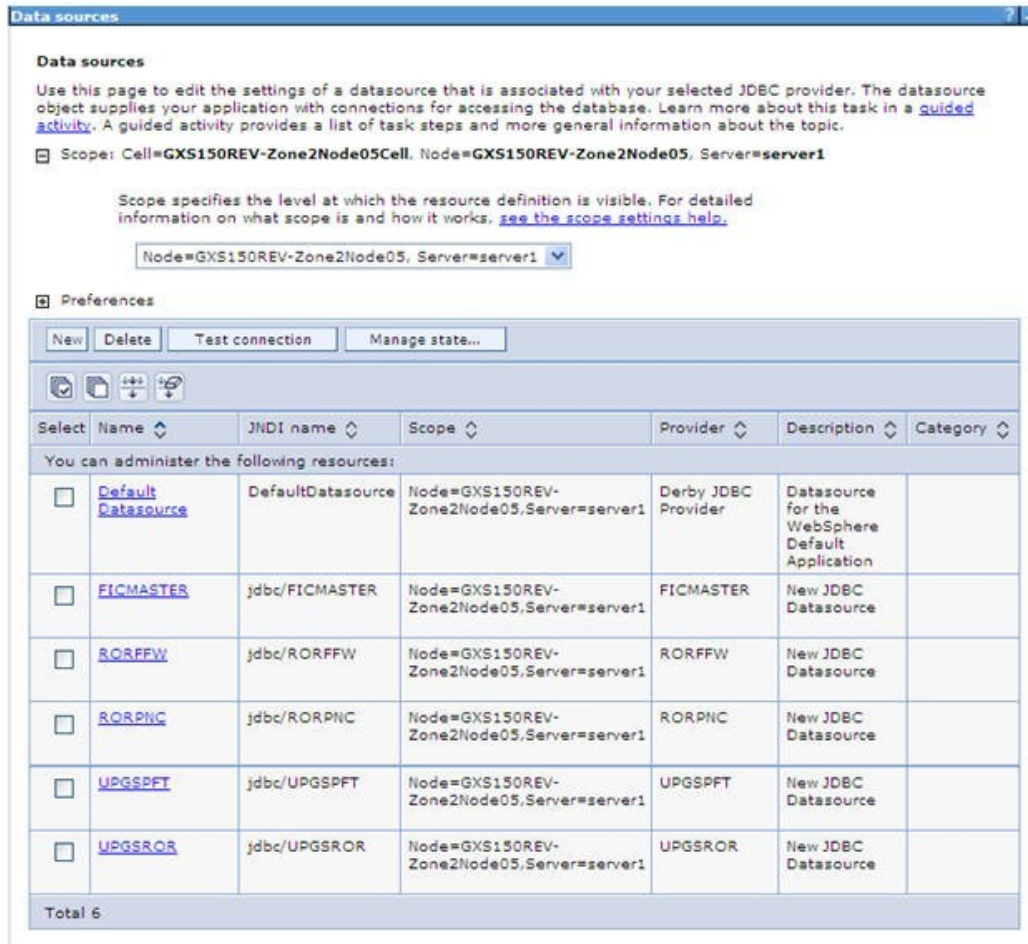
10. Verify the details and click **Finish** to create the JDBC Provider.
11. The options to **Save** and **Review** are displayed. Click **Save**.

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 C-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 C–2 Create Data Source

The screenshot shows the 'Create a data source' dialog box. On the left, a vertical pane lists five steps: Step 1: Enter basic data source information (highlighted with a right-pointing arrow), Step 2: Select JDBC provider, Step 3: Enter database specific properties for the data source, Step 4: Setup security aliases, and Step 5: Summary. The main area is titled 'Enter basic data source information' and contains the following text: 'Set the basic configuration values of a datasource for association with your JDBC provider. A datasource supplies the physical connections between the application server and the database. Requirement: Use the Datasources (WebSphere(R) Application Server V4) console pages if your applications are based on the Enterprise JavaBeans(TM) (EJB) 1.0 specification or the Java(TM) Servlet 2.2 specification.' Below this text, there are three input fields: 'Scope' with the value 'cells:GXS150REV- Zone2Node05Cell:nodes:GXS150REV- Zone2Node05:servers:server1', 'Data source name' with the value 'AtomT', and 'JNDI name' with the value 'jdbc/DRYMOCK'. At the bottom left, there are 'Next' and 'Cancel' buttons.

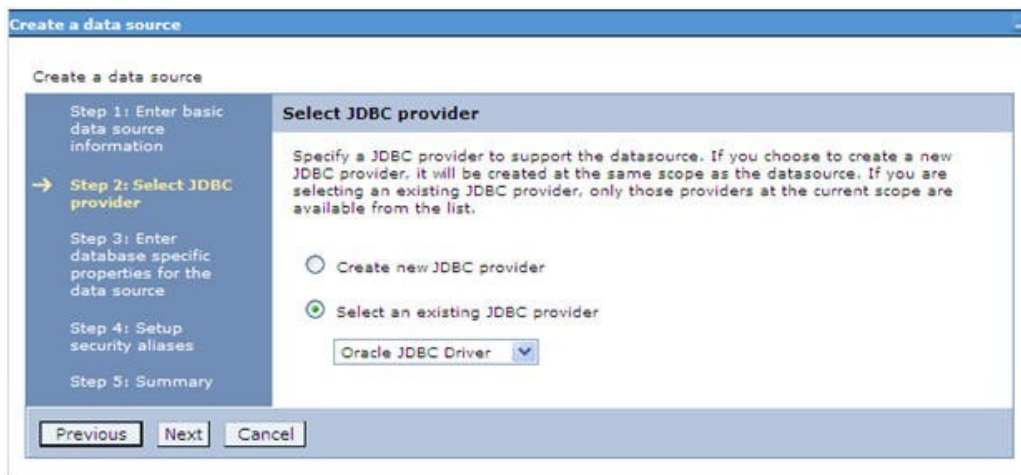
6. Specify the **Data Source name** and **JNDI name** for the new "Data Source".
The **JNDI** and **Data Source** name are case sensitive and ensure that JNDI name is same as the "Information Domain" name.
7. Click **Next**. The Select JDBC provider window is displayed.

Figure C–3 Select JDBC provider

The screenshot shows the 'Create a data source' dialog box at Step 2: Select JDBC provider. The left pane now highlights Step 2 with a right-pointing arrow. The main area is titled 'Select JDBC provider' and contains the text: 'Specify a JDBC provider to support the datasource. If you choose to create a new JDBC provider, it will be created at the same scope as the datasource. If you are selecting an existing JDBC provider, only those providers at the current scope are available from the list.' Below this text are two radio button options: 'Create new JDBC provider' (unselected) and 'Select an existing JDBC provider' (selected). Below the radio buttons is a drop-down menu showing 'Oracle JDBC Driver'. At the bottom left, there are 'Previous', 'Next', and 'Cancel' buttons.

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

Figure C-4 Enter database specific properties



9. Specify the database connection URL.

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

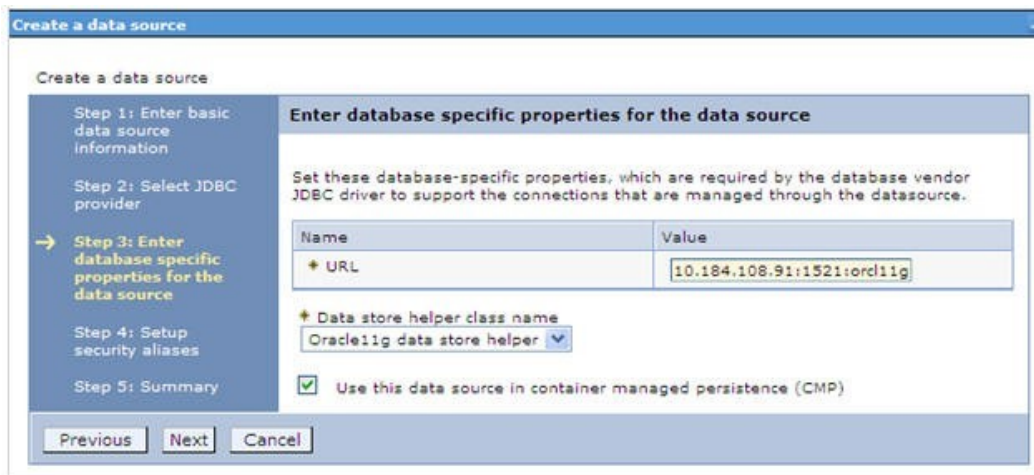
10. Select **Data Store Helper Class Name** from the drop-down list and ensure that the checkbox **Use this data source in container managed persistence (CMP)** is selected.

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

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

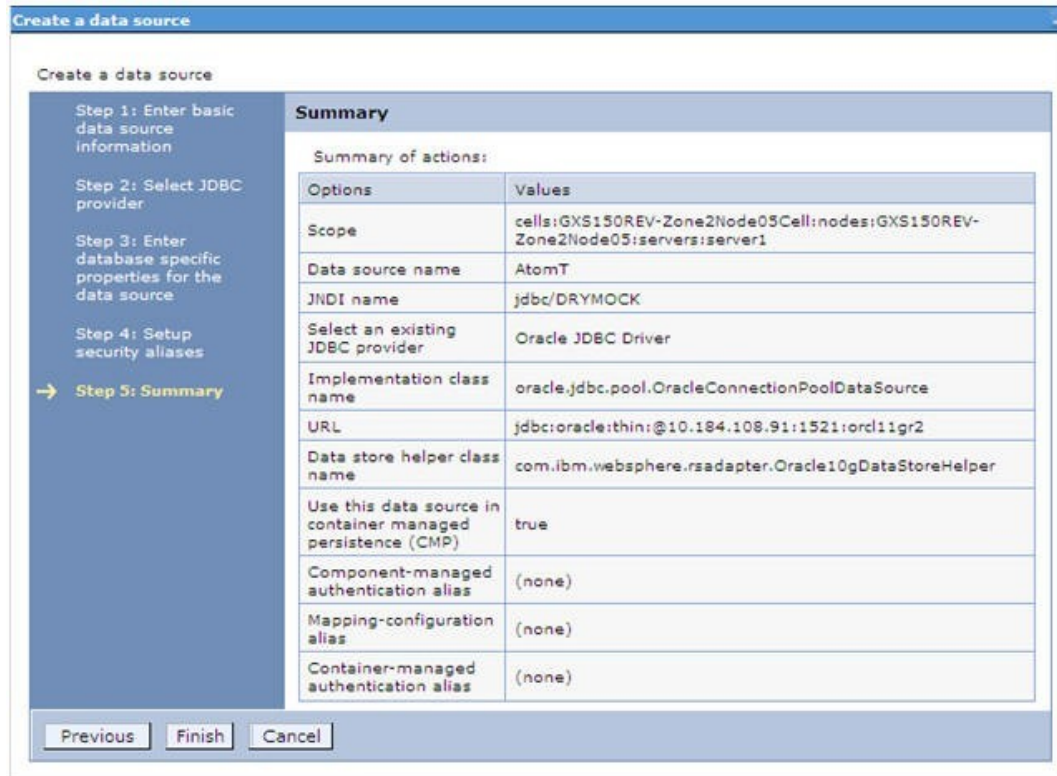
11. Click Next.

Figure C-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 C–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.

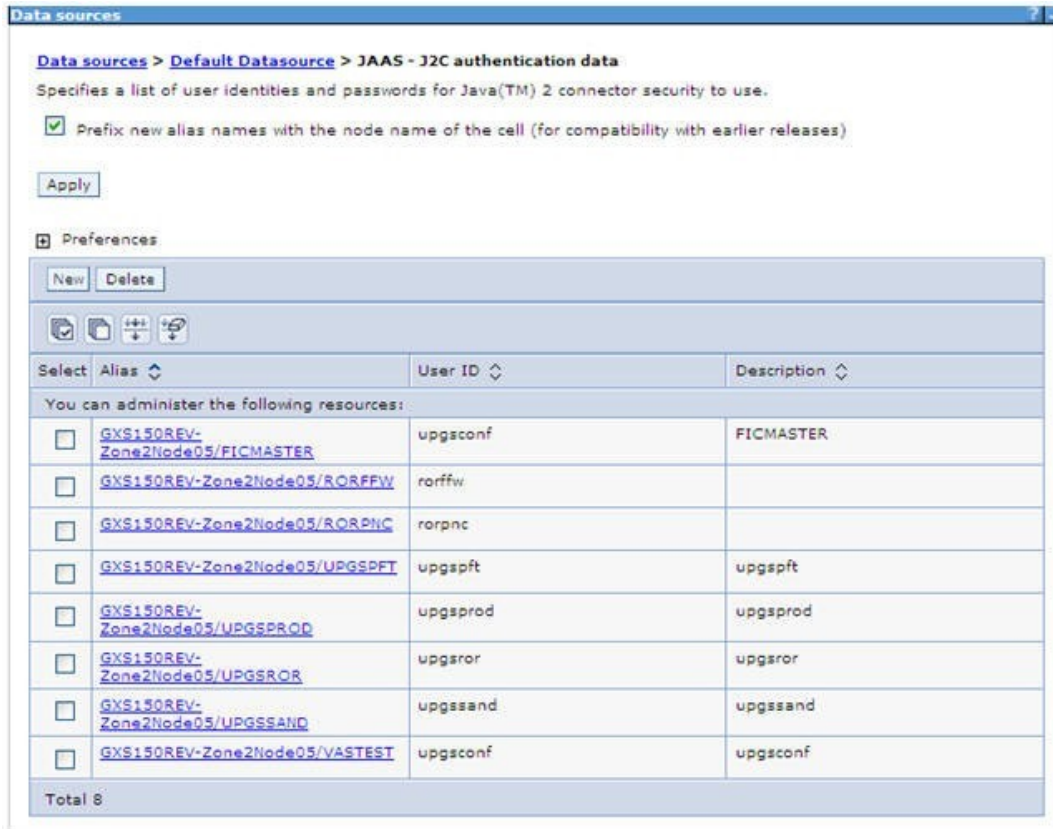
Creating J2C Authentication Details

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

To create J2C Authentication details, follow these steps:

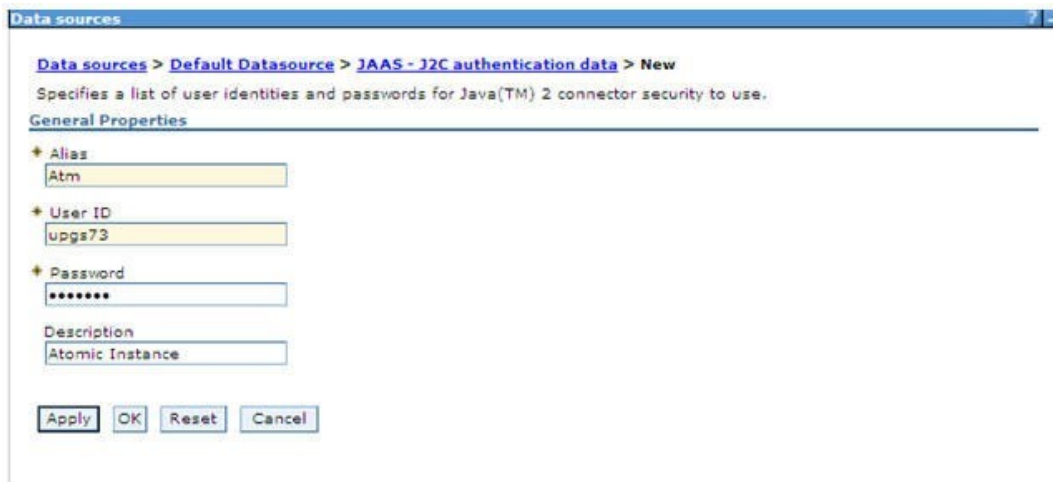
1. Select the newly created Data Source and click **JAAS - J2C authentication data** link under **Related Items**.

Figure C-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".

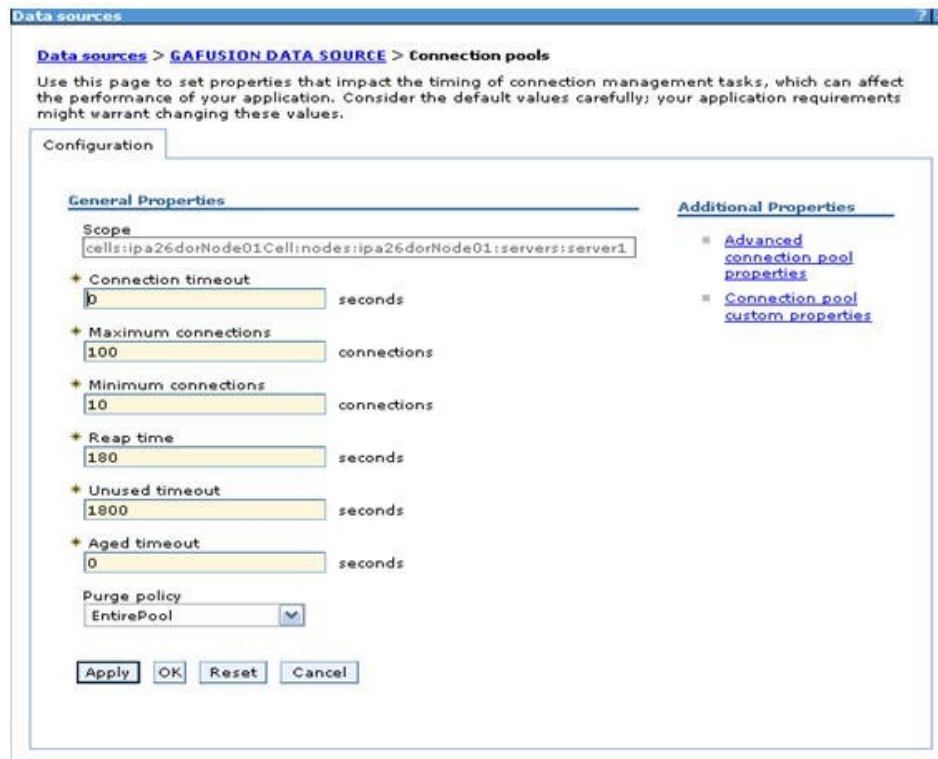
- Specify the Config database user ID and password information for the jdbc/FICMASTER data source, and specify the Atomic database user ID and password information for the Atomic schema data source that you created earlier.
4. Click **Apply** and save the details.

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 C–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.

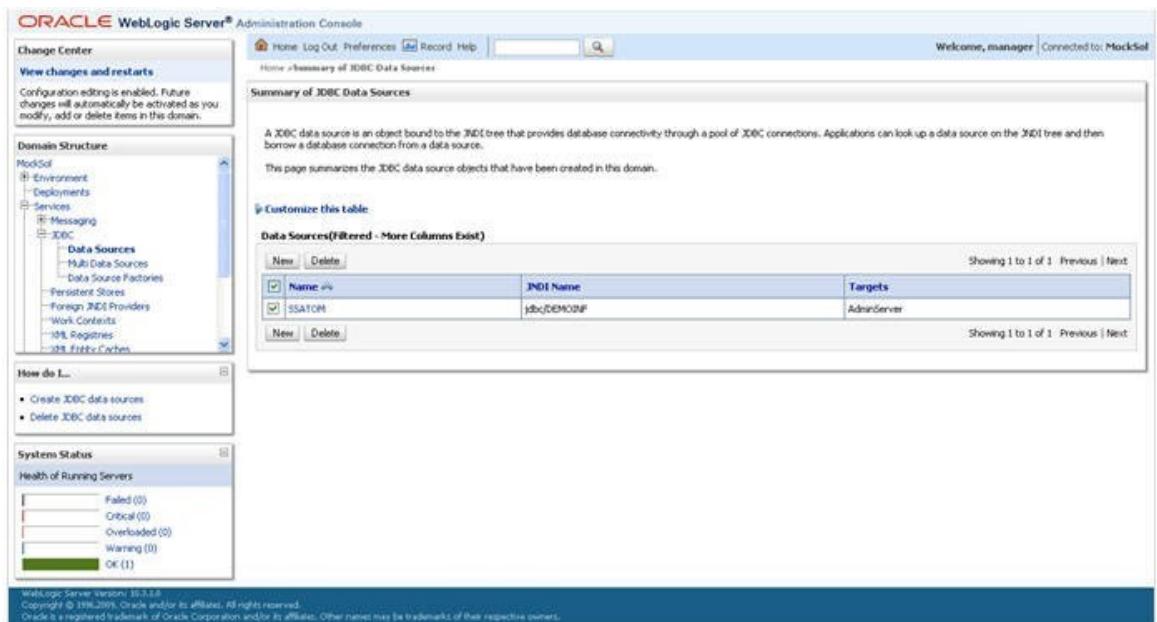
- 1 Open the following URL in the browser window:
`http://<ipaddress>:<administrative console port>/console`. (https if SSL is enabled). The *Welcome* window is displayed.
- 2 Login with the Administrator **Username** and **Password**.

Figure C–9 Welcome



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

Figure C–10 Summary of JDBC Data Sources



- 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 5–3 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**.

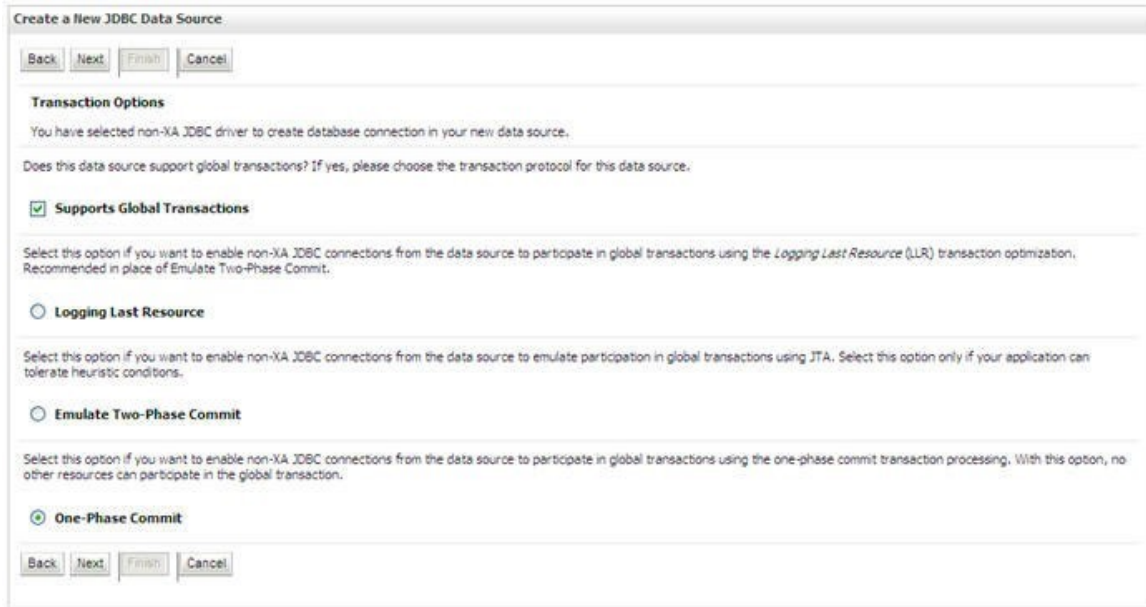
Ensure the following:

- ⌚ 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 C–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 C–12 Transaction Options



Create a New JDBC Data Source

Back Next Finish Cancel

Transaction Options

You have selected non-XA JDBC driver to create database connection in your new data source.

