

**Oracle Financial Services Analytical  
Applications Reconciliation  
Framework Pack**

**Installation and Configuration Guide**

**Release 8.1.1.0.0**

**November 2023**

**F39874-01**

**ORACLE**  
Financial Services

## OFSAA Reconciliation Framework Pack Installation and Configuration Guide

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# Document Control

Version Number	Revision Date	Change Log
1.5	November 2023	<ul style="list-style-type: none"><li>Updated <a href="#">Java Settings</a> section (36018169).</li></ul>
1.4	July 2023	<ul style="list-style-type: none"><li>Updated the FAQ section. (Doc 34889914).</li></ul>
1.3	March 2023	<ul style="list-style-type: none"><li>Added the <a href="#">Prerequisite</a> section (Doc 35216065).</li></ul>
1.2	September 2022	<ul style="list-style-type: none"><li>Updated the <a href="#">Deploying Reconciliation Framework Pack Analytics</a> Section.( 34535820) and removed <b>Regarding Updating Server Specific Parameters</b> section (Doc 34549203).</li></ul>
1.1	May 2022	<ul style="list-style-type: none"><li>Updated the <a href="#">Download the OFSAAAI Applications Pack Installer and Mandatory Patches</a> section (Doc 34208551).</li><li>Added the <a href="#">Configure Tomcat for User Group Authorization, Data Mapping, and Disable WADL for the Web Service</a> section (Doc 34208582).</li></ul>
1.0	December 2021	Created the document for the installation and configuration of the Oracle Financial Analytical Applications Reconciliation Framework Pack Release v8.1.1.0.0.

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# 1 Preface

This preface provides information required for installing the Oracle Financial Services Analytical Applications Reconciliation Framework Pack (OFSAA Reconciliation Framework Pack).

You can find the latest copy of this document in the [OHC Documentation Library](#) which includes all the recent additions/revisions (if any) done to date.

Before you begin the installation, ensure that you have access to [Oracle Support](#) with the required login credentials to quickly notify us of any issue at any stage. To obtain login credentials, contact Oracle Support.

## Topics:

- [Audience](#)
- [Related Documents](#)
- [Conventions and Abbreviations](#)
- [Abbreviations](#)

## 1.1 Audience

The OFSAA Reconciliation Framework Pack Installation and Configuration Guide is intended for administrators, business users, strategists, and data analysts, who install and maintain the application pack.

Anyone performing the installation is expected to be experienced in installing enterprise components and possess basic knowledge of the following:

- Oracle Financial Services Analytical Applications Reconciliation Framework Pack components
- OFSAA architecture
- UNIX commands
- Database concepts
- Web Server or Web Application Server

## 1.2 Related Documents

For documents related to **OFSAA Reconciliation Framework Pack Release 8.1.1.0.0**, access documentation online from the [OHC Documentation Library](#).

- Oracle Financial Services Analytical Applications Reconciliation Framework Release Notes
- Oracle Financial Services Analytical Applications Reconciliation Framework User Guide
- Oracle Financial Services Analytical Applications Reconciliation Framework Cloning Guide
- Oracle Financial Services Analytical Applications Reconciliation Framework Security Guide

For documents related to **OFS Data Foundation Release 8.1.1.0.0**, access documentation online from this page on the [OHC Documentation Library](#).



- Oracle Financial Services Data Foundation Installation Guide Release
- Oracle Financial Services Data Foundation Release User Guide

For documents related to **OFS AAI Application Pack Release 8.1.1.0.0**, access documentation online from this page on the [OHC Documentation Library](#).

- Oracle Financial