Does this data source support global transactions? If yes, please choose the transaction protocol for this data source.

Supports Global Transactions

Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the *Logging Last Resource (LLR)* transaction optimization. Recommended in place of Emulate Two-Phase Commit.

Logging Last Resource

Select this option if you want to enable non-XA JDBC connections from the data source to emulate participation in global transactions using JTA. Select this option only if your application can tolerate heuristic conditions.

Emulate Two-Phase Commit

Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the one-phase commit transaction processing. With this option, no other resources can participate in the global transaction.

One-Phase Commit

Back Next Finish Cancel

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

Figure C–13 Connection Properties

The screenshot shows a web-based configuration window titled "Create a New JDBC Data Source". At the top, there are four buttons: "Back", "Next", "Finish", and "Cancel". Below this is a section titled "Connection Properties" with the instruction "Define Connection Properties." The form contains several fields with labels and input boxes:

- Question: "What is the name of the database you would like to connect to?"
Label: "Database Name:"
Input: "fsgbu"
- Question: "What is the name or IP address of the database server?"
Label: "Host Name:"
Input: "10.184.74.80"
- Question: "What is the port on the database server used to connect to the database?"
Label: "Port:"
Input: "1521"
- Question: "What database account user name do you want to use to create database connections?"
Label: "Database User Name:"
Input: "ssatom"
- Question: "What is the database account password to use to create database connections?"
Label: "Password:"
Input: "*****"
- Label: "Confirm Password:"
Input: "*****"

At the bottom of the form, there are four buttons: "Back", "Next", "Finish", and "Cancel".

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

Figure C-14 Test Database Connection

Create a New JDBC Data Source

Test Configuration Back Next Finish Cancel

Test Database Connection
Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?
(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name: oracle.jdbc.OracleDriver

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL: jdbc:oracle:thin:@10.184.1

What database account user name do you want to use to create database connections?

Database User Name: ssaatom

What is the database account password to use to create database connections?
(Note: for secure password management, enter the password in the Password field instead of the Properties field below)

Password:

Confirm Password:

What are the properties to pass to the JDBC driver when creating database connections?

Properties:
user=ssaatom

The set of driver properties whose values are derived at runtime from the named system property.

System Properties:

What table name or SQL statement would you like to use to test database connections?

Test Table Name:
SQL SELECT 1 FROM DUAL

Test Configuration Back Next Finish Cancel

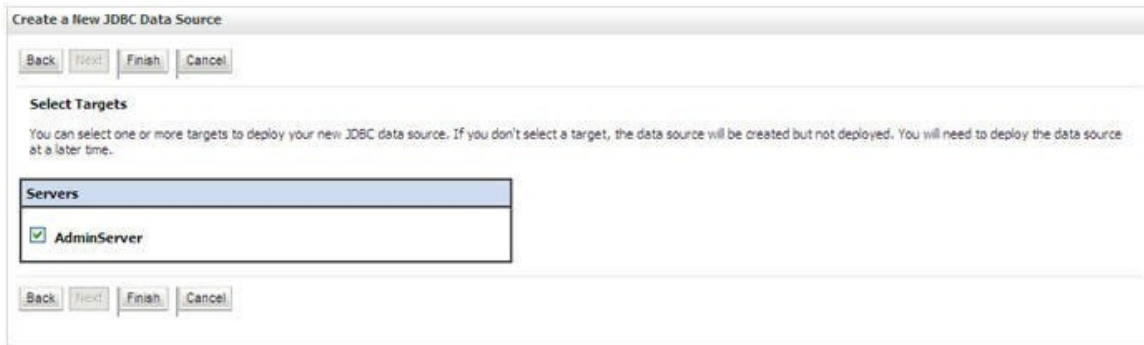
- 1 Verify the details and click **Test Configuration** and test the configuration settings. A confirmation message is displayed stating "Connection test succeeded."
- 2 Click **Finish**. The created "Data Source" is displayed in the list of Data Sources.

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".
-

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

Figure C–15 Select Targets



4 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 5–4 Create a New JDBC GridLink Data Source

The screenshot shows the 'Create a New JDBC GridLink Data Source' wizard at the 'Connection Properties' step. The title bar reads 'Create a New JDBC GridLink Data Source'. At the top, there are navigation buttons: 'Back', 'Next', 'Finish', and 'Cancel'. Below the title bar, the section is titled 'Connection Properties' with the instruction 'Define Connection Properties.' and 'Enter Complete JDBC URL for GridLink database.' The main content area contains a large text input field labeled 'Complete JDBC URL:'. Below this, there are three questions with corresponding input fields: 'What database account user name do you want to use to create database connections?' with a 'Database User Name:' field; 'What is the database account password to use to create database connections?' with a 'Password:' field; and 'Confirm Password:' with a 'Confirm Password:' field. At the bottom, there are navigation buttons: 'Back', 'Next', 'Finish', and 'Cancel'.

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

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

Figure 5–5 JDBC GridLinkData Source- Connection Properties

The screenshot shows the 'Create a New JDBC GridLink Data Source' wizard at the 'JDBC GridLink Data Source Properties' step. The title bar reads 'Create a New JDBC GridLink Data Source'. At the top, there are navigation buttons: 'Back', 'Next', 'Finish', and 'Cancel'. Below the title bar, the section is titled 'JDBC GridLink Data Source Properties' with the instruction 'The following properties will be used to identify your new JDBC GridLink data source.' and '* Indicates required fields'. The main content area contains three questions with corresponding input fields: 'What would you like to name your new JDBC GridLink data source?' with a 'Name:' field containing 'xyz'; 'What JNDI name would you like to assign to your new JDBC GridLink data source?' with a 'JNDI Name:' field containing 'jdbc/xyz'; and 'What database type would you like to select?' with a 'Database Type:' field containing 'Oracle'. Below this, there is a question 'Is this XA driver?' with an unchecked 'XA Driver' checkbox. At the bottom, there are navigation buttons: 'Back', 'Next', 'Finish', and 'Cancel'.

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

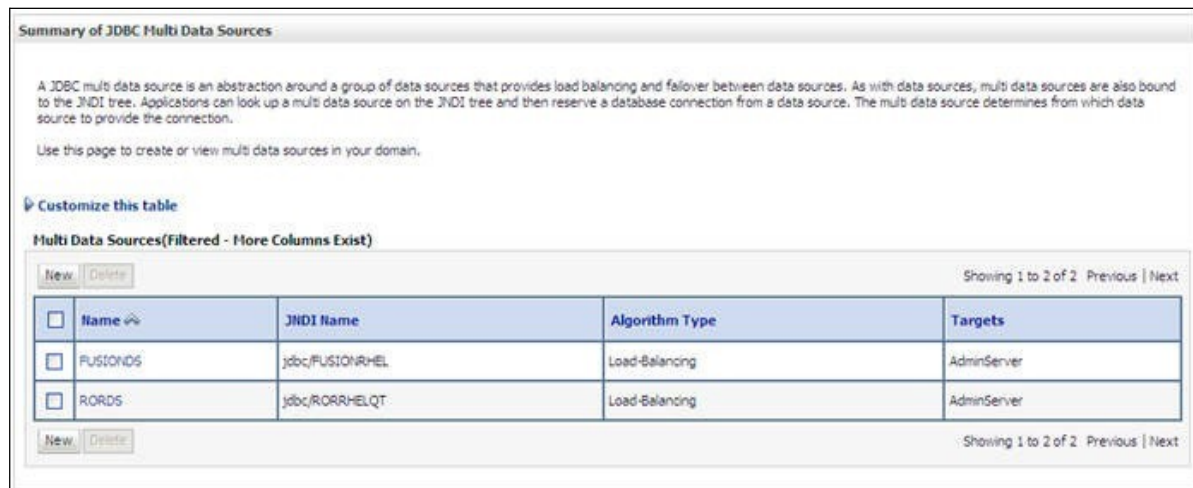
Configuring Multi Data Sources

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.

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

Figure 5–6 Summary of JDBC Multi Data Sources



- 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.

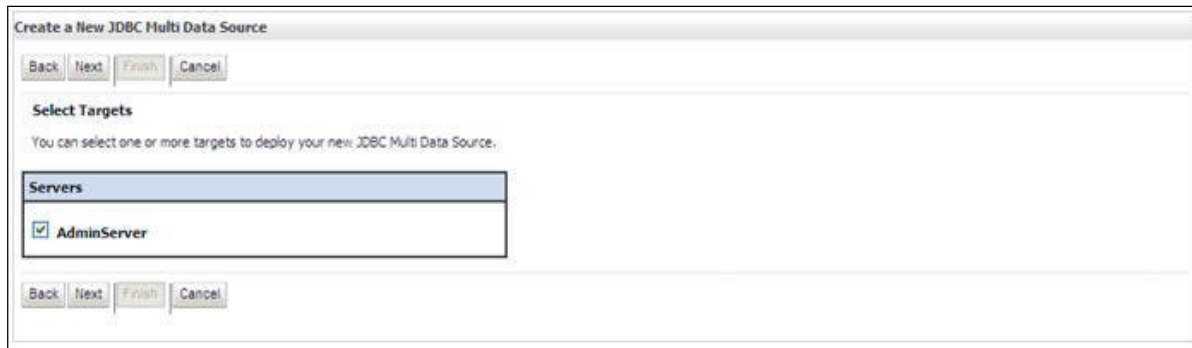
Figure 5–7 Configure the Multi Data Source

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/infodomain`.
 - ⌚ 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 5–8 Select Targets



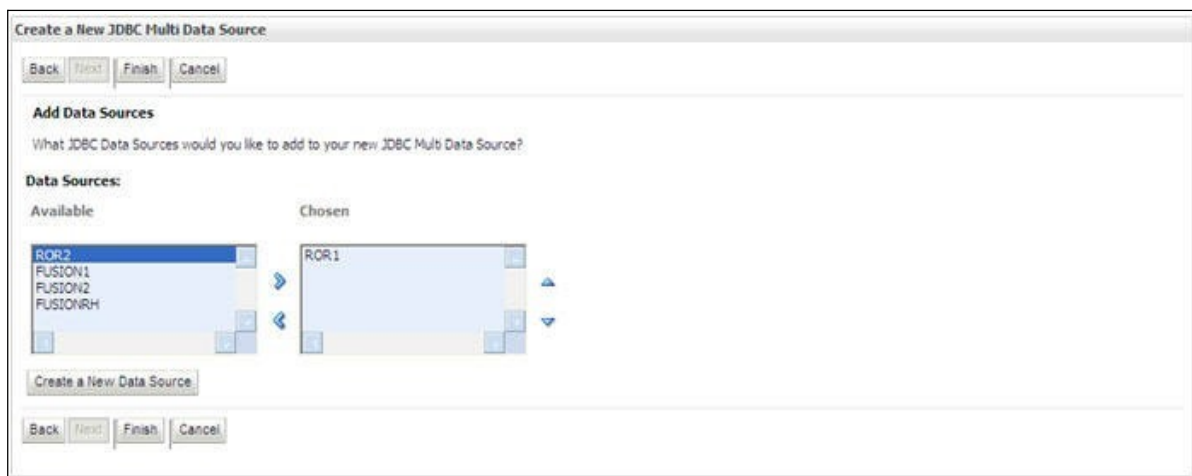
6. Select the **AdminServer** check box and click **Next**.

Figure 5–9 Select Data Source Type



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

Figure 5–10 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.

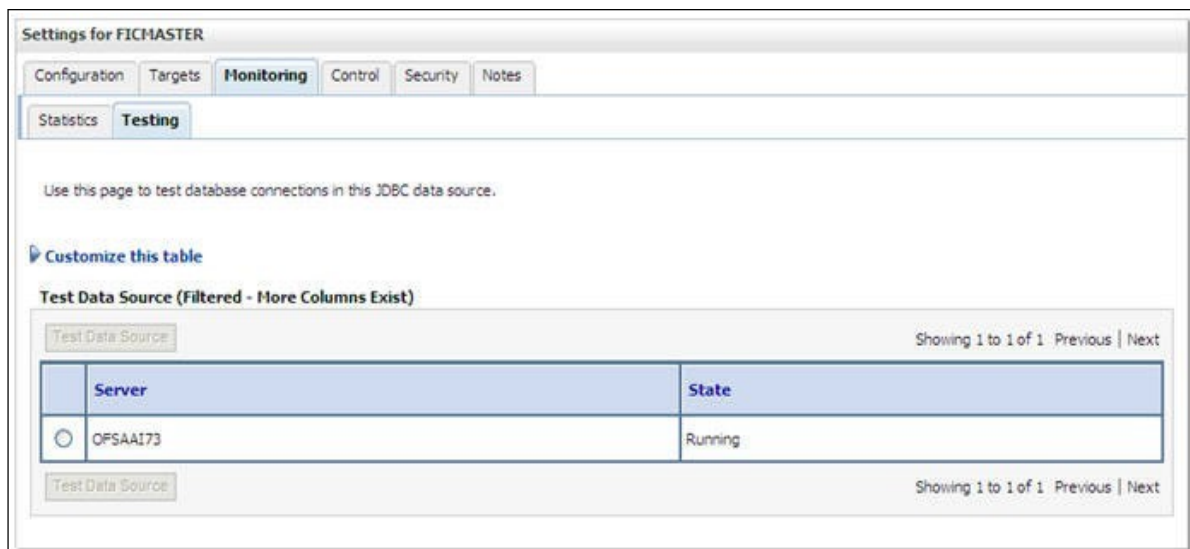
Configuring Advanced Settings for Data Source

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 5–11 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 O](#) for identifying the correct `ojdbc<version>.jar` version to be copied.

Creating Data Source

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

Note: The User-IDs for configuration/ atomic schemas have the prefix of `setupinfo` depending on the value set for `PREFIX_SCHEMA_NAME` in `<<APP Pack>>_SCHEMA_IN.XML` file of Schema Creator Utility.

For example: if the value set for `PREFIX_SCHEMA_NAME` is `DEV` and the schema name was mentioned as `ofsaconf`, then the actual schema created in the database would be `DEV_ofsaconf`.

```
<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 O](#) for identifying the correct ojdbc<version>.jar version to be copied.

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

```

<Context path="/" $CONTEXTNAME$ " docBase=" $APP_DEPLOYED_PATH$ " debug="0"
reloadable="true" crossContext="true">

```

```

  <Resource auth="Container"

    name="jdbc/ $INFODOM_NAME$"
    type="javax.sql.DataSource"
    driverClassName="oracle.jdbc.driver.OracleDriver"
    username=" $ATOMICSCHEMA_USERNAME$"
    password="$ATOMICSCHEMA_PASSWORD$"
    url="$JDBC_CONNECTION_URL"
    maxTotal="100"
    maxIdle="30"
    maxWaitMillis="10000"
    removeAbandoned="true" removeAbandonedTimeout="60"

```

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

Note the following:

Note:

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

Configuring Class Loader for Apache Tomcat

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

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

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 D-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 D–2 Login Window



WebSphere. software

WebSphere Integrated Solutions Console

User ID:
admin

Password:
•••••

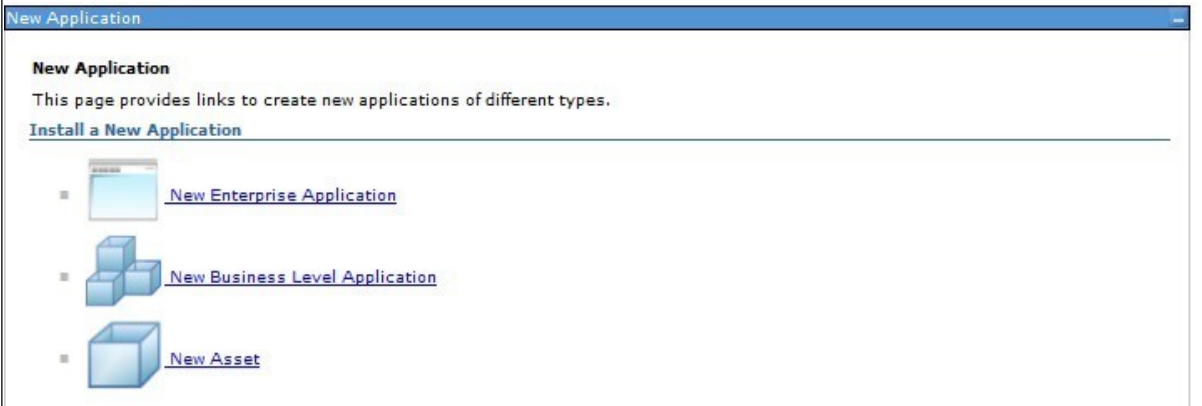
Log in

IBM

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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 D–3 New Application






New Application

New Application

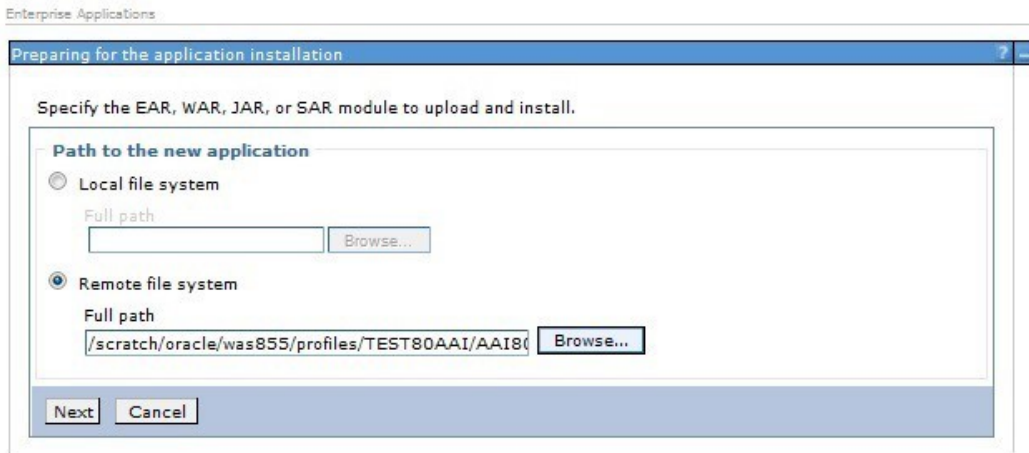
This page provides links to create new applications of different types.

Install a New Application

-  [New Enterprise Application](#)
-  [New Business Level Application](#)
-  [New Asset](#)

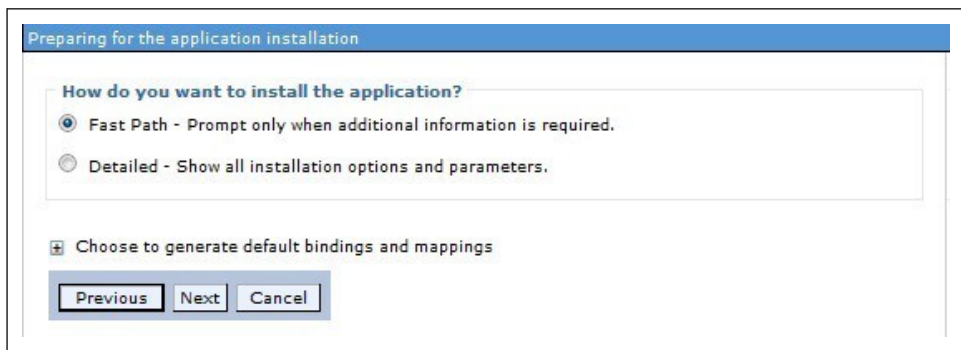
5. Click **New Enterprise Application**. The *Preparing for the application installation* window is displayed.

Figure D–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 D–5 Installation Options



7. Select the **Fast Path** option and click **Next**. The *Install New Application* window is displayed.

Figure D-6 Install New Application

Install New Application

Specify options for installing enterprise applications and modules.

→ **Step 1: Select installation options**

[Step 2: Map modules to servers](#)

[Step 3: Summary](#)

Select installation options

Specify the various options that are available for your application.

Precompile JavaServer Pages files

Directory to install application

Distribute application

Use Binary Configuration

Deploy enterprise beans

Application name

Create MBeans for resources

Override class reloading settings for Web and EJB modules

Reload interval in seconds

Deploy Web services

Validate Input off/warn/fail

Process embedded configuration

File Permission

Allow all files to be read but not written to
 Allow executables to execute
 Allow HTML and image files to be read by everyone

Application Build ID

Allow dispatching includes to remote resources

Allow servicing includes from remote resources

Business level application name

Asynchronous Request Dispatch Type

Allow EJB reference targets to resolve automatically

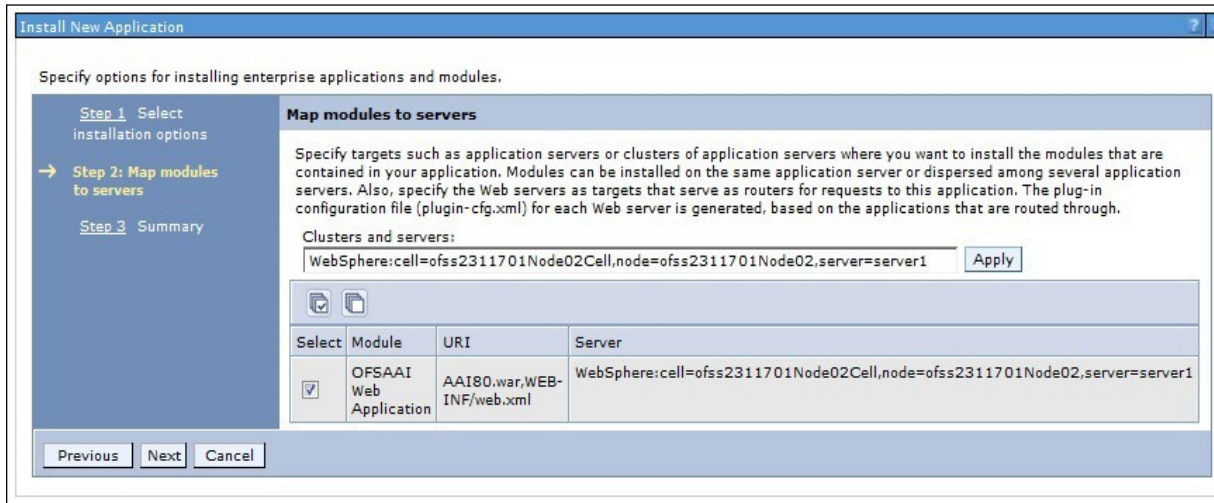
Deploy client modules

Client deployment mode

Validate schema

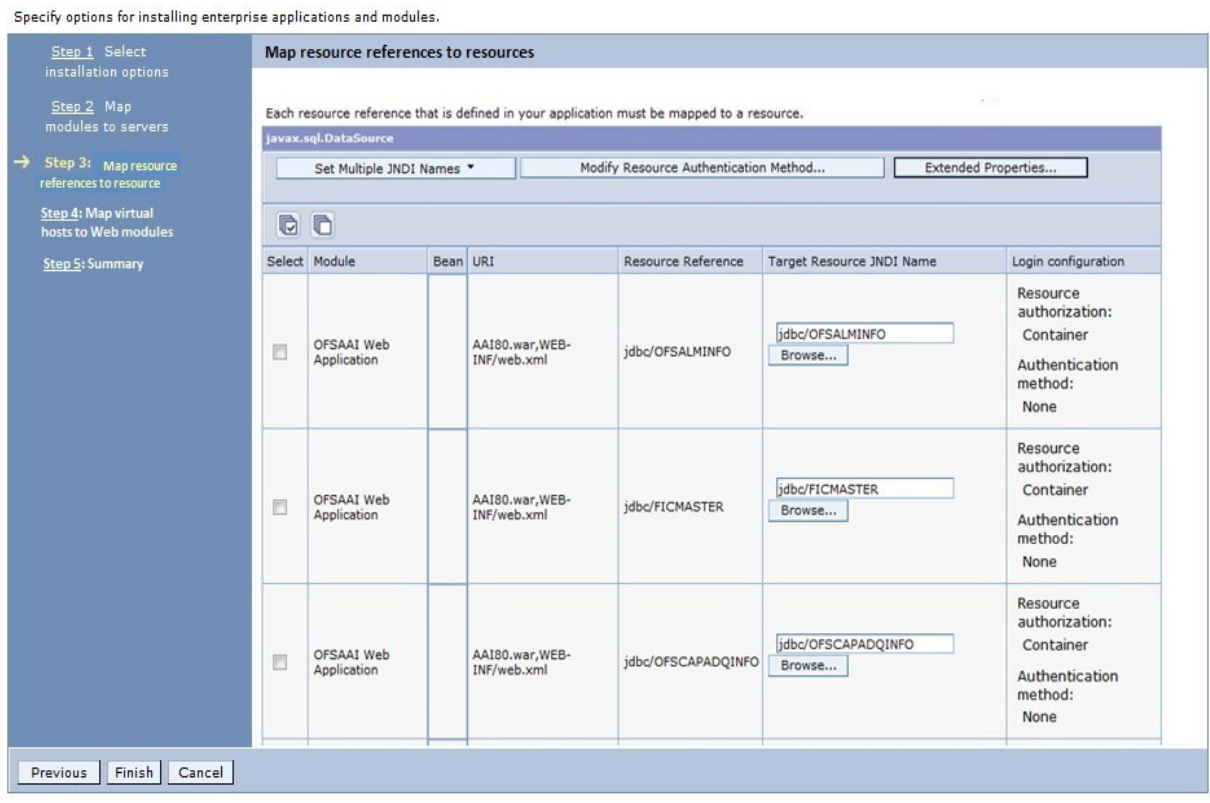
8. Enter the required information and click **Next**. The *Map Modules to Servers* window is displayed.

Figure D-7 Map Modules to Servers



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

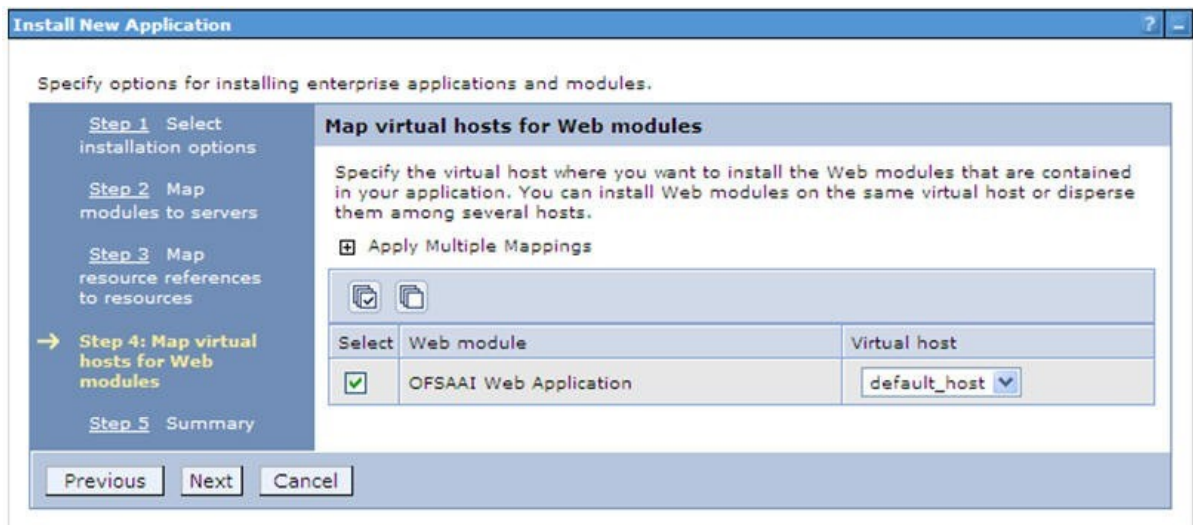
Figure D-8 Map Resource References to Resources



10. Map each resource defined in the application to a resource JNDI name defined earlier.

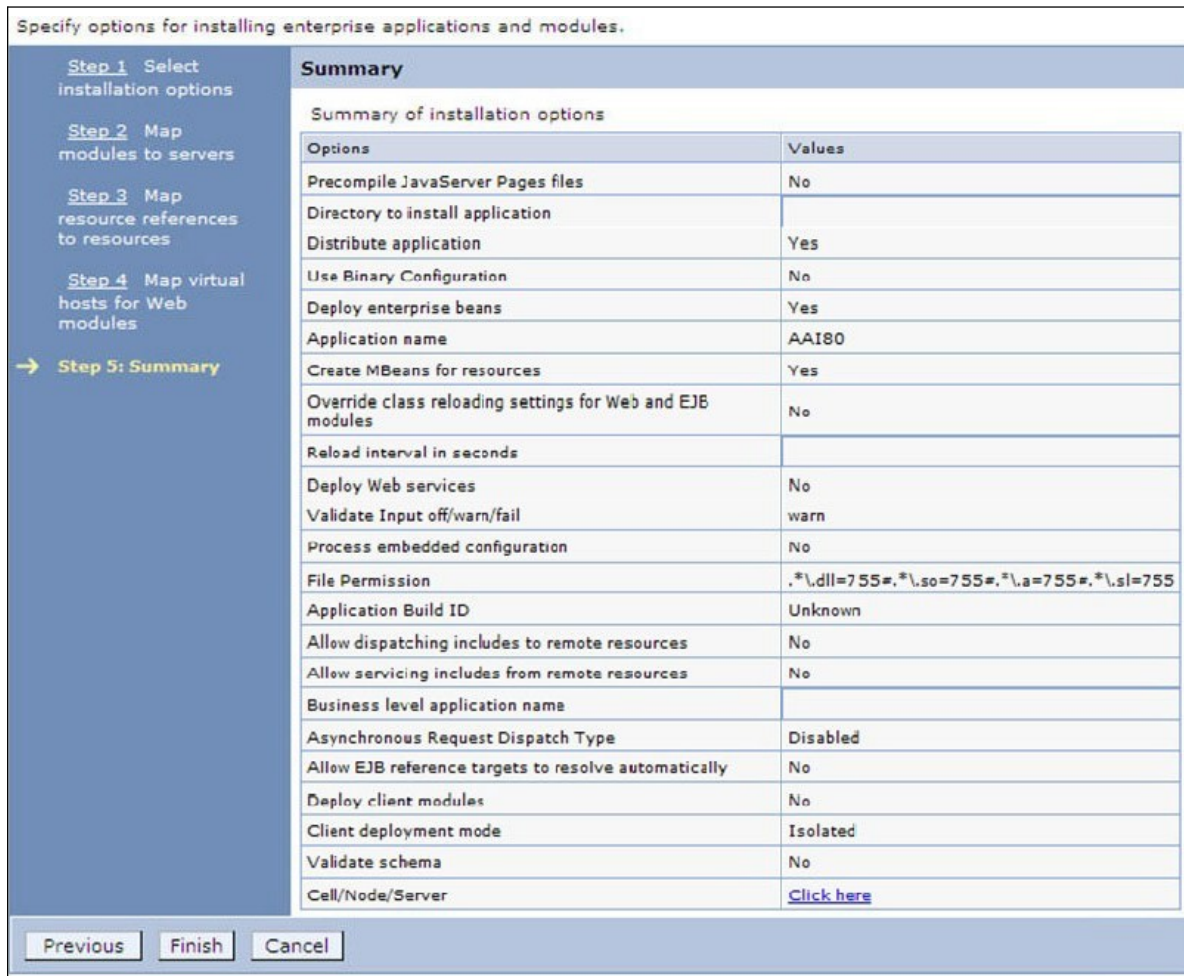
11. Click **Modify Resource Authentication Method** and specify the authentication method created earlier.
You can specify "config" for FICMASTER resource or "atomic" for atomic resource as the authentication method.
12. Select the **OFSAAI Web Application** check box and click **Next**. The *Map Virtual hosts for Web Modules* window is displayed.

Figure D–9 *Map Virtual host for Web Modules*



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

Figure D–10 Summary



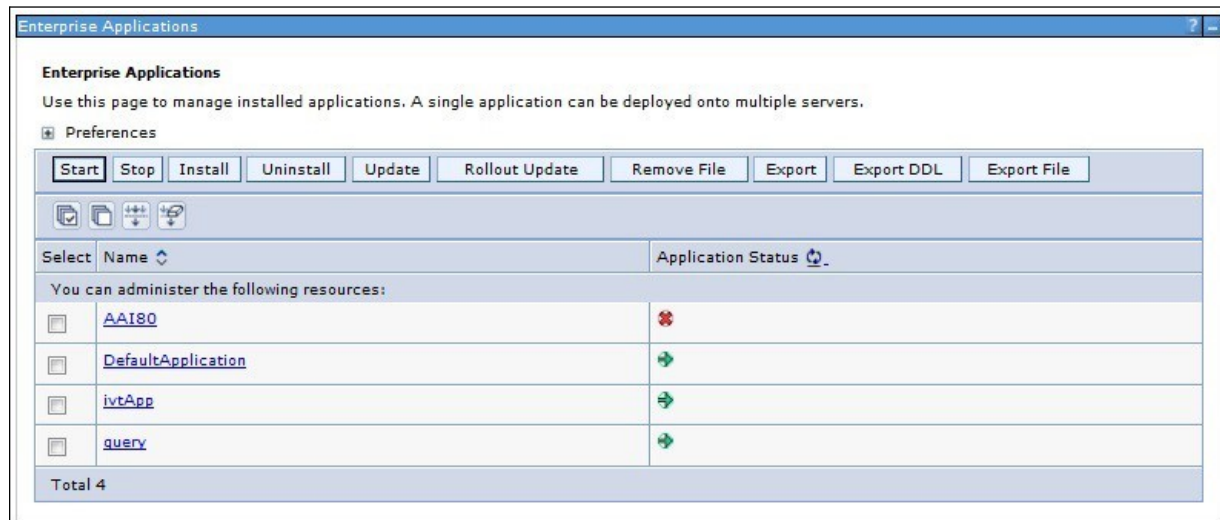
14. Click **Finish** and deploy the Infrastructure Application on WebSphere.
On successful installation, a message is displayed.
15. Click **Save** and save the master file configuration. The details are displayed in the *Master File Configuration* window.

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 D–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:

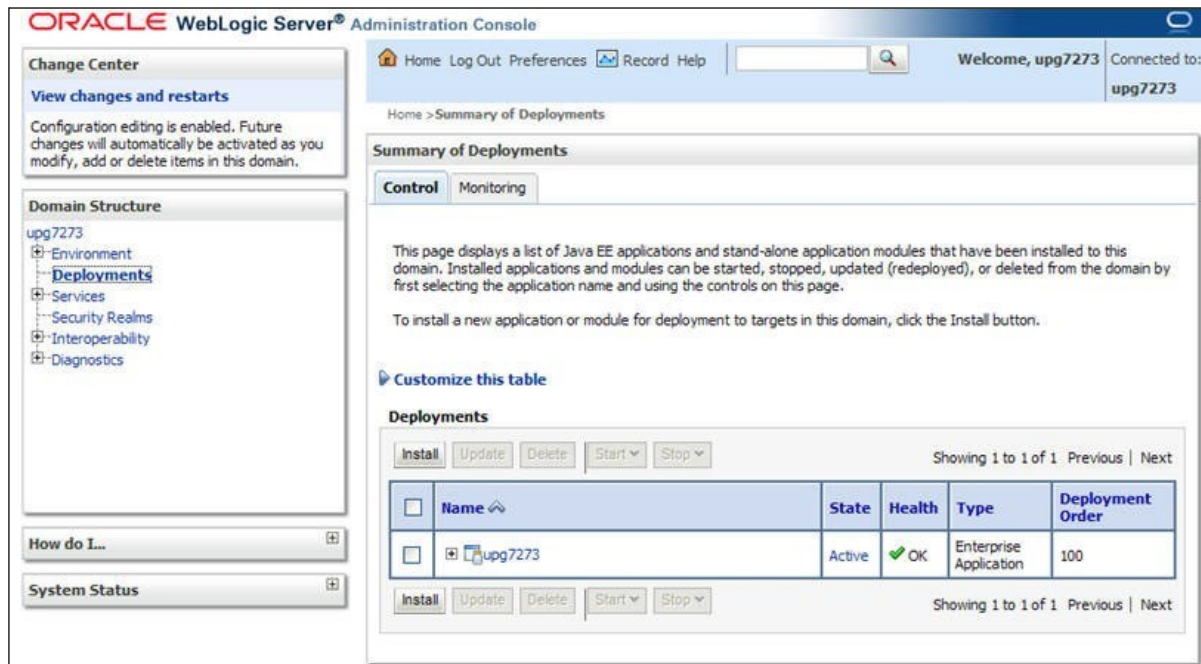
1. Navigate to the path <WebLogic Installation directory>/user_projects/domains/<domain name>/bin in the machine in which WebLogic is installed.
2. Start WebLogic by executing the command:

```
./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 D–12 Summary of Deployments



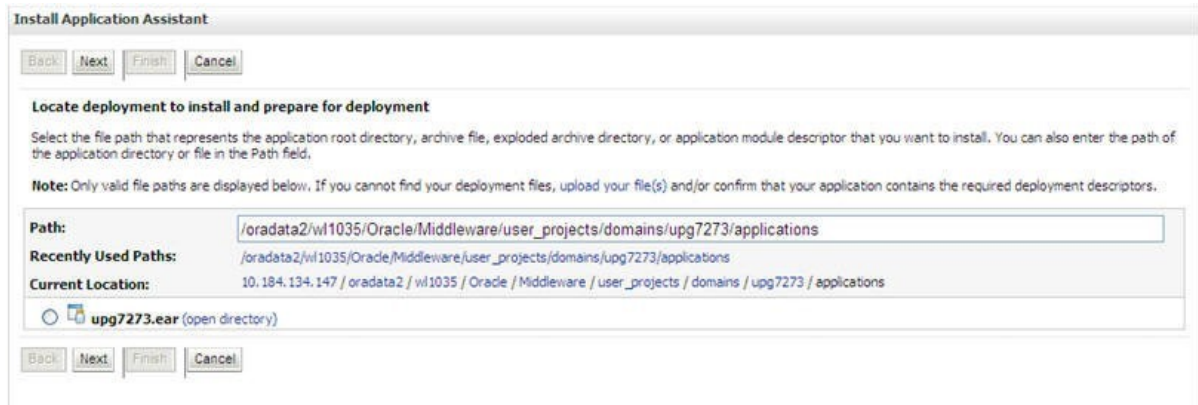
- 6 Click **Install**. The *Install Application Assistant* window is displayed.
- 7 Select the Exploded EAR directory after browsing to the directory where it is saved and click **Next**.

Installing Application

To install Application, follow these steps:

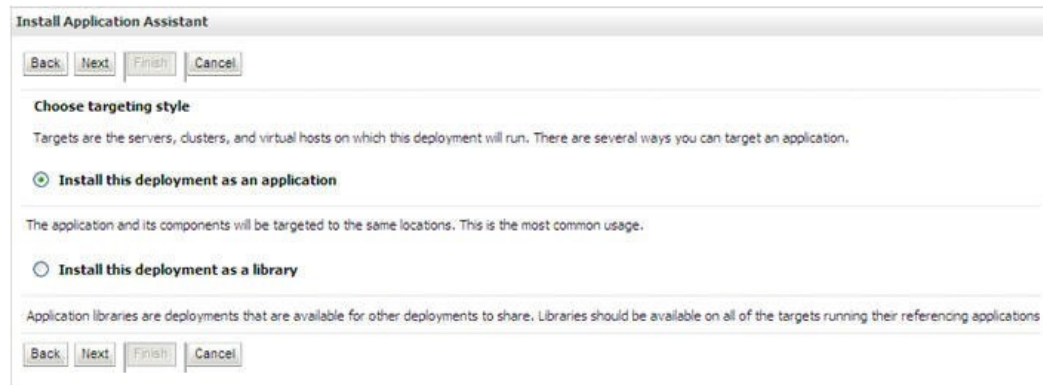
1. Open the Install Application Assistant.

Figure D–13 *Install Application Assistant*



2. Click **Next**.

Figure D–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 D–15 Optional Settings

Install Application Assistant

Back Next Finish Cancel

Optional Settings
You can modify these settings or accept the defaults.

General

What do you want to name this deployment?

Name:

Security

What security model do you want to use with this application?

DD Only: Use only roles and policies that are defined in the deployment descriptors.

Custom Roles: Use roles that are defined in the Administration Console; use policies that are defined in the deployment descriptor.

Custom Roles and Policies: Use only roles and policies that are defined in the Administration Console.

Advanced: Use a custom model that you have configured on the realm's configuration page.

Source accessibility

How should the source files be made accessible?

Use the defaults defined by the deployment's targets.

Recommended selection.

Copy this application onto every target for me.

During deployment, the files will be copied automatically to the managed servers to which the application is targeted.

I will make the deployment accessible from the following location

Location:

Provide the location from where all targets will access this application's files. This is often a shared directory. You must ensure the application files exist in this location and that each target can reach the location.

Back Next Finish Cancel

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 D–16 Deployment Summary

Install Application Assistant

Back Next Finish Cancel

Review your choices and click Finish

Click Finish to complete the deployment. This may take a few moments to complete.

Additional configuration

In order to work successfully, this application may require additional configuration. Do you want to review this application's configuration after completing this assistant?

Yes, take me to the deployment's configuration screen.

No, I will review the configuration later.

Summary

Deployment: /oradata2/wl1035/Oracle/Middleware/user_projects/domains/upg7273/applications/upg7273.ear

Name: upg72733

Staging mode: Use the defaults defined by the chosen targets

Security Model: DDOOnly: Use only roles and policies that are defined in the deployment descriptors.

Target Summary

Components	Targets
upg7273.ear	AdminServer

Back Next Finish Cancel

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 D–17 Settings for <Deployment Name>

Settings for upg7273

Overview | Deployment Plan | Configuration | Security | Targets | Control | Testing | Monitoring | Notes

Save

Use this page to view the general configuration of an Enterprise application, such as its name, the physical path to the application files, the associated deployment plan, and so on. The table at the end of the page lists the modules (such as Web applications and EJBs) that are contained in the Enterprise application. Click on the name of the module to view and update its configuration.

Name: upg7273 The name of this Enterprise Application. [More Info...](#)

Path: / oradata2/wl1035/Oracle/Middleware/user_projects/domains/upg7273/applications/upg7273.ear The path to the source of the deployable unit on the Administration Server. [More Info...](#)

Deployment Plan: (no plan specified) The path to the deployment plan document on Administration Server. [More Info...](#)

Staging Mode: (not specified) The mode that specifies whether a deployment's files are copied from a source on the Administration Server to the Managed Server's staging area during application preparation. [More Info...](#)

Security Model: DDOnly The security model that is used to secure a deployed module. [More Info...](#)

Deployment Order: An integer value that indicates when this unit is deployed, relative to other deployable units on a server, during startup. [More Info...](#)

Deployment Principal Name: A string value that indicates what principal should be used when deploying the file or archive during startup and shutdown. This principal will be used to set the current subject when calling out into application code for interfaces such as ApplicationLifecycleListener. If no principal name is specified, then the anonymous principal will be used. [More Info...](#)

Save

Modules and Components Showing 1 to 1 of 1 Previous | Next

Name	Type
[-] upg7273	Enterprise Application
[-] EJBs	
[-] StatelessCacheBeanBean	EJB
[-] Modules	
[-] /upg7273	Web Application
[-] beancache.jar	EJB Module
[-] Web Services	
None to display	

Showing 1 to 1 of 1 Previous | Next

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 D–18 Summary of Deployments

Summary of Deployments

Control Monitoring

This page displays a list of Java EE applications and stand-alone application modules that have been installed to this domain. Installed applications and modules can be started, stopped, updated (redeployed), or deleted from the domain by first selecting the application name and using the controls on this page.

To install a new application or module for deployment to targets in this domain, click the Install button.

Customize this table

Deployments

Install Update Delete Start Stop Showing 1 to 1 of 1 Previous Next

<input checked="" type="checkbox"/>	Name ↕	State	Health	Type	Deployment Order
<input checked="" type="checkbox"/>	upg7273	Active	OK	Enterprise Application	100

Install Update Delete Start Stop Showing 1 to 1 of 1 Previous Next

12. Select the newly deployed Infrastructure application and click **Start > Servicing all requests**. Ensure that the Infrastructure server is up and running.

Figure D–19 Summary of Deployments

Messages

Start requests have been sent to the selected Deployments.

Summary of Deployments

Control Monitoring

This page displays a list of Java EE applications and stand-alone application modules that have been installed to this domain. Installed applications and modules can be started, stopped, updated (redeployed), or deleted from the domain by first selecting the application name and using the controls on this page.

To install a new application or module for deployment to targets in this domain, click the Install button.

Customize this table

Deployments

Install Update Delete Start Stop Showing 1 to 1 of 1 Previous Next

<input type="checkbox"/>	Name ↕	State	Health	Type	Deployment Order
<input type="checkbox"/>	upg7273	Active	OK	Enterprise Application	100

Install Update Delete Start Stop Showing 1 to 1 of 1 Previous Next

13. The **State** of the deployed application will be displayed as **Active** if started successfully.

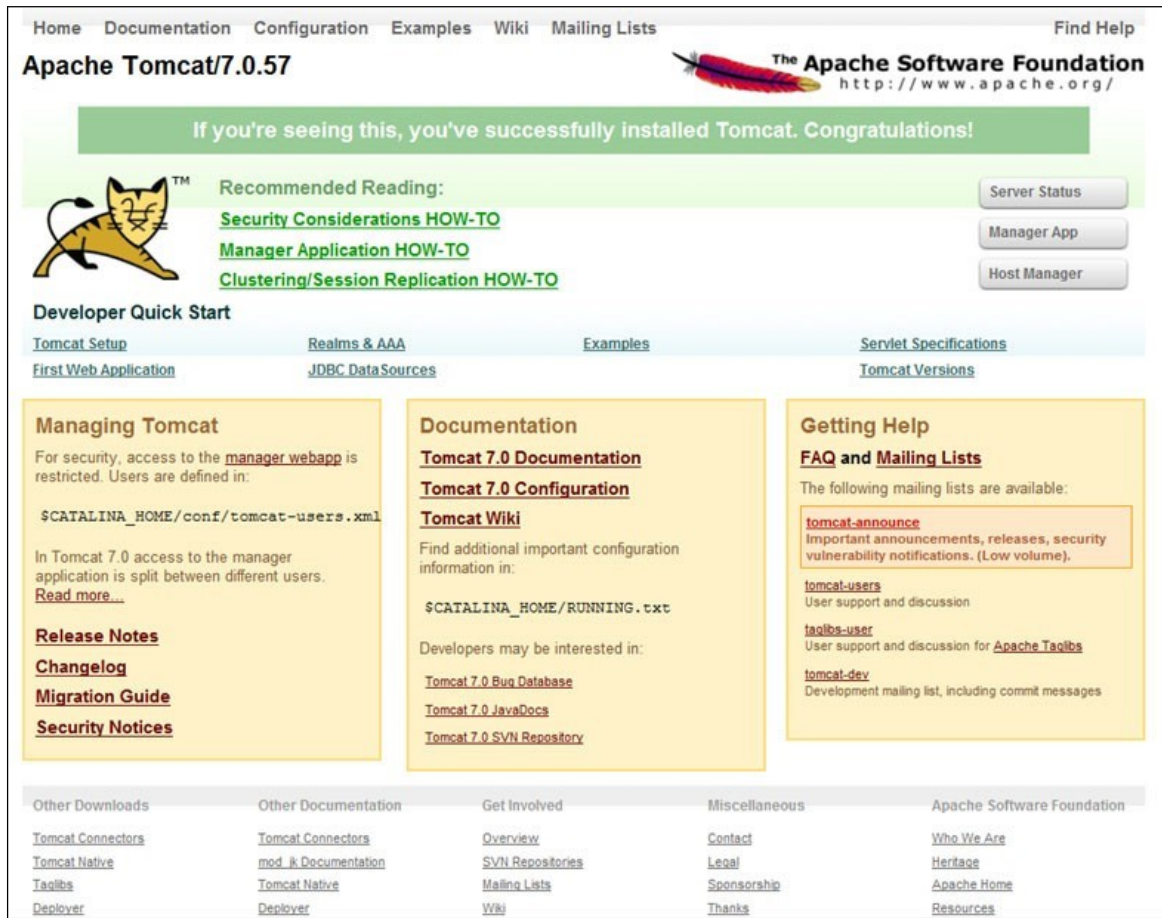
Deploying Tomcat WAR Files on Tomcat

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 D-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 D–21 Tomcat Web Application Manager

/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

Deploy

Deploy directory or WAR file located on server

Context Path (required):

XML Configuration file URL:

WAR or Directory URL:

WAR file to deploy

Select WAR file to upload

Diagnostics

Check to see if a web application has caused a memory leak on stop, reload or undeploy

This diagnostic check will trigger a full garbage collection. Use it with extreme caution on production systems.

Server Information

Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version	OS Architecture	Hostname	IP Address
Apache Tomcat/7.0.57	1.6.0_45-b06	Sun Microsystems Inc.	Linux	2.6.39-400.211.1.el6uek.x86_64	amd64	ofs220354.in.oracle.com	10.184.135

Copyright © 1999-2014, Apache Software Foundation

- 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.

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 E-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 <i>WebLogic Admin Console</i> . 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:

```
./iccserversshutdown.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
```

Accessing OFSAA Application

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

Accessing the OFSAA Application

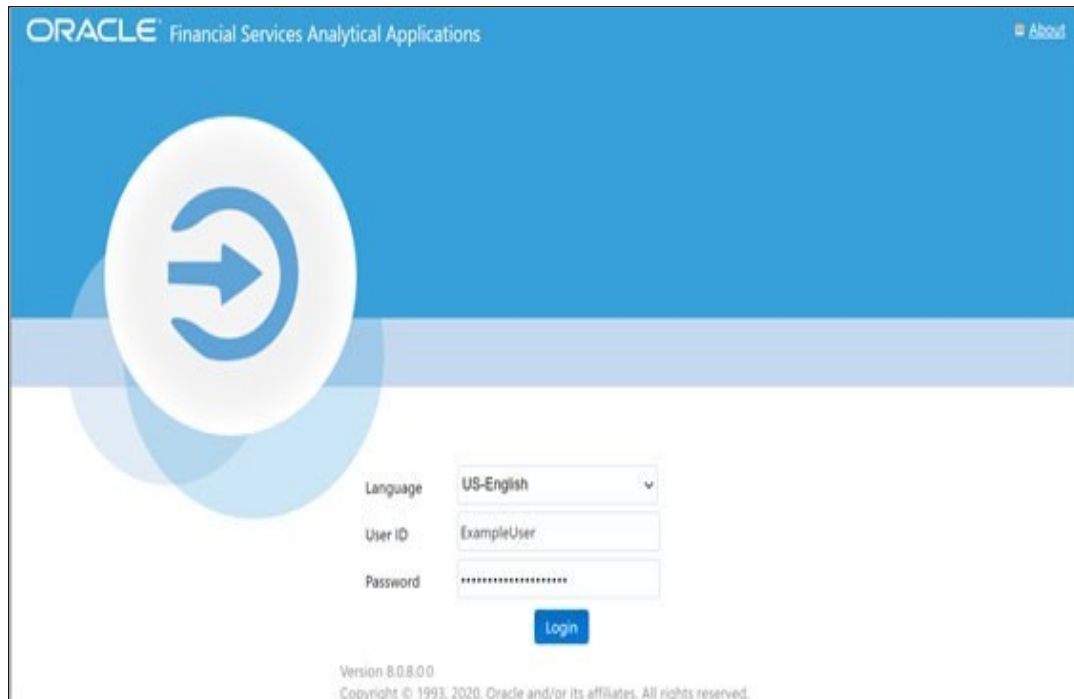
1. From your system, open the browser and enter the URL in the following format:

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

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

The *OFSAA login* window is displayed.

Figure F–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 SYSADMIN and SYSAUTH, the default password is password0.

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

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](#)
- ? [Changing ICC Batch Ownership](#)

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 MMG Application Pack are listed in [Table G–1](#).

Table G–1 Seeded User Groups

Name	Description
Modeler Group	User mapped to this group has access to all the menu items for Enterprise modeling but does not have authorization rights for sandbox population, model deployment and modeling technique authorization.
Modeling Administrator Group	User mapped to this group has access to all the menu items for Enterprise modeling and has authorization rights for sandbox population, model deployment and modeling technique authorization.

Table G–1 Seeded User Groups

Name	Description
Inline Processing Admin Group	User mapped to this group has access to all the menu items and actions for Inline Processing module.
Business Administrator	User mapped to this group has access to all the menu items and actions for advanced operations of metadata objects.
Business Authorizer	User mapped to this group has access to all the menu items and actions for authorization of changes to metadata objects.
Business Owner	User mapped to this group has access to all the menu items and actions for read and write of metadata objects
Business User	User mapped to this group has access to all the menu items and actions for access and read of metadata objects.
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](#).

Changing ICC Batch Ownership

This section is not applicable for OFS MMG Application Pack.

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](#).



OFSAA Landing Page

This section includes the following topics:

- [OFSAA Landing Page](#)
- [Enabling a Product within an Application Pack](#)

OFSAA Landing Page

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

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

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

The following tabs are available in the Landing Page:

- [Applications Tab](#)
- [Sandbox Tab](#)
- [Object Administration Tab](#)
- [System Configuration and Identity Management Tab](#)

Applications Tab

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

Sandbox Tab

This tab lists the various OFSAA Sandboxes created in the OFSAA setup and the **Select Sandbox** drop-down list displays the OFSAA Sandboxes based on the logged in user and mapped OFSAA Application User Group(s). Links to modules that operate only on Sandbox features are grouped in this tab.

Object Administration Tab

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

System Configuration and Identity Management Tab

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

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

For more details on how to operate on each tab, see OFSAAI User Guide available in [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 SYSADMIN user or any user with System Administrator privileges.
2. Navigate to **System Configurations & Identity Management** tab, expand **Administration and Configuration** and select **System Configuration**.
3. Click **Manage OFSAA Product License(s)**. *The Manage OFSAA Product License(s) window is displayed.*

Figure I-1 Manage OFSAA Product License(s) window

MANAGE OFSAA APPLICATION PACK LICENSE					
MANAGE OFSAA APPLICATION PACK LICENSE					
» INSTALLED APPLICATION PACKS					
APPLICATION PACK ID	APPLICATION PACK NAME	DESCRIPTION	INSTALL DATE	VERSION	
<input type="radio"/> OFS_AAAL_PACK	Financial Services Advanced Analytics Infrastructure Pack	Applications for Advanced Analytics using Oracle R, Modeling & Stress Testing Framework and Inline Processing Engine	2015-11-02 11:13:58.0	8.0.2.0.0	
<input type="radio"/> OFS_BGRC_PACK	OFS_BGRC_PACK	Financial Services Governance, Risk and Compliance Applications Pack	2015-11-04 01:35:15.0	8.0.1.0.0	
<input type="radio"/> OFS_CAP_ADQ_PACK	Financial Services Capital Adequacy Applications Pack	Applications for Basel Basic, IRB & Analytic, Operational Risk Economic Capital & Analytic and Retail Portfolio Risk Models and Pooling in Banking and Financial Services Domain	2015-11-02 16:19:44.0	8.0.1.0.0	
<input type="radio"/> OFS_PFT_PACK	Financial Services Profitability Applications Pack	Applications for Profitability in the Banking and Financial Services Domain	2015-11-02 13:24:19.0	8.0.1.0.0	
<input type="radio"/> OFS_HIVE1_PACK	OFS_HIVE1_PACK	OFS_HIVE1_PACK	2015-11-09 15:34:23.715	8.0.2.0.0	

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

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

» PRODUCTS IN THE APPLICATION PACK				
ENABLE	PRODUCT ID	PRODUCT NAME	DESCRIPTION	ENABLE DATE
<input checked="" type="checkbox"/>	OFS_AAAI	Financial Services Enterprise Modeling	Base Infrastructure for Advanced Analytical Applications	2015-11-02 11:13:58.0
<input checked="" type="checkbox"/>	OFS_AAI	Financial Services Analytical Applications Infrastructure	Base Infrastructure for Analytical Applications Infrastructure	2015-11-02 11:13:58.0
<input checked="" type="checkbox"/>	OFS_AAIB	Financial Services Analytical Applications Infrastructure - Big Data processing	Base Infrastructure for Analytical Applications Infrastructure - Big Data processing	2015-11-09 14:55:48.935
<input checked="" type="checkbox"/>	OFS_IPE	Financial Services Inline Processing Engine	Framework for Inline Processing Engine	2015-11-02 11:13:58.0

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 I-3 License Agreement

» LICENSE AGREEMENT

Oracle Financial Services Enterprise Modeling Option (OFS AAAI) product is a separately licensable product and would not be enabled unless it has been licensed. Oracle Financial Services Enterprise Modeling Option (OFS AAAI) product is only part of the Oracle Financial Services Advanced Analytics Infrastructure Pack and specific OFSAA Application Packs that require the advanced analytical features of this product. Oracle Financial Services Enterprise Modeling Option (OFS AAAI) product gets pre-selected automatically on selecting any of the ofsaa products within a specific Application Pack that require this product to be enabled and configured.

Multiple products being grouped together under a Application Pack, mandate installation and configuration of these products by default. However, during the Application Pack installation, based on the products that are being selected, it would get enabled and would be licensed for. It is important to note that products once selected (enabled) cannot be disabled at a later stage. However, products can only be enabled at any later stage using the OFSAA Infrastructure "Manage Application Pack License" feature.

Enabling a product within a Application Pack automatically implies you agree with this license agreement and the respective terms and conditions.

I ACCEPT THE LICENSE AGREEMENT.
 I DO NOT ACCEPT THE 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.

Additional Configuration

This section gives detailed information about the Additional Configuration regarding OFSAA Installation.

Additional Configuration Topics

This section covers the following topics:

- ? [Adding FTP/SFTP Configuration for File Transfer](#)
- ? [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 OFSAAI Web Services](#)
- ? [Deploying OFSAAI Web Services](#)
- ? [Configuring Message Details in Forms Designer](#)
- ? [Clearing Application Cache](#)
- ? [Configuring Password Changes](#)
- ? [Configuring Java Virtual Machine](#)
- ? [Configuring Internal Service \(Document Upload/ Download\)](#)

Adding FTP/SFTP Configuration for File Transfer

In OFSAA, certain modules require transfer of files from the web application server to the OFSAA server over SSH.

Follow these steps to ensure the OFSAA server recognizes the web application server during file transfers.

1. Log in to the web application server.
2. Type `sftp <user>@<OFSAA Server>`.

3. Specify **Yes** when prompted for permission.
Are you sure you want to continue connecting (Yes/No)?
This will add an entry into the "known_hosts" file.
4. A confirmation message is displayed:
Permanently added <OFSAA Server> RSA) to the list of known hosts.

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

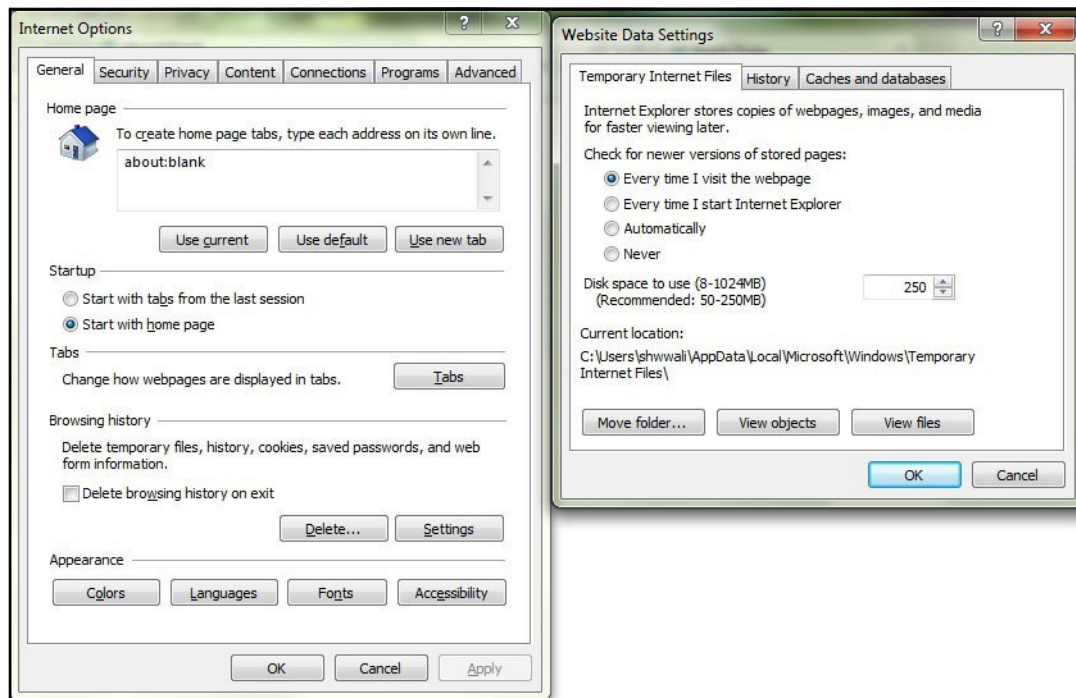
Note: OFSAAI supports only default zoom setting in Internet Explorer, that is, 100%.
Cookies should be enabled.

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.

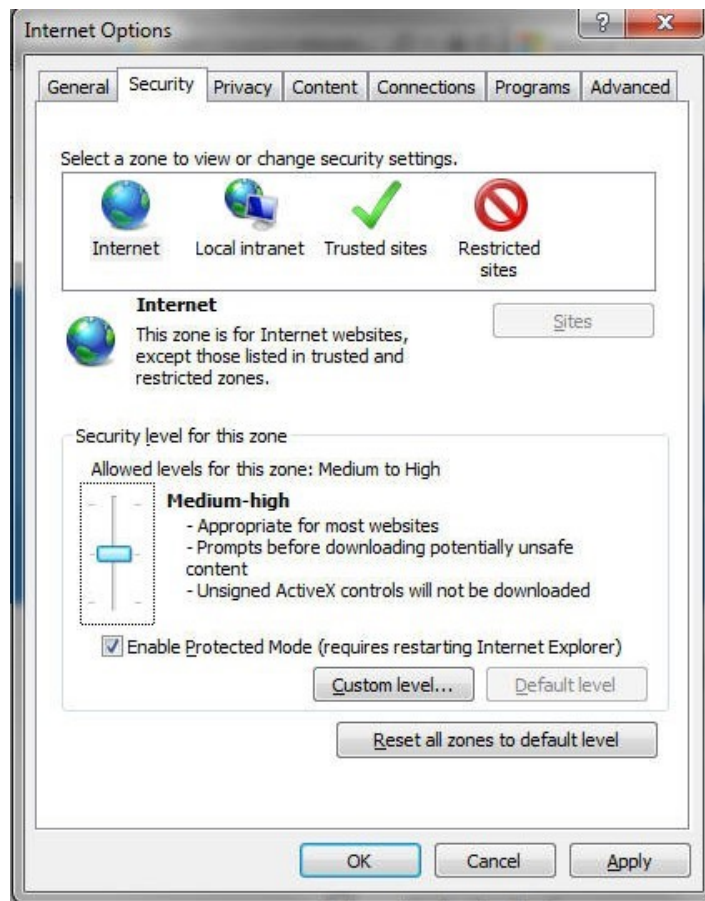
3. Select the **Every time I Visit the webpage** option and click **OK**.

Figure J-1 Internet Options



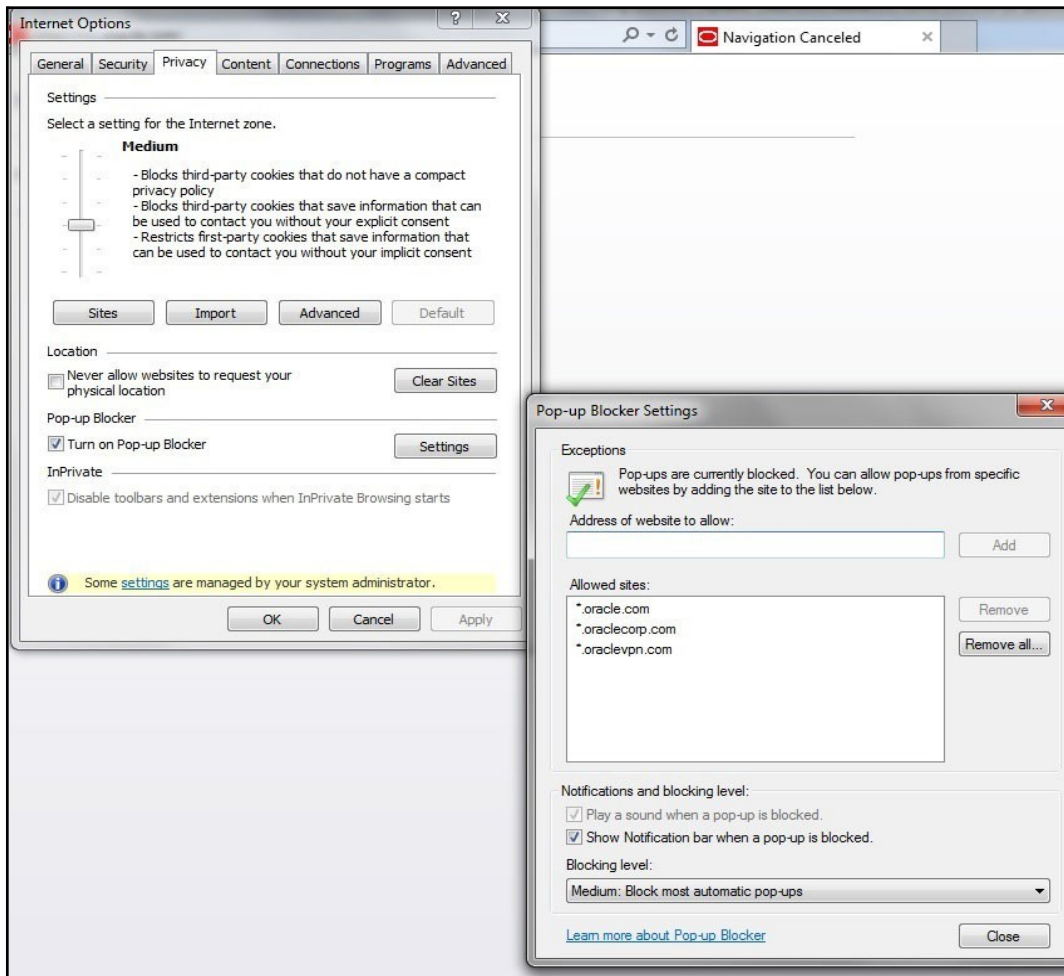
4. In the *Internet Options* window, select the **Security** tab and select the **Internet option** under **Select a zone to view or change the security settings**.
5. Click **Default Level** under **Security level for this zone**.

Figure J-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 J-3 Internet Options-Popup Blocker Settings



8. Click **Settings**. The *Pop-up Blocker Settings* window is displayed.
9. Enter the URL of the OFSAA Application in the **Address of website to allow:** field.
10. Click **Add**. The OFSAA URL is displayed in the **Allowed sites** section.
11. Click **Close**.
12. Click **OK** in the *Internet Options* window.

Retrieving Patch Information

To identify the list of patches installed on your OFSAA setup, follow these steps:

1. Log in to the OFSAA application as a user with Object AdminAdvanced Role.
2. Navigate to **Object Administration** tab, expand **Utilities** and click **Patch Information**.
3. The window displays the list of patches installed on the OFSAA setup across Applications/ Platform.

Setting OLAP Data Server Configuration

This section is applicable if you are using the OLAP feature of OFSAAI.

The following parameters must be set to ensure that the system limitations are not exceeded at any stage. The values for these OS parameters should be specified based on the expected load at each implementation site.

For example:

Process Memory Limit

Max Thread Stack Size

Max Number of Threads per Process

- **Sort Buffer settings:** This must be set at the Essbase application level appropriate to the anticipated load.
- **Shutdown and Restart:** During shutdown of OFSAAI Server that has an instance of Data Services that is communicating with an OLAP Data Server, it is imperative to ensure that the cleanup of the old instance is completed on the OLAP Data Server before restarting the OFSAAI Server. Pause for a period of time based on the load the system was subjected to, before restarting the Data Services subsystem.

Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance

For information on this section, see *OFS Analytical Applications Infrastructure Administration User Guide* in [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

This utility helps you to regenerate the new `AESCryptKey.ext` file and encrypt all the encrypted values of the OFSAAI setup according to the new key.

To execute `EncryptC.jar` in console, follow these steps:

1. Navigate to the path `$FIC_HOME`.
2. Enter the command:

```
java -jar EncryptC.jar
```

A confirmation message is displayed after execution.

Once executed, you need to create and deploy the EAR/WAR file depending on the configured Web Application Server. For more information, see [Appendix D](#).

Setting Infrastructure LDAP Configuration

For more information on LDAP configuration, see [OFSAAI Administration Guide](#).

Configuring OFSAAI Web Services

Web Services in OFSAAI is meant for exposing a web service to "asynchronously" or "synchronously" execute requested tasks offered by OFSAAI. The following configuration steps are to be done only if you are using the Web Services feature of OFSAAI.

Configuring `DynamicWSConfig.xml` File

For each third party web service that needs to be accessed using the OFSAAI Web services framework and the operations to be invoked, corresponding entries are to be made in the `DynamicWSConfig.xml` template file.

The variable `<WebServer>` denotes any one of the application server, that is, WebSphere, WebLogic, or Tomcat.

The `DynamicWSConfig.xml` file will be available in the `<OFSAAI Installation Directory>/EXEWebService/<WebServer>/ROOT/conf` directory. This file can be placed in any directory that is accessible by the application and this location must be specified in the `web.xml` file, as `WSCONFIGFILE` parameter.

The `DynamicWSConfig.xml` template file will be in `<WebServer Deployment Path>/EXEWebService.ear/EXEWebService.war/conf` directory.

This template is as follows:

```
<XML>
<WEBSERVICES>
<WEBSERVICE CODE="$CODE"
ENDPOINT="$ENDPOINT" TARGETNAMESPACE="$TARGETNAMESPACE"
XMLNS_XSD="$XMLNS_XSD" ENCODINGSTYLE="$ENCODINGSTYLE"
SERVICENAME="$SERVICENAME" PORTTYPENAME="$PORTTYPENAME"
SESSION_MAINTAIN_PROPERTY="$SESSION_MAINTAIN_PROPERTY"
USERNAME="$USERNAME"
PASSWORD="$PASSWORD" STYLE="$WEBSERVICESTYLE"
STUBIMPLEMENTATION="$STUBIMPLEMENTATION">
<OPERATION CODE="$CODE"
NAME="$NAME"
SOAPACTION="$SOAPACTION"
STYLE="$STYLE"
PACKAGENAME="$PACKAGENAME">
<INPUT ORDER="$ORDER"
PARAMNAME="$PARAMNAME"
ARGTYPE="$ARGTYPE"
CLASSNAME="$CLASSNAME"/>
```

```

<OUTPUT PARAMNAME="$PARAMNAME"
RETURNNTYPE="$RETURNNTYPE"
CLASSNAME="$CLASSNAME"/>
</OPERATION>
</WEBSERVICE>
</WEBSERVICES>
</XML>

```

The `DynamicWSConfig.xml` has the placeholders as shown in the following table. These have to be updated depending on the web service chosen and the mode of accessing it. For each Web service to be accessed, the entire `webservice` tag in the `DynamicWSConfig.xml` file must be repeated. The placeholders tabulated as follows should be set in accordance to the parameters published in the third party `wsdl` files (webservises) to be accessed. The stub class specified must implement the `"com.iflex.OracleReveleus.execution.webservice.EXEWebIF"` interface.

Attributes of WEBSERVICE tag

Table J-1 WEBSERVICE tag Attributes

Placeholder	Description
\$CODE	Unique number within the xml file and cannot be 999 or 0.
\$ENDPOINT	soap: address location in the <code>wsdl: service name tag</code> of the <code>wsdl</code> file.
\$TARGETNAMESPACE	The attribute value for the <code>targetNamespace</code> of the <code>wsdl: definitions tag</code> .
\$XMLNS_XSD	The attribute value for the <code>xmlns:s</code> of the <code>wsdl: definitions tag</code>
\$ENCODINGSTYLE	The attribute value for the <code>xmlns:soapenc</code> of the <code>wsdl: definitions tag</code> .
\$SERVICENAME	Name of the service found under the <code>wsdl: service name tag</code> of the <code>wsdl</code> file.
\$PORTTYPE	<code>wsdl</code> port type name as mentioned in the <code>wsdl</code> file.
\$SESSION_MAINTAIN_PROPERTY	This could be given as "" also.
\$USERNAME	User name to access the web services. Enter "" if no user name is required.
\$PASSWORD	Password to access the web services. Enter "" if no password is required.
\$WEBSERVICESTYLE	This can take either <code>"rpc"</code> in case of DII mode of invoking web services or <code>"stub"</code> in case of static mode. This is a mandatory parameter.
\$STUBIMPLEMENTATION	Fully qualified class name (<code>package name.classname</code>).

Attributes of OPERATION tag

Ensure that the `OPERATION` tag attributes are repeated for each of the `OPERATION` tags.

Table J-2 OPERATION tag Attributes

Placeholder	Description
\$CODE	Should be unique within the Webservice tag.
\$NAME	The name of the Function that is to be called by the wsdl file.
\$SOAPACTION	The URL for the Operation to access. This is associated with the Operation tag of the wsdl file.
\$STYLE	This can take "rpc" if the web services invoking is in DII mode or "stub" if it is in static mode. This is a mandatory parameter.
\$PACKAGENAME	Represents the JAXB package of input object.

Attributes of INPUT tag**Table J-3 INPUT tag Attributes**

Placeholder	Description
\$ORDER	The sequential number of the INPUT tag. Should start from 0. This is in line with the input order of the arguments that the API accepts which is called by this operation.
\$PARAMNAME	Input parameter name to be called by the wsdl file.
\$ARGTYPE	Input Parameter Data Type. If the input argument type is complex object, specify \$ARGTYPE as "xmlstring".
\$CLASSNAME	Represents class name of input object parameter.

Attributes of OUTPUT tag**Table J-4 OUTPUT tag Attributes**

Placeholder	Description
\$PARAMNAME	Output parameter name to be returned by the web service.
\$RETURNTYPE	Output parameter Data Type. If the web service response is a complex object, then specify \$RETURNTYPE as "object".
\$CLASSNAME	Represents class name of output object parameter.

Adding web.xml Entries

1. This step is optional and required only if the web application server used is Tomcat. In case of any other application server, skip and proceed with next step.

Navigate to \$FIC_HOME/webroot/WEB-INF/ and edit the web.xml file. Set parameter value DOCSERVICEAPP to EXEWebServiceAXIS.

2. Navigate to <OFSAAI Installation Directory>/EXEWebService/<WebServer>/ROOT/WEB-INF/ and edit the web.xml file as follows:

Note: In case of Java 7 when WebLogic is used as web application server, replace following line of <OFSAAI Installation Directory>/EXEWebService/Weblogic/ROOT/WEB-INF/web.xml file

```
<?xml version='1.0' encoding='UTF-8'?>
<web-app id="WebApp_ID" version="3.0"
xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd"
metadata-complete="true">
```

with

```
<?xml version='1.0' encoding='UTF-8'?>
<web-app xmlns="http://java.sun.com/xml/ns/j2ee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
```

Configuring WsConfig File

The WSCONFIG file (DynamicWsConfig.xml) is available in the <WebServer Deployment Path>/ EXEWebService.ear/EXEWebService.war/conf directory. This file can be placed in any directory that is accessible by the application.

The path where the WSCONFIG file is placed must be specified in place of \$WSCONFIGFILELOCATION\$ in the following block of text in web.xml.

```
<context-param>
<description>WebServices Configuration File</description>
<param-name>WSCONFIGFILE</param-name>
<param-value>$WSCONFIGFILELOCATION$</param-value>
<!--Specify the Location of DynamicWsConFig.xml-->
</context-param>
```

Configuring Proxy Settings

Replace the following <param-value> given in bold in the following block of text in web.xml file, with appropriate values.

If no values are required, leave the <param-value> blank.

```
<context-param>
<description>http Proxy Host</description>
<param-name>http.proxyHost</param-name>
<param-value>$PROXYHOST$</param-value>
<!-- Specify the IP address or hostname of the http proxy server-->
</context-param>
<context-param>
<description>http Proxy Port</description>
```

```

    <param-name>http.proxyPort</param-name>
    <param-value>${PROXYPORT}</param-value>
    <!--Port Number for the Proxy Server-->
</context-param>
<context-param>
    <description>http proxy UserName</description>
    <param-name>http.proxyUserName</param-name>
    <param-value>${PROXYUSERNAME}</param-value>
    <!-- User ID To get authenticated by proxy server-->
</context-param>
<context-param>
    <description>http proxy Password</description>
    <param-name>http.proxyPassword</param-name>
    <param-value>${PROXYPASSWORD}</param-value>
    <!-- User Password To get authenticated by proxy server-->
</context-param>
<context-param>
    <description>http non-ProxyHosts</description>
    <param-name>http.nonProxyHosts</param-name>
    <param-value>${NONPROXYHOSTS}</param-value>
    <!--Hosts for which the proxy settings should get by-passed (Note:
    Separate them by "|" symbol) -->
</context-param>

```

Configuring OFSAAI Home Entry

This entry should point to the Application layer / Web layer of the OFSAAI installation and should be accessible.

Replace `${FIC_HOME}` in the following block of text in `web.xml` with `<WebServer Deployment Path>/EXEWebService.ear/EXEWebService.war`.

```

<context-param>
    <description>OFSAAI Web Home</description>
    <param-name>FIC_HOME</param-name>
    <param-value>${FIC_HOME}</param-value>
    <!--OFSAAI Installation Folder-->
</context-param>
<context-param>
    <description>OFSAAI Web Home</description>
    <param-name>FIC_PHYSICAL_HOME</param-name>
    <param-value>${FIC_HOME}</param-value>

```

```
<!--OFSAAI Installation Folder-->
</context-param>
```

Configuring DynamicWSConfig.xml File

For each third party web service that needs to be accessed using the OFSAAI Web services framework, and the operation to be invoked, make corresponding entries into this file. This file is to be placed in the location that is specified in the `web.xml`, as `WSCONFIGFILE` parameter.

Deploying OFSAAI Web Services

You can deploy OFSAAI Web Services separately if you had not configured OFSAAI Web Services as part of the installation.

1. Complete the manual configuration of OFSAAI Web Services.
2. Navigate to `<OFSAAI Installation Directory>/EXEWebService/<WebServer>` and execute the command:

```
./ant.sh
```

This will trigger the EAR/WAR file creation, which is required for the deployment.

3. Deploy the generated `EXEWebService.EAR/EXEWebService.WAR` file into the `WebServer`.

If you have already configured OFSAAI Web Services as part of the installation, deploy the generated `EXEWebService.EAR/EXEWebService.WAR` file into the OFSAAI Deployment area in `WebServer` profile.

Enabling Parallel Execution of DML statements

A configuration file, `OracleDB.conf` has been introduced to accommodate any configurable parameter related to operations on oracle database. If you do not want to set a parameter to a specific value, then the respective parameter entry can be removed/commented off from 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` cl

ause 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 J-5 NotificationConfig.cfg File Attributes

Parameter	Description
SMTP_SERVER_IP	Specify the hostname or IP address of SMTP Server.
SMTP_DEBUG_MODE	To run SMTP service in Debug mode, set value to 'true', otherwise set value to 'false'.
SMTP_AUTHORIZATION	Set to 'true' if SMTP server requires the client to be authenticated, otherwise set to 'false'.
SMTP_USERNAME	Username required for logging into SMTP server, if authentication is not required use a dummy value.
SMTP_PASSWORD	Password required for logging into SMTP server, if authentication is not required use a dummy value.
SMTP_MAILID	If the Messages has to go from a Particular ID that ID need to be added. Exchange server forces you set a valid ID that is there in the exchange server. (Based on Security settings)

Clearing Application Cache

This is applicable to all Web Servers (that is, WebSphere, WebLogic, and Tomcat).

Prior to the deployment of Infrastructure or Application Service Packs / One-off patches, navigate to the following path depending on the WebServer configured and clear the cache:

- **Tomcat:** <Tomcat installation folder>/work/Catalina/localhost/<Application name>/org/apache/jsp
- **WebLogic:** <Weblogic installation location>/domains/<Domain name>/servers/<Server name>/tmp/_WL_user/<Application name>/qaelce/jsp_servlet
- **WebSphere:** <Websphere installation directory>/AppServer/profiles/<Profile name>/temp/<Node name>/server1/<Application name>/<.war file name>

Configuring Password Changes

This section explains about how to modify the OFSAA Infrastructure Config Schema and Atomic Schema passwords.

Modifying OFSAA Infrastructure Config Schema Password

To change the Config Schema password, perform the following steps:

1. Change the Config schema User Password in the database.
2. Delete the \$FIC_HOME/conf/Reveleus.SEC file.
3. Shutdown the OFSAAI App service:




```
cd $FIC_APP_HOME/common/FICServer/bin
./stopofsaai.sh
```
4. Start the Infrastructure Server in foreground directly on the server or through X-Windows software using the command:


```
./startofsaai.sh
```

5. At the prompt, enter System Password. Enter the "new Config schema" password. The service will start and initialize itself if it is able to successfully connect to the DB.
6. If you are using Apache Tomcat as Web server, update the `<Context>` -> Resource tag details in `Server.xml` file from the `$CATALINA_HOME/conf` directory. For Tomcat, both Config Schema (FICMASTER resource) and Atomic Schema (`<INFODOM_NAME>` resource) exist.
If you are using WebSphere as Web server:
 - a. Login to the WebSphere Administration Console, from the left side menu.
 - b. Navigate to *Resources > JDBC > Data Sources*. A list of data sources will be populated on the right side.
 - c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources will need to be modified).If you are using WebLogic as Web server:
 - a. Login to the WebLogic Administration Console, from the left side menu
 - b. Under Domain Structure list box, expand the appropriate Domain and navigate to *Services > JDBC > Data Sources*. A list of data sources will be populated on the right side.
 - c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
7. Post successful startup of the service, if required, the Infrastructure server may be shut down and restarted in the background using nohup mode.

Modifying OFSAA Infrastructure Atomic Schema Password

To change the Atomic Schema password, perform the following steps:

1. Change the Atomic schema User Password in the database.
2. Login to the application from the browser using SYSADMN account or any user id, which has System Administrator role mapped.
3. Navigate to *System Configuration > Database Details* window. Modify the password as explained in the following steps:
 - a. From the *Database Master* window, select the connection whose password you want to modify and click  button from the toolbar.
 - a. Click  button corresponding to the **Alias Name**. The *Alias Details* window is displayed.
 - b. Modify the password in the **Auth String** field.
4. If you are using Apache Tomcat as Web server, update the `<Context>` -> Resource tag details in `Server.xml` file from the `$CATALINA_HOME/conf` directory. For Tomcat, both Config Schema (FICMASTER resource) and Atomic Schema (`<INFODOM_NAME>` resource) exist.

If you are using WebSphere as Web server:

- a. Login to the WebSphere Administration Console, from the left side menu.
- b. Navigate to *Resources > JDBC > Data Sources*. A list of data sources will be populated on the right side.

- c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources will need to be modified).

If you are using WebLogic as Web server:

- a. Login to the WebLogic Administration Console, from the left side menu
 - b. Under *Domain Structure* list box, expand the appropriate Domain and navigate to *Services > JDBC > Data Sources*. A list of data sources will be populated on the right side.
 - c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
5. Restart the OFSAAI services.

Configuring Java Virtual Machine

While running several database intensive tasks in parallel, fetching the database connection from connection pool may face an error. To ensure no such error is encountered, add the line `securerandom.source=file:/dev/.urandom` in the `java.security` configuration file available in `$JAVA_HOME/jre/lib/security/` path.

This needs to be configured on all the machines or virtual machines where the OFSAAI database components (ficdb layer) are installed.

Configuring Internal Service (Document Upload/ Download)

This step can be ignored if it has already been configured as part of any previous IR /ML installation.

The Document Upload/Download feature has undergone a change and can now be configured to use Internal service for document upload / download instead of the earlier ExeWebService.

To facilitate Internal service for document upload/ download, perform the following configurations:

1. Create the folders **download**, **upload**, **TempDocument** and **Temp** in the local path of Web application server and provide **Read/Write** permission.
 - ⤵ To find the exact location, execute the following query in CONFIG schema:


```
select localpath from web_server_info
```
 - ⤵ To create folders with Read/Write permission, execute the command:


```
mkdir -m 777 download upload TempDocument Temp
```
2. Create **DocStorage** folder in the FTPSHARE location of APP tier and provide **Read/Write** permission.
 - ⤵ To find the exact location, execute the query in CONFIG schema:


```
select ftpdrive from app_server_info
```
 - ⤵ To create folder with Read/Write permission, execute the command:


```
mkdir -m 777 DocStorage
```

By default, the parameter `DOCUMENT_SERVICE_TYPE_EXTERNAL` value is set to **FALSE** in the Configuration table in CONFIG schema and hence the application "ExeWebService" will not be used. It is recommended that the value to be set to **FALSE** and use the Internal service for document upload/ downloads. If you intend to continue using the External ExeWebService, set the value to **TRUE**.

Navigate to `$FIC_HOME/EXEWebService/<WEBSERVER_TYPE>` directory of WEB tier and type `./ant.sh`. This triggers the creation of EAR/WAR file `EXEWebService.ear/.war`. The EAR/WAR file `EXEWebService.ear/.war` will be created in `$FIC_HOME/EXEWebService/<WEBSERVER_TYPE>` directory of WEB tier. Redeploy the generated EAR/WAR file onto your configured web application server.

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.



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 AtomicSchema:

```
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 olap_user 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 olap_user 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.

The following are the Grants for Config Schema entities for Atomic Users:

```
grant select on CSSMS_USR_PROFILE to &database_username
```



```

/
grant select on CSSMS_ROLE_MAST to &database_username
/
grant select on CSSMS_GROUP_MAST to &database_username
/
grant select on CSSMS_FUNCTION_MAST to &database_username
/
grant select on CSSMS_USR_GROUP_MAP to &database_username
/
grant select on CSSMS_USR_GROUP_DSN_SEG_MAP to &database_username
/
grant select on CSSMS_ROLE_FUNCTION_MAP to &database_username
/
grant select on CSSMS_GROUP_ROLE_MAP to &database_username
/
grant select on CSSMS_SEGMENT_MAST to &database_username
/
grant select on CSSMS_USR_DSN_SEG_MAP to &database_username
/
grant select on CSSMS_USR_ROLE_MAP to &database_username
/
grant select on CSSMS_METADATA_SEGMENT_MAP to &database_username
/
grant select on BATCH_RUN to &database_username
/
grant select on PR2_FILTERS to &database_username
/
grant select on PR2_TASK_FILTER to &database_username
/
grant select on PR2_TASK_FILTER_DETAIL to &database_username
/
grant select on ST_STRESS_MASTER to &database_username
/
grant select on ST_SCENARIO_MASTER to &database_username
/
grant select on ST_SHOCK_MASTER to &database_username
/

```

```
grant select on BATCH_MASTER to &database_username
/
grant select on ICC_MESSAGELOG to &database_username
/
grant select on PR2_MASTER to &database_username
/
grant select on PR2_RUN_REQUEST to &database_username
/
grant select on MF_MODEL_SCRIPT_MASTER to &database_username
/
grant select on MF_INPUT_VALUES to &database_username
/
grant select on MF_MODEL_OUTPUT_VALUES to &database_username
/
grant select on DB_MASTER to &database_username
/
grant select on DSNMASTER to &database_username
/
grant select on pr2_rule_map to &database_username
/
grant delete on pr2_rule_map_pr to &database_username
/
grant insert on pr2_rule_map_pr to &database_username
/
grant update on pr2_rule_map_pr to &database_username
/
grant select on pr2_rule_map_pr to &database_username
/
grant delete on pr2_rule_map_pr_tmp to &database_username
/
grant insert on pr2_rule_map_pr_tmp to &database_username
/
grant update on pr2_rule_map_pr_tmp to &database_username
/
grant select on pr2_rule_map_pr_tmp to &database_username
/
grant select on pr2_rule_map_exclude to &database_username
```

```

/
grant delete on pr2_rule_map_exclude_pr to &database_username
/
grant insert on pr2_rule_map_exclude_pr to &database_username
/
grant update on pr2_rule_map_exclude_pr to &database_username
/
grant select on pr2_rule_map_exclude_pr to &database_username
/
grant delete on pr2_rule_map_exclude_pr_tmp to &database_username
/
grant insert on pr2_rule_map_exclude_pr_tmp to &database_username
/
grant update on pr2_rule_map_exclude_pr_tmp to &database_username
/
grant select on pr2_rule_map_exclude_pr_tmp to &database_username
/
grant select on pr2_run_object to &database_username
/
grant select on pr2_run_object_member to &database_username
/
grant select on pr2_run_map to &database_username
/
grant select on pr2_run_execution_b to &database_username
/
grant select on pr2_run_execution_filter to &database_username
/
grant select on pr2_firerun_filter to &database_username
/
grant select on pr2_filters to &database_username
/
grant select on configuration to &database_username
/
grant select on batch_parameter to &database_username
/
grant select on component_master to &database_username
/

```

```
grant select on MDB_OBJECT_TYPE_ATT_LAYOUT to &database_username
/
grant select on REV_OBJECT_ATTRIBUTE_DTL to &database_username
/
grant select on FORMS_LOCALE_MASTER to &database_username
/
grant select on mdb_object_dependencies to &database_username
/
grant select on mdb_execution_details to &database_username
/
grant select on REV_STAT_DATA to &database_username
/
grant select on REV_OBJECT_REPOSITORY_B to &database_username
/
grant select on REV_OBJECT_REPOSITORY_TL to &database_username
/
grant select on REV_OBJECT_ATTRIBUTE_DTL_MLS to &database_username
/
grant select on REV_OBJECT_APPLICATION_MAP to &database_username
/
grant select on MDB_OBJ_EXPR_DETAILS to &database_username
/
grant select on MDB_EXECUTION_DETAILS to &database_username
/
grant select on REV_OBJECT_TYPES_CD to &database_username
/
grant select on REV_OBJECT_TYPES_MLS to &database_username
/
grant select on REV_APPLICATIONS_CD to &database_username
/
grant select on REV_APPLICATIONS_MLS to &database_username
/
grant select on METADATA_BROWSER_LOCALE to &database_username
/
grant select on MDB_STAT_DATA to &database_username
/
grant select on MDB_OBJECT_TYPE_LAYOUT to &database_username
```

```

/
grant select on ofsa_md_id_ref to &database_username
/
grant select on MDB_ETL_MAPPING to &database_username
/
grant select on setupinfo to &database_username
/
grant select on LOCALREPOSITORY to &database_username
/
grant select on MF_MODEL_MASTER to &database_username
/
grant select on MF_SANDBOX_MASTER to &database_username
/
grant select on MF_VARIABLE_MASTER to &database_username
/
grant select on MF_TECHNIQUE_MASTER to &database_username
/
grant select on MDB_RULE_SOURCE_HEADER to &database_username
/
grant select on MDB_RULE_TARGET_HEADER to &database_username
/
grant select on MDB_RULE_TARGET_MEMBER_HEADER to &database_username
/
grant select on MDB_RULE_GRID_DATA to &database_username
/
grant select on MDB_MODEL_MAPPING to &database_username
/
grant delete on AAI_MAP_MAPPER to &database_username
/
grant insert on AAI_MAP_MAPPER to &database_username
/
grant update on AAI_MAP_MAPPER to &database_username
/
grant select on AAI_MAP_MAPPER to &database_username
/
grant select on RTI_UI_EXCLUDE_PDM_LIST to &database_username
/

```

```
grant select on RTI_VIR_PHY_TBL_NAME to &database_username  
/  
grant select on infodom_patches to &database_username  
/
```



Configuring Application Pack XML Files

This section explains configuration of <<App Pack>>_PACK.xml and <<App Pack>>_SCHEMA_IN.xml files.

This section includes the following topics:

- [Configuring <<APP Pack>>_PACK.xml File](#)
- [Configuring <<APP Pack>>_SCHEMA_IN.xml File](#)

Configuring <<APP Pack>>_PACK.xml File

The <<APP PACK>>_PACK.xml file holds details on the various OFSAA products that are packaged in a particular Application Pack.

The following table gives details about the various tags/ parameters available in the file and the values that need to be updated. Prior to installing the OFSAA Application Pack in SILENT mode, it is mandatory to update this file.

Table M-1 <<APP PACK>>_PACK.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
APP_PACK_ID	Unique Application Pack Identifier	Y	Unique Seeded Value	DO NOT modify this value.
APP_PACK_NAME	Unique Application Pack Name	Y	Unique Seeded Value	DO NOT modify this value.
APP_PACK_DESCRIPTION	Unique Application Pack Description	Y	Unique Seeded Value	DO NOT modify this value.
VERSION	Unique release version	Y	Unique Seeded Value	DO NOT modify this value.
APP	Unique Application Entries	Y	Unique Seeded Value	DO NOT remove these tags.
APP_ID	Unique Application Identifier	Y	Unique Seeded Value	DO NOT modify this value.
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 M-1 <<APP PACK>>_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 <<APP Pack>>_SCHEMA_IN.xml File

Creating database schemas, objects within schemas and assigning appropriate grants are the primary steps in the installation process of OFSAA Applications. The <<APP PACK>>_SCHEMA_IN.xml file contains details on the various application schemas that should be created prior to the Application Pack installation.

Note: This file should be configured only in case of OFS MMG 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 M-2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandato ry (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:@<HOST/ IP>:<PORT>:<SID> or jdbc:oracle:thin:@//[HOST T]:[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:@/dbhost.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 M-2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandato ry (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 M-2 <<APP PACK>> _SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ TYPE	<p>The different types of schemas that are supported in this release are ATOMIC, CONFIG, SANDBOX, and ADDON.</p> <p>By default, the schemas types are seeded based on the Application Pack.</p> <p>Note: Do not edit this attribute value.</p>	Y	<p>ATOMIC/CONFIG/SANDBOX/ADDON</p> <p>Note: SANDBOX AND ADDON schemas are not applicable for OFS MMG Application Pack.</p>	<p>Only One CONFIG schema can exist in the file.</p> <p>This schema identifies as the CONFIGURATION schema that holds the OFSAA setup details and other metadata information.</p> <p>Multiple ATOMIC/SANDBOX/ ADDON schemas can exist in the file.</p> <p>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).</p>
<SCHEMA>/ NAME	<p>By default, the schemas names are seeded based on the Application Pack.</p> <p>You can edit the schema names if required.</p> <p>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.</p>	Y	<p>The permissible length is 15 characters and only alphanumeric characters allowed. No special characters allowed except underscore '_'.</p>	<p>SETUPINFO/ NAME attribute value would be prefixed to the schema name being created.</p> <p>For E.g. if name is set as 'ofsaaatm' and setupinfo as 'uat' then schema being created would be 'uat_ofsaaatm'.</p> <p>NAME should be same where APP_GRP=1 for all SCHEMA tags (Not applicable for this Application Pack).</p>
<SCHEMA>/ PASSWORD	<p>Enter the password of the schema to be created.</p> <p>Note: If this attribute is left blank, then the password specified in the <PASSWORD>/DEFAULT attribute is applied as the Schema Password.</p>	N	<p>The maximum length allowed is 30 characters. Special characters are not allowed.</p>	<p>Note: You need to mandatorily enter the password if you have set the <PASSWORD>/APPLYSAMEFORALL attribute as N.</p>
<SCHEMA>/ APP_ID	<p>By default, the Application ID is seeded based on the Application Pack.</p> <p>Note: Do not edit this attribute value.</p>	Y	<p>Unique Seeded Value</p>	<p>Identifies the Application/ Product for which the schema is being created.</p> <p>DO NOT modify this value.</p>

Table M-2 <<APP PACK>>_SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ DEFAULTTABLESPACE	Enter the available default tablespace for DB User. Note: If this attribute is left blank, then USERS is set as the default tablespace.	N	Default - USERS Permissible - Any existing valid tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ TEMPTABLESPACE	Enter the available temporary tablespace for the DB User. Note: If this attribute is left blank, then TEMP is set as the default tablespace.	N	Default - TEMP Permissible - Any existing valid temporary tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ QUOTA	Enter the quota to be set on DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace	N	Example, 600M/m 20G/g UNLIMITED/unlimited	Modify this value to grant the specified quota on the mentioned tablespace to the user.
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute.	N	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed.	
<ADV_SEC_ OPTIONS>	Parent tag to hold Advance Security Options.	N		Uncomment the tag and edit if you want to add security options. For example, TDE and Data Redact. For details, see the example following the table.
<ADV_SEC_ OPTIONS>/TDE	Tag to enable/disable TDE.	N	Default is FALSE. To enable TDE, set this to TRUE.	Ensure this tag is not commented if you have uncommented <ADV_ SEC_OPTIONS>/
<ADV_SEC_ OPTIONS>/ DATA_ REDACT	Tag to enable/disable Data Redaction feature.	N	Default is FALSE. To enable DATA_REDACT, set this to TRUE	Ensure this tag is not commented if you have uncommented <ADV_ SEC_OPTIONS>/

Table M-2 <<APP PACK>> _SCHEMA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<TABLESPACE S>	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 <TABLESPACE> tag to be present in the xml file.
<TABLESPACE >/ NAME	Logical Name of tablespace to be created.	Y		Name if specified should be referred in the <SCHEMA DEFAULTTABLESPACE= "##NAME##"> attribute. Note the ## syntax.
<TABLESPACE >/ VALUE	Physical Name of the tablespace to be created	Y	NA	Value if specified will be the actual name of the TABLESPACE.
<TABLESPACE >/ DATAFILE	Specifies the location of the data file on the server	Y	NA	Enter the absolute path of the file to be created.
<TABLESPACE >/ AUTOEXTEND	Specifies if the tablespace should be extensible or have a hard limit	Y	ON or OFF	Set to ON to ensure that the tablespace does not run out of space when full.
<TABLESPACE >/ ENCRYPT	Specifies if the tablespace(s) should be encrypted using TDE.	Y	ON or OFF	Set to ON to ensure that the tablespaces when created are encrypted using TDE.

Note: Encryption of tablespaces requires 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_MMG"
    DEFAULTTABLESPACE="##OFS_AAI_TBSP_2##" TEMPTABLESPACE="TEMP"
    QUOTA="unlimited" INFODOM="OFSAAAIINFO"/>
</SCHEMAS>
```

Configuring OFSAAI_InstallConfig.xml File

This section gives details about the OFSAAI_InstallConfig.xml file.

Configuring OFSAAI_InstallConfig.xml file

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

1. Navigate to OFS_AAAI_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 N-1 OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
<Layer name="GENERAL">		
WEBAPPSERVERTYPE	<p>Identifies the web application server on which the OFSAA Infrastructure web components would be deployed.</p> <p>The following numeric value should be set depending on the type:</p> <ul style="list-style-type: none"> ? Apache Tomcat = 1 ? IBM WebSphere Application Server = 2 ? Oracle WebLogic Server = 3 <p>For example, <InteractionVariable name="WEBAPPSERVERTYPE">3</InteractionVariable></p>	Yes
DBSERVER_IP	<p>Identifies the hostname or IP address of the system on which the Database Engine is hosted.</p> <p>Note: For RAC Database, the value should be NA.</p> <p>For example, <InteractionVariable name="DBSERVER_IP">14.15.16.17</InteractionVariable> or <InteractionVariable name="DBSERVER_IP">dbhost.server.com</InteractionVariable></p>	Yes
ORACLE_SID/SERVICE_NAME	<p>Identifies the Oracle DB Instance SID or SERVICE_NAME</p> <p>Note: The Oracle_SID value should be exactly the same as it is mentioned in JDBC_URL.</p> <p>For example, <InteractionVariable name="ORACLE_SID/SERVICE_NAME">ofsaser</InteractionVariable></p>	Yes

Table N-1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
ABS_DRIVER_PATH	<p>Identifies the directory where the JDBC driver (ojdbc<version>.jar) exists. This would typically be the \$ORACLE_HOME/jdbc/lib</p> <p>For example, <InteractionVariable name="ABS_DRIVER_PATH">">/oradata6/revwb7/oracle </InteractionVariable></p> <p>Note: Refer Appendix O for identifying the correct "ojdbc<version>.jar" version to be copied.</p>	Yes
OLAP_SERVER_IMPLEMENTATION	<p>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:</p> <p>? YES - 1</p> <p>? NO - 0</p>	No
<p>Note: If value for OLAP_SERVER_IMPLEMENTATION is set to 1, it checks for following environment variables are set in profile:</p> <p>ARBORPATH, HYPERION_HOME and ESSBASEPATH.</p>		
SFTP_ENABLE	<p>Identifies if the SFTP (Secure File Transfer Protocol) feature is to be enabled. The following numeric value should be set depending on the choice:</p> <p>? SFTP - 1</p> <p>? FTP - 0</p>	Yes
<p>Note: The default value for SFTP_ENABLE is 1, which signifies that SFTP will be used. Oracle recommends using SFTP instead of FTP because SFTP is considered more secure. However, a client may choose to ignore this recommendation and to use FTP by setting SFTP_ENABLE to 0. This selection may be changed later by using the OFSAAI administration interface.</p>		
FILE_TRANSFER_PORT	<p>Identifies the port used for the file transfer service. The default value specified is 22 (SFTP). Specify value as 21 or any other PORT value if value for SFTP_ENABLE is 0.</p> <p>For example, <InteractionVariable name="FILE_TRANSFER_PORT">21</InteractionVariable></p>	Yes
LOCALE	<p>Identifies the locale information to be used during the installation. This release of the OFSAA Infrastructure supports only US English.</p> <p>For example, <InteractionVariable name="LOCALE">en_US</InteractionVariable></p>	Yes
<p>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.</p>		
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

Table N-1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
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	<p>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:</p> <ul style="list-style-type: none"> ? YES - 1 ? NO - 0 <p>For example, <InteractionVariable name="HTTPS_ENABLE">0</InteractionVariable></p>	Yes
WEB_SERVER_IP	<p>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.</p> <p>If no separate HTTP Server is available, the value should be Web Application Server IP/Hostname.</p> <p>For example, <InteractionVariable name="WEB_SERVER_IP">10.11.12.13</InteractionVariable></p> <p>or</p> <p><InteractionVariable name="WEB_SERVER_IP">myweb.server.com</InteractionVariable></p>	No
WEB_SERVER_PORT	<p>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.</p> <p>Note: The port value will not be accepted as 80 if HTTPS_ENABLE is 1 and as 443, if HTTPS_ENABLE is 0.</p> <p>For example, <InteractionVariable name="WEB_SERVER_PORT">80</InteractionVariable></p>	No
CONTEXT_NAME	<p>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:</p> <p><scheme>://<host>:<port>/<context-name>/login.jsp</p> <p>Sample URL: https://myweb:443/ofsaadev/login.jsp</p> <p>For example, <InteractionVariable name="CONTEXT_NAME">ofsaadev</InteractionVariable></p>	Yes
WEBAPP_CONTEXT_PATH	<p>Identifies the absolute path of the exploded .ear file on the web application server.</p> <p>For Tomcat, specify the Tomcat directory path till /webapps, such as /oradata6/revwb7/tomcat/webapps/.</p> <p>For WebSphere, enter the WebSphere path as <WebSphere profile directory>/installedApps/<NodeCellName>. For example, /data2/test//WebSphere/AppServer/profiles/<ProfileName>/installedApps/aix-imfNode01Cell. Where aix-imf is Host name.</p> <p>For WebLogic, provide the WebLogic home directory path as /<WebLogic home directory path>/bea/wlserver_10.3</p> <p>Note: For WebLogic, value specified for this attribute is ignored and value provided against attribute WEBLOGIC_DOMAIN_HOME is considered.</p>	Yes

Table N-1 (Cont.) OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
WEB_LOCAL_PATH	<p>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.</p> <p>Note: In case of a clustered deployment, ensure this path and directory is same on all the nodes.</p>	Yes
WEBLOGIC_DOMAIN_HOME	<p>Identifies the WebLogic Domain Home.</p> <p>For example, <InteractionVariable name="WEBLOGIC_DOMAIN_HOME">/home/weblogic/boa/user_projects/domains/mydomain</InteractionVariable></p>	Yes Specify the value only if WEBSEVERTYPE is set as 3 (WebLogic)
OFSAAI_FTPSHARE_PATH	<p>Identifies the absolute path to the directory identified as file system stage area.</p> <p>Note:</p> <ul style="list-style-type: none"> ? 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. <p>For example, <InteractionVariable name="APP_FTPSHARE_PATH">"/oradata6/revwb7/ftpshare</InteractionVariable></p>	Yes
OFSAAI_SFTP_USER_ID	<p>Identifies the user who has RWX permissions on the directory identified under the preceding parameter APP_FTPSHARE_PATH.</p>	Yes
HIVE_Details	<ul style="list-style-type: none"> ? HIVE_SERVER_PORT: Identifies the port used for the file transfer service. The default value specified is 22 (SFTP) or 21 (FTP). ? HIVE_SERVER_FTPDRIVE: Identifies the absolute path to the directory identified as file system stage area of HIVE server. ? HIVE_SERVER_FTP_USERID: Identifies the user who has RWX permissions on the directory identified under the preceding parameter HIVE_SERVER_FTPDRIVE. ? HIVE_SERVER_FTP_PROTOCOL: If the HIVE_SERVER_PORT is 21, then value is FTP, else it is SFTP. 	Yes, only for HIVE Configuration
OFSAAI_SFTP_PRIVATE_KEY	<p>Identifies the SFTP private key for OFSAAI.</p> <p>For example,</p> <pre><InteractionVariable name="OFSAAI_SFTP_PRIVATE_KEY">/scratch/base81/.ssh/id_rsa</InteractionVariable></pre> <p>By default, the value is NA, which means password will be prompted for the user <OFSAAI_SFTP_USER_ID> for authentication.</p> <p>For more information on generating SFTP Private key, see the <<>> section.</p>	No

Table N-1 (Cont.) OFSAAI Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
OFSAAI_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for OFSAAI. For example, InteractionVariable name="OFSAAI_SFTP_PASSPHRASE">enter a passphrase 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
HIVE_SFTP_PRIVATE_KEY	Identifies the SFTP private key for the HIVE server. For example, <InteractionVariable name="HIVE_SFTP_PRIVATE_KEY">NA</InteractionVariable>	No
HIVE_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for HIVE. For example, <InteractionVariable name="HIVE_SFTP_PASSPHRASE">NA</InteractionVariable>	No

Setting Up SFTP Private Key

Log in to OFSAAI Unix user using Putty tool, where you plan for installation and generate a pair of authentication keys using the `ssh-keygen` command. If required, set passphrase. Otherwise OFSAAI_SFTP_PASSPHRASE tag should be set to NA.

To generate private key, enter the commands as shown:

```
ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ofsaapp/.ssh/id_rsa):
Created directory '/home/ofsaapp/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ofsaapp/.ssh/id_rsa.
Your public key has been saved in /home/ofsaapp/.ssh/id_rsa.pub.
The key fingerprint is:
3e:4f:05:79:3a:9f:96:7c:3b:ad:e9:58:37:bc:37:e4
ofsaapp@OFSASERVER:~> cat /home/ofsaapp/.ssh/id_rsa.pub >>
/home/ofsaapp/.ssh/authorized_keys
```

Ensure the following permissions exist for the given folders:

- ⌘ permissions of `.ssh` should be 700
- ⌘ permissions of `.ssh/authorized_keys` should be 640
- ⌘ permission of `.ssh/id_rsa` should be 400
- ⌘ Permission of Unix User created should be 755

JDBC Jar Files

The `ojdbc<version>.jar` files should be copied based on the Oracle Database version and the supported Java (JDK/JRE) version. See the following table for details:

Table O-1 JDBC Jar files version details

Oracle Database Version	JDK/JRE Version Supported	JDBC Jar files specific to the release
12.1 or 12cR1	JDK 8 and JDK 7	ojdbc7.jar for JDK 7 and JDK 8
11.2 or 11gR2	JDK 7 and JDK 8 supported in 11.2.0.3 and 11.2.0.4	ojdbc6.jar for JDK 8 and JDK 7



Upgrading an Existing OFSAA 8.0.x Java 7 Instance to Java 8

This section explains the configurations required to upgrade an existing OFSAA 8.0.x Java 7 instance to Java 8. It consists of the following topics:

- ? [Prerequisites](#)
- ? [Upgrading OFSAA 8.0.x Java 7 instance to Java 8](#)
- ? [Configuring Web Application Server](#)
- ? [OFSAA Generic Configurations](#)
- ? [Configuring OFSAA for New Web Application Server Installation](#)

Prerequisites

The following are the prerequisites for upgrading OFSAA 8.0.x Java 7 instance to Java 8:

Java 8 should be installed on the OFSAA server and Web Application Server.

Upgrading OFSAA 8.0.x Java 7 instance to Java 8

To upgrade OFSAA 8.0.x Java 7 instance to Java 8, follow these steps:

1. Configure Web Application Server to Java 8. For more information, refer [Configuring Web Application Server](#).
2. Configure the OFSAA instance to Java 8. For more information, refer [OFSAA Generic Configurations](#). For a newly installed Web Application Server, refer [Configuring OFSAA for New Web Application Server Installation](#)
3. Restart the OFSAA services. For more information, refer the *Start/Stop Infrastructure Services* section in [Appendix E](#)
4. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR/WAR file, refer [Appendix D](#).

Configuring Web Application Server

This section describes the changes to be made in the Web Application Server. Following are the two options to perform Web Application Server Configurations which are listed as follows:

- Upgrade the existing Web Application Server installation to Java 8
- Install a new instance of the Web Application Server with Java 8

This section consists of the following topics:

- [Upgrading Oracle WebLogic Server](#)
- [Upgrading Apache Tomcat Server](#)

Upgrading Oracle WebLogic Server

Perform the following configurations to upgrade the existing WebLogic server instance to Java 8:

1. Navigate to `<WLS_HOME>/Middleware/Oracle_Home/wlserver`.
2. Edit the `product.properties` file. Set `JAVA_HOME`, `WLS_JAVA_HOME`, `JAVAHOME` properties to the new Java path and `java.vm.version` to the new Java version. For example,

```
JAVA_HOME=/usr/java/jre1.8.0_45
WLS_JAVA_HOME=/usr/java/jre1.8.0_45
JAVAHOME=/usr/java/jre1.8.0_45
java.vm.version=1.8.0_45
```
3. Navigate to `<WLS_HOME>/Middleware/Oracle_Home/user_projects/domains/<domain>/bin`. Update `SUN_JAVA_HOME`, `DEFAULT_JAVA_HOME`, `JAVA_HOME` in the `setDomainEnv.sh` file to point to the new Java path. For example,

```
SUN_JAVA_HOME="/usr/java/jre1.8.0_45"
DEFAULT_SUN_JAVA_HOME="/usr/java/jre1.8.0_45"
JAVA_HOME="/usr/java/jre1.8.0_45"
```
4. Clear the Application cache. Navigate to the following path and delete the files:

```
<Weblogic installation location>/domains/<Domain name>/servers/<Server name>/tmp/_WL_user/<Application name>/qaelce/jsp_servlet
```

If you wish to install a new instance of the Oracle WebLogic Server, follow these steps:

1. Install Oracle WebLogic Server 12.2.x on Java 8.
2. Perform the configurations for the newly installed WebLogic server. For more information refer [Configuring Resource Reference in Weblogic ApplicationServer](#).

Note: While creating WebLogic Domain, the Listen Port should be set same as that of the existing Domain.

Note down the new Domain path to perform OFSAA Configurations.

Upgrading Apache Tomcat Server

Perform the following configurations to upgrade the existing Apache Tomcat Server from Java 7 to Java 8:

1. Login to the Apache Tomcat Server as a non-root user.

2. Edit the user `.profile`. Update the value for `JAVA_HOME` from JRE 1.7 to JRE 1.8. For Example,

```
JAVA_HOME=/usr/java/jre1.8.0_45
```

3. Clear the Application cache. Navigate to the following path and delete the files:

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

If you wish to install a new instance of the Apache Tomcat Server, follow these steps:

1. Install Apache Tomcat Server 8 with Java 8.
2. Perform the configurations for the newly installed Tomcat server. For more information refer [Configuring Resource Reference in Tomcat ApplicationServer](#).

Note: Update the Connector Port in `/apache-tomcat-8.0.21/conf/server.xml` file to that of the existing Tomcat instance.

Note down the new deployment path to perform OFSAA Configurations.

OFSAA Generic Configurations

This section consists of the following topics:

- [Configuring User .profile Settings](#)
- [Configuring Java 8](#)

Configuring User `.profile` Settings

Perform the following configurations:

1. Log in to the OFSAA server as a non-root user.
2. Edit the user `.profile`. Update the value for `PATH` variable from JRE 1.7 to JRE 1.8. For example,

```
PATH=/usr/java/jre1.8.0_45/jre
```

```
JAVA_BIN=/usr/java/jre1.8.0_45/jre/bin
```

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/java/jre1.8.0_45/jre/lib/amd64/server
```

Configuring Java 8

- 1 If the Oracle Database version is 12c, copy `ojdbc7.jar` from `$ORACLE_HOME/jdbc/lib` to the following locations:
 - ⋄ `$FIC_HOME/utility/OFSAAGenerateRepository/lib/`
 - ⋄ `$FIC_HOME/realtime_processing/WebContent/WEB-INF/lib/`
 - ⋄ `$FIC_HOME/ficdb/lib/`
 - ⋄ `$FIC_HOME/ficapp/icc/lib/`
 - ⋄ `$FIC_HOME/ficapp/common/FICServer/lib/`
 - ⋄ `$FIC_HOME/FMStandalone/FormsManager/WEB-INF/lib/`
 - ⋄ `$FIC_HOME/ficweb/webroot/WEB-INF/lib/`
 - ⋄ `$FIC_HOME/ficdb/etl/classes/`

Note: If `ojdbc6.jar` is already present in any of the aforementioned folders, you need to remove it.

- 2 If the Oracle Database version is 11g, copy `ojdbc6.jar` from `$ORACLE_HOME/jdbc/lib` to the following locations:
 - ⋄ `$FIC_HOME/utility/OFSAAGenerateRepository/lib/`
 - ⋄ `$FIC_HOME/realtime_processing/WebContent/WEB-INF/lib/`
 - ⋄ `$FIC_HOME/ficdb/lib/`
 - ⋄ `$FIC_HOME/ficapp/icc/lib/`
 - ⋄ `$FIC_HOME/ficapp/common/FICServer/lib/`
 - ⋄ `$FIC_HOME/FMStandalone/FormsManager/WEB-INF/lib/`
 - ⋄ `$FIC_HOME/ficweb/webroot/WEB-INF/lib/`
 - ⋄ `$FIC_HOME/ficdb/etl/classes/`

Configuring OFSAA for New Web Application Server Installation

This configuration is required only if you have freshly installed Oracle WebLogic 12.2.x or Apache Tomcat Server 8.0. Follow these steps:

1. Modify the following parameters in the Configuration table present in the Config Schema with the new Domain Path in case of WebLogic or with the new deployment path in case of Tomcat:
 - ⋄ `DeFiHome`
 - ⋄ `REV_IMG_PATH`
 - ⋄ `EMBEDDED_JSP_JS_PATH`
2. Log in to the OFSAA server as a non-root user.
3. Navigate to `$FIC_HOME/ficweb/webroot/WEB_INF` and update the following parameters in the `web.xml` file with the new Domain path in case of WebLogic or with the new deployment path in case of Tomcat:

- FIC_PHYSICAL_HOME_LOC
 - FIC_HOME
 - ICC_SERVLET_LOG_FILE
4. Navigate to `$FIC_HOME/ficweb/webroot/conf` and update the Domain path in case of WebLogic or with the new deployment path in case of Tomcat:
- OFSAALogger.xml
 - MDBLogger.xml
 - RevLog4jConfig.xml
 - RFDLogger.xml
 - ExportLog4jConfig.xml
 - RFDLogger.xml
 - PR2Logger.xml

Removing OFSAA

This chapter includes the following sections:

- 7 [Uninstalling OFSAA Infrastructure](#)
- 7 [Uninstalling EAR Files in WebSphere](#)
- 7 [Uninstalling EAR Files in WebLogic](#)
- 7 [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. Log in to the system as non-root user.
2. Navigate to the `$FIC_HOME` directory and execute the command:

```
./Uninstall.sh
```
3. Enter the password for OFSAAI Configuration Schema when prompted as shown in the following figure.

Figure 5–12 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:

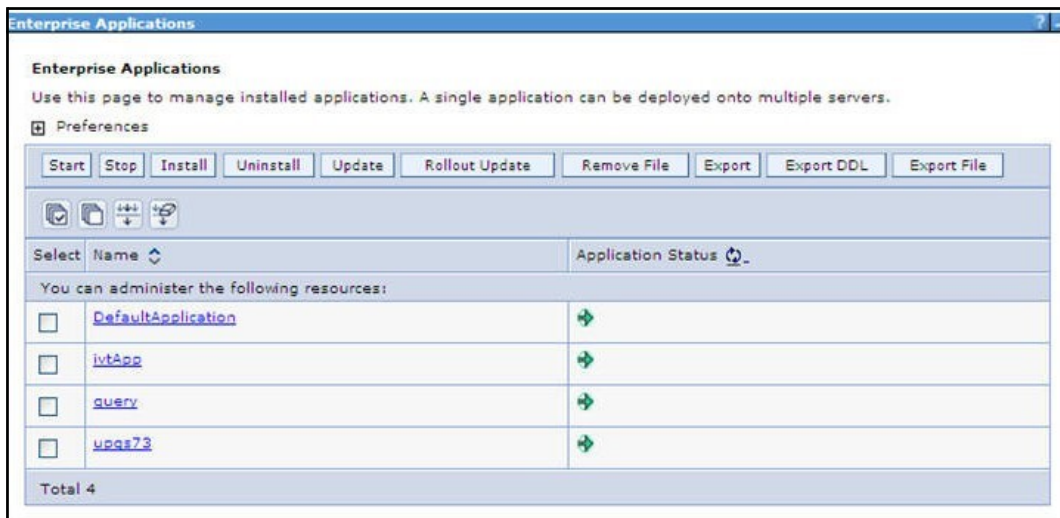
- ⌚ Uninstallation does not remove the Infrastructure application from the Web Application Server. This has to be done manually.
- ⌚ The entries in the `.profile` file will have to be removed manually.
- ⌚ The files/ folders under the file system staging area (ftpshare) have to be deleted manually.
- ⌚ 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:

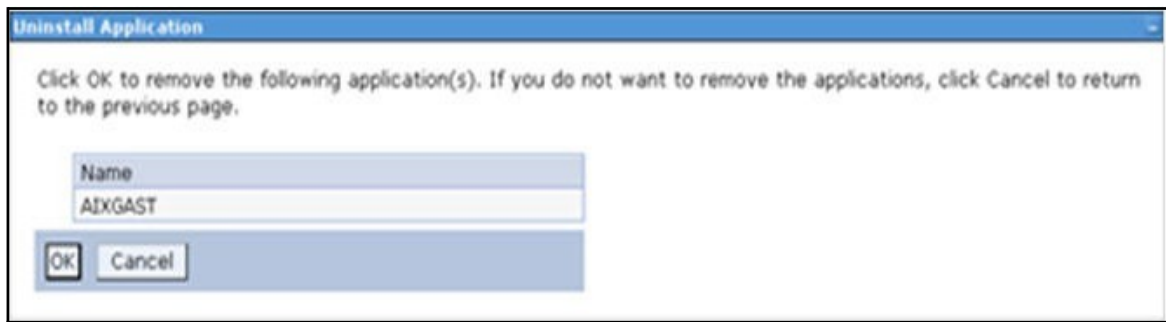
- 1 Open the URL in the browser window: `http://<ipaddress>:<Administrative Console Port>/ibm/console` (https if SSL is enabled). The *Login* window is displayed.
- 2 Login with the user id that has admin rights.
- 3 Expand Applications > Application Types > WebSphere enterprise applications from the LHS. The *Enterprise Applications* window is displayed with all the deployed applications.

Figure 5–13 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 5–14 Uninstall Application



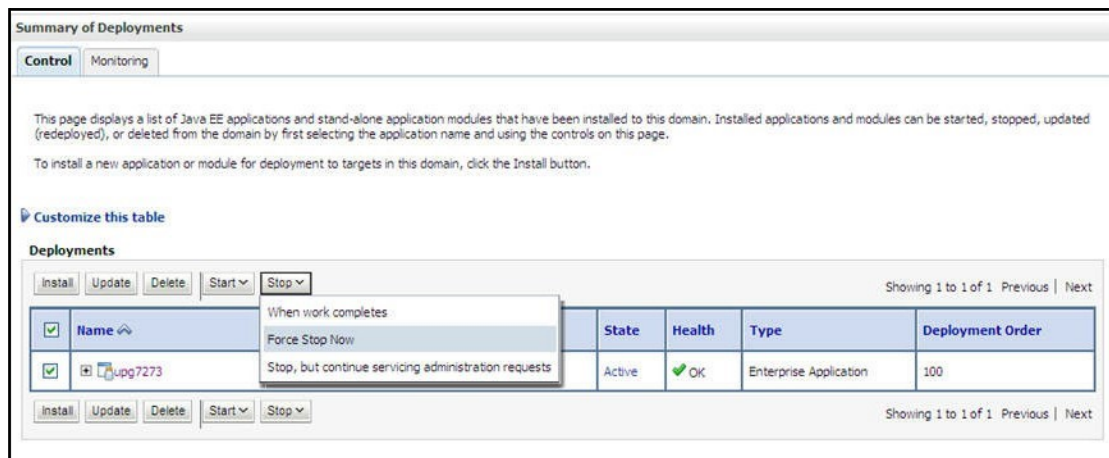
- 6 Click **OK** to confirm.
- 7 Click **Save** to save the master file configuration.

Uninstalling EAR Files in WebLogic

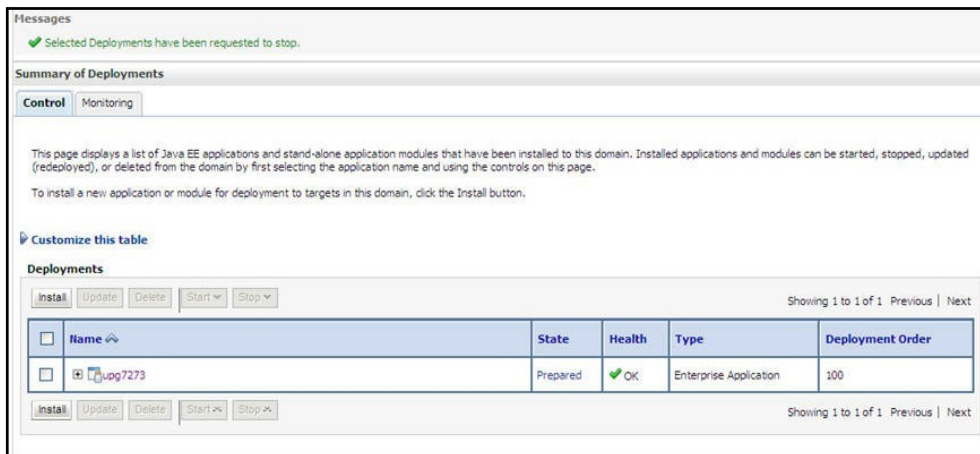
On the machine that hosts WebLogic, perform the following steps to uninstall any previously deployed application:

- 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 5–15 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 5–16 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>
-->
```

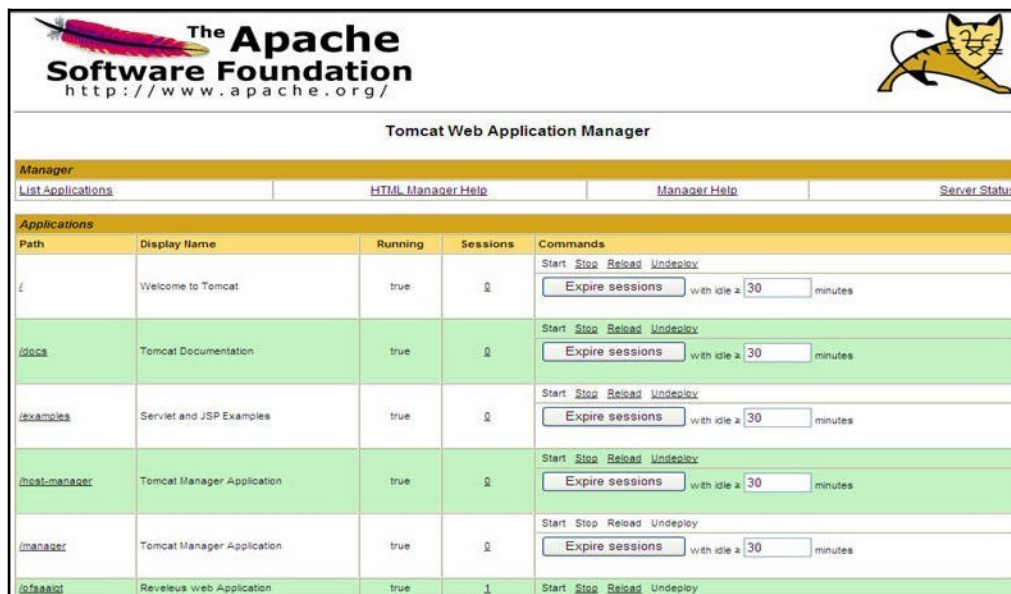
Restart the Tomcat service by doing the following:

- 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 5–17 Tomcat Web Application Manager



Tomcat Web Application Manager				
Manager				
List Applications	HTML Manager Help	Manager Help	Server Status	
Applications				
Path	Display Name	Running	Sessions	Commands
/	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle > 30 minutes
/docs	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle > 30 minutes
/examples	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle > 30 minutes
/host-manager	Tomcat Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle > 30 minutes
/manager	Tomcat Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle > 30 minutes
/infrastruct	Reveleus Web Application	true	1	Start Stop Reload Undeploy

5. Click the **Undeploy** link against the deployed Infrastructure application. A confirmation message is displayed on the application /Infrastructure being uninstalled.

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

Two features comprise of Oracle Advanced Security: Transparent Data Encryption and Oracle Data Redaction.

This section details the configurations required in case you want to enable TDE or Data Redaction in OFSAA applications.

Prerequisites

Ensure the required Oracle Database Server versions are installed:

- Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.4.0+) - 64 bit RAC/Non-RAC with/without partitioning option, Advanced Security Option.
- 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.

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.

Perform the following steps to configure TDE for OFSAA:

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 newDB instance.

For example:

```
impdp SYSTEM/oracle@OFSA12nDB DIRECTORY=data_pump_dir DUMPFILE=ofsaaconf_
ofsaaatm_%U.dmp SCHEMAS=ofsaaconf,ofsaaatm LOGFILE=ofsaaconf_ofsaaatm_
imp.log
```

Note: Restoring the exported dumps creates Configuration and Atomic Schema(s) with the same user credentials as that of the source, along with the existing grants.

If schemas are restored using a tool/ mechanism other than as mentioned in the Step 1 and 2, retain the user credentials of Configuration and Atomic Schemas same as in the Source environment, along with the Schema grants.

5. Provideselectgrants 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 under *Generic Configurations* chapter in [OFS Analytical Applications Infrastructure Administration Guide](#).
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 [Chapter E, "Starting/Stopping Infrastructure Services"](#) in this guide.

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 must have required privileges to perform the following actions.

To configure the software keystore, perform the following steps:

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)))
```

2. Create the Software Keystore

There are three different types of Software Keystores:

- Password-based Software Keystores
- Auto-login Software Keystores
- Local Auto-login Software Keystores

Perform the following steps to create a software keystore:

1. Login as `sysdba` or user with `ADMINISTER KEY MANAGEMENT` or `SYSKM` privilege.
2. Use the following command to create password-based software keystore:

```
CONN sys/password@serviceid AS SYSDBA
ADMINISTER KEY MANAGEMENT CREATE KEYSTORE 'keystore_location' IDENTIFIED BY
software_keystore_password;
- keystore_location is the path of the keystore directory you want to
  create
- software_keystore_password is the password of the keystore that you
  want to create.
```

For example, to create the keystore in the `/etc/ORACLE/WALLETS/orcl` directory:

```
ADMINISTER KEY MANAGEMENT CREATE KEYSTORE '/etc/ORACLE/WALLETS/orcl'
IDENTIFIED BY password;
```

After you run this statement, the `ewallet.p12` file, which is the keystore, appears in the keystore location.

- Alternatively, you can create an Auto-Login or Local-Login Keystore to avoid opening the Keystore manually every time. Use the following command:

```
ADMINISTER KEY MANAGEMENT CREATE [LOCAL] AUTO_LOGIN KEYSTORE FROM
KEYSTORE 'keystore_location' IDENTIFIED BY keystore_password;
```

- LOCAL enables you to create a local auto-login software keystore. Otherwise, omit this clause if you want the keystore to be accessible by other computers.

After you run this statement, the `cwallet.sso` file appears in the keystore location.

Note: It is important to remember the master key password (<keystore_password>) used during creation of the keystore. There are no ways to retrieve the password if forgotten.

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.

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:

- a. Login as sysdba or user with ADMINISTER KEY MANAGEMENT or SYSKM privilege.
- b. 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.

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:

- a. Login as `sysdba` or user with `ADMINISTER KEY MANAGEMENT` or `SYSKM` privilege.
- b. 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';
```

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:

- a. Step 1: Setting the COMPATIBLE initialization parameter for tablespace encryption
- b. Step 2: Setting the tablespace TDE master encryption key
- c. Step 3: Creating the Encrypted Tablespace

Step 1: Setting the COMPATIBLE initialization parameter for tablespace encryption

Prerequisite- You must set the COMPATIBLE initialization parameter for the database to 11.2.0.0 or later. Once you set this parameter to 11.2.0.0, the change is irreversible.

Perform the following steps to set the COMPATIBLE initialization parameter:

1. Log into the database instance. In a multitenant environment, log into the PDB.
2. Check the current setting of the COMPATIBLE parameter.

For example:

```
SHOW PARAMETER COMPATIBLE
```

NAME	TYPE	VALUE
compatible	string	12.0.0.0
noncdbcompatible	BOOLEAN	FALSE

3. If you want to change the COMPATIBLE parameter, perform the following steps:
 - 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).
 - 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
```

- Edit the initialization parameter file to use the correct COMPATIBLE setting.

For example:

```
COMPATIBLE = 12.2.0.0
```

- 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
```

- If tablespace encryption is in use, then open the keystore at the database mount. The keystore must be open before you can access data in an encrypted tablespace.

```
STARTUP MOUNT;
ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY password;
ALTER DATABASE OPEN;
```

Step 2: Setting the tablespace TDE master encryption key

Make sure that you have configured the TDE master encryption key as shown in Step 4: Setting the software TDE master encryption key.

Step 3: Creating the Encrypted Tablespace

After you have set the `COMPATIBLE` initialization parameter, you are ready to create the encrypted tablespace.

See the following reference link for details on manually creating encrypted tablespaces:

https://docs.oracle.com/cloud/latest/db121/ASOAG/asotrans_config.htm#ASOAG9555

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.

Enabling 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.

To enable Data Redaction, 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](#).

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 8.0.8.0.0 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 only in Silent 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_80700` 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 `OFSAAIInfrastructure_Install.log` in the Infrastructure Installation Directory. There is also another log file created in the

path configured in `Log4j.xml`. If the logs of any of these reported Warnings, Non Fatal Errors, Fatal Errors or Exceptions, they should be brought to the notice of the OFSAAI Oracle Support Services. It is recommended not to proceed, until the reported problems are adequately addressed.

How do I completely uninstall OFSAAI?

OFSAAI can be completely uninstalled by performing the steps provided in [Uninstalling OFSAA Infrastructure](#) section in this guide.

Can OFSAAI config and atomic schemas be on different databases?

OFSAAI requires both config and atomic schemas to be present on the same database instance.

How do I grant privileges if a new information domain is created?

If you are creating a new information domain, provide a set of privileges (database permissions) to the new Atomic schema.

- ⌘ Log into the database as **sys** and connect as **sysdba** user.
- ⌘ Execute the `fileprivileges_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, log in as UNIX user with which OFSAAI is getting installed and execute the command:

```
ulimit -n
```

The command should return the value 9216.

How do I verify if the system environment is ready for OFSAAI installation?

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

See [Verifying System Environment](#) section for additional information.

How do I know if the installation is completed successfully?

The OFSAA Infrastructure installation performs a post install health check automatically on successful installation of the product. To rerun the post install verification at a later time, perform the following steps:

- 1 Navigate to the path `$FIC_HOME`(Product Installation Directory).
- 2 Execute the command:

```
./piverify.sh
```

What should I do if there are any exceptions or errors in installation and how to proceed?

1. Please backup the installation logs.
2. Share the backup logs with Oracle Support Services.

What should I do if 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_80700`.
 - c. Open the `setup.sh` file in the `vi` editor using the command: `vi setup.sh`.
 - d. Inside `vi` editor in Esc mode, type: `%s/^M//g`

Note: To enter `^M`, hold the CTRL key then press V and M in succession.

- e. Save the `setup.sh` file by typing: `wq!`

Does OFSAA support Oracle DB 11g Standard edition?

The OCI client and the jdbc driver does not change depending on whether it is a standard or enterprise edition. So, OFSAAI will work with standard edition as well.

We do not recommend standard edition because it will not scale and does not support partition pack, database security vault, or advanced analytics.

What should I do if I get the following error message while executing `./startofsaai.sh` file on the UNIX System terminal "`./startofsaai.sh: /java: Execute permission denied`"?

- Ensure `JAVA_BIN` environment variable path is set on the "unix user" terminal from where the `startofsaai.sh` file is invoked.
 - Ensure the `.profile` where the environment/ path settings are made has been executed successfully.

What should I do if the OFSAAI Application Server does not proceed even after providing the system password?

Ensure that, the System Password provided when prompted is "password0" provided during installation. Also check whether the connection to the "configuration schema" can be established through `sqlplus`.

Although the OFSAAI installation has completed successfully, when OFSAAI servers are started, and the application URL is accessed, it gives an error message "the page cannot be found or displayed" or "Could not retrieve list of languages from Server. Please contact the system administrator". What should one do?

Ensure OFSAAI servers have been started and are running successfully. For details on start up parameters options, see [Starting Infrastructure Services](#) section.

For more details on the issue, refer to the `Revappserver` log in `$FIC_APP_HOME/common/FICServer/logs` directory or the Web Server log files.

Is it necessary to provide the specified grants to the Oracle schema user before installation? If yes, can it be revoked after completing the installation?

The "Oracle schema" user requires the necessary grants specified before, during, and after the installation process. Grants provided should never be revoked as the application makes use of these grants all the time.

Can we have distributed OFSAAI Application Server for load balancing?

OFSAAI Application server can be scaled out/distributed across different JVM's (machines) based on the various services and Information Domains, in other words, Load balancing could be achieved with distribution of services.

Why do we need FTPSHARE on all the layers? Can we have ftpshare on another machine other than the machines where OFSAAI is installed?

FTPSHARE is a Metadata Repository directory. All the metadata related files used in Infrastructure are stored in the FTPSHARE directory. The ftpshare contains folders for each Information Domain, with each Information Domain folders holding Erwin, log, and scripts folder. The transfer of data among the Web, Application, and Database servers in Infrastructure takes place through FTP/SFTP.

You need to configure FTP/SFTP and enable communication between the servers by providing App server's FTP/SFTP credentials to the Web server and DB server users.

Yes, you can have FTPSHARE on another machine other than the machines where OFSAAI is installed.

Is it mandatory to provide the FTP/SFTP password?

Yes, OFSAAI needs credentials of the user who has complete permissions on FTPSHARE directory, and the user should be able to independently login to the UNIX server.

What are the permissions required for FTPSHARE and when should I give them?

It is recommended to provide permissions on FTPSHARE in case of installations done across different machines or VMs (multitier installation).

In case of single tier installation, 770 permissions can be provided if the Unix users of OFSAAI and web server belong to the same Unix group.

Additionally, any new file that is created in the FTPSHARE folder of any installation layer should be granted specific/explicit permission.

Port Change utility can be used to have the Port number modified, which are currently being used by the Infrastructure application. For more information, refer *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.

- ? SYSADMIN
- ? 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 BusinessData 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 OFSAAI 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 OFSAAI.
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 D](#).

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 S-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 S-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

What should I do if I get the following error message, "ORA 01792 maximum number of columns in a table or view is 1000 during T2T execution"?

You should apply the following patch set from Oracle. Applicable only for 12c.

<https://support.oracle.com/epmos/faces/DocumentDisplay?id=1937782.1>

I did not enable OFS Inline Processing Engine Application license during the installation. However, I have enabled it post installation, using the Manage OFSAA Product License(s) in the Admin UI. Are there any other additional configurations that I need to do?

Yes. Follow the instructions explained in the OFS Inline Processing Engine Configuration Guide available on [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 D](#) 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 infodoms?

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 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 ./stopofsaa.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="REVERSEAPPENDER"
class="org.apache.log4j.RollingFileAppender">
<param name="file" value="$FIC_
HOME/ficapp/common/FICServer/logs/RevAppserver.log"/>
<param name="Append" value="true" />
<param name="MaxFileSize" value="5000kb"/>
<param name="MaxBackupIndex" value="5"/>
<layout class="org.apache.log4j.PatternLayout">
<param name="ConversionPattern" value="[REVELEUSLOG] %m%n"/>
</layout>
</appender>
```

To configure the Deployed area logs file, follow these steps:

1. Navigate to `<EAR/WAR Deploy area>/conf` folder.
2. Repeat step 2 from the preceding section.

Can we modify the Log file path?

Yes, Log file path is configurable, it can be configured in `RevLog4jConfig.xml` file. The default log file path (file) is set by the installer. This can be configured to another path.

Can I point the environment with HTTP enabled to HTTPS after installation and vice versa?

Follow these steps:

1. Create SSL related certificates and import to respective servers.
2. Enable SSL on a desired Port (example 9443) on your existing and already deployed web application servers.
3. Replace the protocol as https and new ssl port(`FIC_SERVLET_PORT`) configured and in all the URLs specified on the following files:
 - * `$FIC_HOME/ficapp/common/FICServer/conf/FICWeb.cfg` and `$FIC_HOME/ficweb/webroot/conf/FICWeb.cfg`
 - * `$FIC_HOME/ficapp/icc/conf/WSMREService.properties`
 - * `$FIC_HOME/ficweb/webroot/conf/ModelExecution.properties`
 - * `$FIC_HOME/ficdb/conf/MDBPublishExecution.properties`
 - * `$FIC_HOME/ficdb/conf/ObjAppMap.properties`
 - * `$FIC_HOME/utility/Migration/conf/WSMigration.properties`
 - * `$FIC_HOME/utility/WSExecution/conf/WSExecution.properties`
 - * `$FIC_HOME/EXEWebService/WebSphere/ROOT/WEB-INF/wsdl/EXEWebServiceImpl.wsdl`
 - * `$FIC_HOME/EXEWebService/Tomcat/ROOT/WEB-INF/wsdl/EXEWebServiceImpl.wsdl`
 - * `$FIC_HOME/EXEWebService/weblogic/ROOT/WEB-INF/wsdl/EXEWebServiceImpl.wsdl`
4. Replace XML attribute/Node values as specified on the following files:
 - * `$FIC_HOME/ficweb/webroot/WEB-INF/web.xml`
 - * `FIC_WEBSERVER_PORT=9443`
 - * `FIC_WEBPROTOCOL=https`
 - * `$FIC_HOME/conf/LookUpServices.xml` and `$FIC_HOME/ficweb/webroot/conf/LookUpServices.xml`
 - * `PORT="9443" PROTOCOL="https:"`
5. Login to Config Schema and execute the following SQL command to replace protocol and SSL port.


```
SQL> update configuration cn set cn.paramvalue='9443' where
cn.paramname='SERVLET_ENGINE_PORT';

SQL> update configuration cn set
cn.paramvalue=replace(cn.paramvalue,'http:','https:') where
cn.paramname='FormsManagerCacheReload';
```

```
SQL> update web_server_info ws set
ws.servletport='9443',ws.servletprotocol='https';
```

6. Create EAR/WAR file and Re-Deploy.

What should I do if my HIVE connection fails with the following exception:

```
java.sql.SQLException: [Cloudera][HiveJDBCdriver] (500164)
Error initialized or created transport for authentication:
[Cloudera][HiveJDBCdriver] (500168) Unable to connect to server:
GSS initiate failed.
```

```
com.ibm.security.krb5.KrbException, status code: 37
message: PROCESS_TGS at
com.ibm.security.krb5.KrbTgsRep.<init>(KrbTgsRep.java:20)
```

This happens if there is a clock skew between the client and the KDC server. To resolve this, there are two solutions:

⌚ **Solution 1:**

Synchronize the clocks between the servers. For more information, refer <http://docs.oracle.com/cd/E19253-01/816-4557/setup-192/index.html>

⌚ **Solution 2:**

- 1 Set clockskew parameter on the server side (KDC) krb5.conf file and replace the same file in HIVE_LIBRARY_PATH folder. Parameter value should be decided on the basis of the time difference between the two machines.
- 2 Get the epoch time on the two servers by firing “date +%s” on the command line.
- 3 Clockskew param value should be chosen as a value sufficiently larger than the difference of the preceding two calculated values.
- 4 Set “clockskew = <value>” in the /etc/krb5.conf on the KDC server.
- 5 Restart Kerberos services.

What should I do if my schema creator log has the following exception:

```
Failed to detect a valid hadoop home directory
java.io.IOException: HADOOP_HOME or hadoop.home.dir are not set.
at org.apache.hadoop.util.Shell.checkHadoopHome(Shell.java:302)
at org.apache.hadoop.util.Shell.<clinit>(Shell.java:327)
at org.apache.hadoop.util.StringUtils.<clinit>(StringUtils.java:79) at
org.apache.hadoop.security.Groups.parseStaticMapping(Groups.java:130)
at org.apache.hadoop.security.Groups.<init>(Groups.java:94)
at org.apache.hadoop.security.Groups.<init>(Groups.java:74)
at
org.apache.hadoop.security.Groups.getUserToGroupsMappingService(Groups.java:303)
at
org.apache.hadoop.security.UserGroupInformation.initialize(UserGroupInformation.java:283)
```

```

at
org.apache.hadoop.security.UserGroupInformation.setConfiguration(UserGroupInformation.java:311)
at HdfsDbUtil.connect(HdfsDbUtil.java:162)
at SchemaParserUtil.validateHiveConnection(SchemaParserUtil.java:1359)
at SchemaParserUtil.checkAllPreChecks(SchemaParserUtil.java:1011)
at Main.execute(Main.java:317)
at Main.main(Main.java:145)

```

This occurs when HADOOP_HOME environment variable is not set. You can ignore this exception since we do not mandate to install HIVE where OFSAA is installed.

What should I do if the sliced data model upload takes a long time to complete?

If the metadata cache size is set to a lower value than the actual count of each metadata type (hierarchy, dataset, dimension etc), then it gets into performance degrade issues. We have to increase the cache size for each metadata type according to the count in the environment.

Following are the parameters in DynamicServices.xml to be configured depends on the metadata count in your environment.

```

<PARAMETER NAME="HIERARCHY_NODE_LIMIT" VALUE="2000"/>
<PARAMETER NAME="ALIAS_CACHE_SIZE" VALUE="1000"/>
<PARAMETER NAME="DATASET_CACHE_SIZE" VALUE="2000"/>
<PARAMETER NAME="MEASURE_CACHE_SIZE" VALUE="3000"/>
<PARAMETER NAME="HIERARCHY_CACHE_SIZE" VALUE="2000"/>
<PARAMETER NAME="DIMENSION_CACHE_SIZE" VALUE="2000"/>
<PARAMETER NAME="CUBE_CACHE_SIZE" VALUE="1000"/>
<PARAMETER NAME="BUSINESSPROCESSOR_CACHE_SIZE" VALUE="2000"/>
<PARAMETER NAME="DERIVEDENTITY_CACHE_SIZE" VALUE="1000"/>

```

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 folder on Target.
2. Run the PortC.jar utility using the command:

```
java -jarPortC.jar DMP
```

A file with the name **DefaultPorts.properties** will be created under \$FIC_HOME directory which will contain the ports. For more information, refer Changing IP/ Hostname, Ports, Deployed Paths of the OFSAA Instance section in the OFSAAI Admin Guide available on [OHC Documentation Library](#).

Note: This feature is available only after applying 7.3.5.2.0 Minor Release patch.

What should I do if I get the following error message, "Error while fetching open cursor value Status : FAIL"?

This error occurs while executing envCheck.sh because the user does not have access to V\$parameter. This error does not occur due to sysdba or non sysdba privileges provided they have access/grants to V\$parameter.

What should I do 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_AAAI_PACK installation?

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

How do I upgrade to Oracle Database 12c Release 1 or 2, if my previous database versions are Release 11.2.0.2+, 12.1.0.1 or 12.1.0.2?

If you are upgrading the Database Server from the previous versions to the current versions mentioned in the following table:

Table S-2 Source Destination Database

Sl. No.	Source Database Version	Destination Database Version
1	11.2.0.2+ or 12.1.0.1	12c Release 1 (12.1.0.2)
2	11.2.0.3+, 12.1.0.1 or 12.1.0.2	12c Release 2 (12.2.0.1)

See the following MOS documents for details:

- Doc ID [2412630.1](#)
- Doc ID [2075401.1](#)

How do I set up OFSAA 8.0.8.0.0 after upgrading Oracle Database from 11.2.x to 12.2.x or Linux 6 to 7?

See the MOS document Doc ID [2537724.1](#) for detailed instructions.

Application Pack 8.0.8.0.0 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 8.0.8.0.0 Application Pack?

You can download the OFSAAI 8.0.8.0.0 Application Pack from [Oracle Software Delivery Cloud](#) (OSDC).

What are the minimum system and software requirements for OFSAA 8.0 Application Pack?

Refer installation guide section [Hardware and Software Requirements](#).

Is my environment compatible with OFSAA 8.0.8.0.0 Application Pack?

Environment Check utility performs the task. It is part of install and can also be run separately.

Does the OFSAA 8.0.8.0.0 Application Pack support all Operating systems?

OFSAA 8.0.8.0.0 Application pack supports the following Operating Systems: LINUX and AIX. Refer to [Technology Matrix](#) for the technology matrix that OFSAA suite products are/ will be qualified on.

How can I install OFSAA 8.0.8.0.0 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 8.0.8.0.0 Application Pack installation?

US English is the language supported.

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

OFSAA Application Packs support only Silent Mode.

Does OFSAA 8.0.8.0.0 Application Pack support Multi tier Installations?

OFSAA 8.0.8.0.0 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 8.0.8.0.0 Application pack on an existing 'Infodom' where another OFSAA 8.0.8.0.0 application is installed?

Yes. However, the Behavioral Detection Application Pack and Compliance Regulatory Reporting Application pack are the exceptions. They need to be installed in a different Infodom.

Can I select an Infodom for the Application pack during installation?

Yes. You can select or change the required infodom.

Can I install all Application Packs in a 'Single Infodom'?

Yes. But, the Behavioral Detection Application Pack and Compliance Regulatory Reporting Application Pack are the exceptions. They need to be installed in a different Infodom.

Is it possible to install applications on different Infodom within the Application pack? (For example, I want to install LRM and MR in two infodoms)

Applications within application pack have to be installed in the same information domain in the same environment.

How many Infodoms can be created over a single OFSAA Infrastructure of 8.0.1.0.0?

You can install only one infodom during installation. But after installation, you can create multiple infodoms.

Is the 'Data Model' bundled specific to an Application pack or to an individual application?

A merged data model for all applications within the application pack is bundled and uploaded.

Is it possible to install OFS Enterprise Modeling later?

OFS Enterprise Modeling is a separate product and can be enabled as an option later from any application pack that bundles Enterprise Modeling.

Does the Application pack create sandbox automatically for the required applications?

Yes, Sandbox creation is part of application install process.

Are upgrade Kits available for individual applications or the complete Application Pack?

Maintenance Level (ML) Release / Minor Release upgrades are available across all applications.

Can I upgrade AAI only?

Yes, you can upgrade AAI alone.

Can I upgrade one application within the Application Pack? (For example, I want to upgrade LRM in the Treasury Application pack, but not MR.)

No, an upgrade is applied to all applications in the application pack.

Is it possible to uninstall any Application from the Application pack?

No, it is not possible to uninstall any Application from the Application Pack.

Can I uninstall entire Application Pack?

No, you cannot uninstall the Application Pack.

Is it possible to uninstall only application and retain AAI in the installed environment?

No, you cannot uninstall only the application and retain AAI in the installed environment.

Does Application Pack contain all Language Packs supported?

Language Packs need to be installed on the application packs.

Can I install an Application Pack over another Application Pack (that is same infodom or different infodom)?

Yes, you can install an Application Pack over another Application Pack in the same information domain or different information domain. But Behavioral Detection Application Pack and Compliance Regulatory Reporting Application Pack, Asset Liability Management Application Pack and Profitability Application Pack are the exceptions. They need to be installed in a different Infodom.

Can I use an existing manually created schema as information domain for application pack installation?

No. Schemas required by OFSAA applications have to be created using Schema Creator Utility.

Does OFSAA 8.0.8.0.0 support on WebLogic 10.3.6 with Oracle 12c?

Yes, OFSAA 8.0.8.0.0 will support on WebLogic 10.3.6 with Oracle 12c. WebLogic 10.3.6 supports oracle 12c with some additional configurations. Refer the link http://docs.oracle.com/cd/E28280_01/web.1111/e13737/ds_12cdriver.htm#JDBCA655 for additional configurations.

What should I do if I get the following error message while running the schema creator utility, "HostName in input xml is not matching with the local hostname"?

One possible reason could be the machine is configured for zonal partitioning. Ensure all the known IP Addresses of the machine are present in the /etc/hosts file.

What are the Java versions supported in OFS MMG Application Pack version 8.0.8.0.0?

OFS MMG Application Pack supports Java 1.7.x and 1.8.x.

Is OFS MMG Application Pack version 8.0.8.0.0 supported on Java 8?

Yes. To install this release of the OFS MMG Application Pack version 8.0.8.0.0 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](#), and [Installing in SILENT Mode](#).

Can I upgrade the Oracle Database version from 11g to 12C on which OFSAA 8.0.8.0.0 version is installed?

Yes, you can upgrade. When the DB Server was Oracle 11g, the ojdbc jar used was ojdbc6.jar. But, when the DB is upgraded to 12c, you need to upgrade the ojdbc6.jar to ojdbc7.jar.

Copy ojdbc7.jar from \$ORACLE_HOME/jdbc/lib to the following locations:

- ⌘ \$FIC_HOME/utility/OFSAAGenerateRepository/lib/
- ⌘ \$FIC_HOME/realtime_processing/WebContent/WEB-INF/lib/
- ⌘ \$FIC_HOME/ficdb/lib/
- ⌘ \$FIC_HOME/ficapp/icc/lib/
- ⌘ \$FIC_HOME/ficapp/common/FICServer/lib/
- ⌘ \$FIC_HOME/FMStandalone/FormsManager/WEB-INF/lib/
- ⌘ \$FIC_HOME/ficweb/webroot/WEB-INF/lib/
- ⌘ \$FIC_HOME/ficdb/etl/classes/

What should I do when I get "[ERROR] - Error : APP Setup bin file failed." message during OFS_Application_PACK installation?

This is a generic error message that appears during application installation failure. You should check the installation log files for more information about what failed the installation.

However, if the message is displayed and the log files are not generated, it could be that it is a temp directory issue. The resolution is that your UNIX administrator has to disable the NOEXEC option. The installers extract the installation files into the */tmp* directory, and if NOEXEC is enabled, execution of binaries will not happen in the directory and the installation fails. Re-run the installer after the configuration is changed. For detailed information, see the support note at <https://support.oracle.com/epmos/faces/DocumentDisplay?id=2340045.1>.

What are the commands supported in MMGSTUDIO for retrieving workspace, dataset, and variable?

The below commands are supported in MMGSTUDIO for retrieving workspace, dataset, and variable:

Table S-3 Supported Commands

Command	Description	Examples
<code>%python mmg.listWorkspaces();</code>	Lists all the workpaces	<code>{'Sandbox': [{'destInfodomain': 'SAND2', 'srcInfodomain': 'SAND2', 'sandboxId': 'SAND2', 'sandboxName': 'SAND2'}, {'destInfodomain': 'SAND1', 'srcInfodomain': 'OFSAAAIIINFO', 'sandboxId': 'SAND1', 'sandboxName': 'SAND1'}, {'destInfodomain': 'NEW1', 'srcInfodomain': 'NEW1', 'sandboxId': 'New1', 'sandboxName': 'New1'}]}</code>
<code>mmg.attachWorkspace("<workspace_name>");</code>	Attach the given workspace	<code>mmg.attachWorkspace("OFSAAAIIINFO");</code>
<code>mmg.listDatasets();</code>	Lists the available datasets	<code>{'Dataset': [{'datasetName': 'TEST_DS', 'datasetId': 'TEST_DS'}, {'datasetName': 'DE_GROUP_DS', 'datasetId': 'DE_GRODS'}]}</code>
<code>mmg.listVariables("<dataset_name>")</code>	Lists all the variable definitions under the dataset	<code>mmg.listVariables("TEST_DS")</code>
<code>mmg.getDataframe("<dataset_name>",<variable_name>")</code>	List the columns in the variables	<code>mmg.getDataframe("TEST_DS",["VAR_001"])</code>

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?

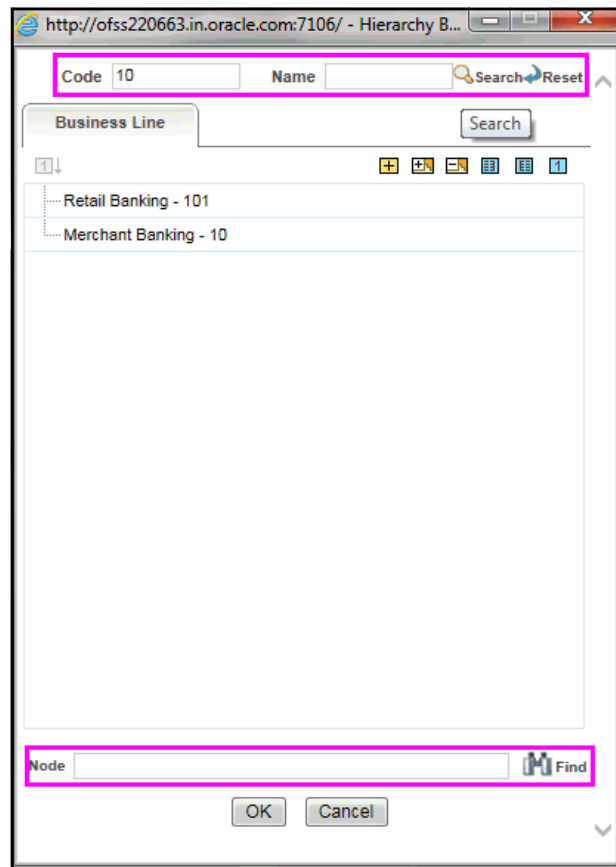
Perform Grid Export operation to export the columns added to the grid by Field Chooser option.

'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 pdf search functionality. In the "Find" dialog available in any of the Adobe Acrobat version that you are using to view the pdf document, follow these instructions to quickly find the error resolution:

1. With the Installation pdf open, press **Ctrl+F** or select **Edit > Find**.
2. The *Find* dialog is displayed as indicated.
3. Enter the error code that is displayed on screen during Infrastructure installation.
4. Press **Enter**. The search results are displayed and highlighted as follows:

Figure S-1 Error Code

Error code - OFSAAI-1003	
Cause	JAVA_HOME/bin not found in PATH variable.
Resolution	Import <JAVA_HOME>/bin into PATH variable. Example: PATH = \$JAVA_HOME/bin:\$PATH export PATH.

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 S-4 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 <code>/etc/passwd</code> file.

Error code - OFSAAI-1002

Table S-5 Error code - OFSAAI-1002

Cause	No proper arguments are available.
Resolution	Provide proper arguments. Invoke <code>Setup.sh</code> using SILENT. Example: <code>./Setup.sh SILENT</code>

Error code - OFSAAI-1004

Table S-6 Error code - OFSAAI-1004

Cause	File <code>.profile</code> is not present in <code>\$HOME</code> .
Resolution	Create <code>.profile</code> in <code>\$HOME</code> , i.e. in the home directory of user.

Error code - OFSAAI-1005

Table S-7 Error code - OFSAAI-1005

Cause	File <code>OFSAAIInfrastructure.bin</code> is not present in current folder.
Resolution	Copy <code>OFSAAIInfrastructure.bin</code> into installation kit directory.

Error code - OFSAAI-1006

Table S-8 Error code - OFSAAI-1006

Cause	File <code>CustReg.DAT</code> is not present in current folder.
Resolution	Copy <code>CustReg.DAT</code> into installation kit directory.

Error code - OFSAAI-1007

Table S-9 Error code - OFSAAI-1007

Cause	File <code>OFSAAI_InstallConfig.xml</code> is not present in current folder.
Resolution	Copy <code>OFSAAI_InstallConfig.xml</code> into installation kit directory.

Error code - OFSAAI-1008**Table S-10 Error code - OFSAAI-1008**

Cause	File <code>validateXMLInputs.jar</code> is not present in current folder.
Resolution	Copy <code>validateXMLInputs.jar</code> into installation kit directory.

Error code - OFSAAI-1009**Table S-11 Error code - OFSAAI-1009**

Cause	File <code>log4j.xml</code> is not present in current folder.
Resolution	Copy <code>log4j.xml</code> into installation kit directory.

Error code - OFSAAI-1010**Table S-12 Error code - OFSAAI-1010**

Cause	Unknown error occurred.
Resolution	Make sure to provide proper argument (SILENT) to the <code>Setup.sh</code> file.

Error code - OFSAAI-1011**Table S-13 Error code - OFSAAI-1011**

Cause	XML validation failed.
Resolution	Check <code>InfrastructurePreValidations.Log</code> for more details.

Error code - OFSAAI-1012**Table S-14 Error code - OFSAAI-1012**

Cause	Property file with locale name does not exist.
Resolution	Copy <code>MyResources_en_US.properties</code> to the setup kit directory and keep <code>en_US</code> in <code>LOCALE</code> tag of <code>OFSAAI_InstallConfig.xml</code> .

Error code - OFSAAI-1013**Table S-15 Error code - OFSAAI-1013**

Cause	File <code>OFSAAI_InstallConfig.xml/OFSAAI_PostInstallConfig.xml</code> not found.
Resolution	Copy <code>OFSAAI_InstallConfig.xml/OFSAAI_PostInstallConfig.xml</code> to the setup kit directory.

Error code - OFSAAI-1014**Table S-16 Error code - OFSAAI-1014**

Cause	XML node value is blank.
Resolution	Make sure all node values except <code>SMTPSERVER</code> , <code>PROXYHOST</code> , <code>PROXYPORT</code> , <code>PROXYUSERNAME</code> , <code>PROXYPASSWORD</code> , <code>NONPROXYHOST</code> , or <code>RAC_URL</code> are not blank.

Error code - OFSAAI-1015**Table S-17 Error code - OFSAAI-1015**

Cause	XML is not well formed.
Resolution	Execute the command <code>dos2unix OFSAAI_InstallConfig.xml</code> to convert plain text file from DOS/MAC format to UNIX format. OR Make sure that <code>OFSAAI_InstallConfig.xml</code> 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 <code>OFSAAI_InstallConfig.xml</code> using the <code>XML_Utility.jar</code> .

Error code - OFSAAI-1016**Table S-18 Error code - OFSAAI-1016**

Cause	User installation directory contain blank spaces.
Resolution	Provide an installation path that does not contain spaces. Check the tag <code>USER_INSTALL_DIR</code> in <code>OFSAAI_InstallConfig.xml</code> file. This path should not contain any spaces.

Error code - OFSAAI-1017**Table S-19 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 <code>USER_INSTALL_DIR</code> tag value of <code>OFSAAI_InstallConfig.xml</code> file.
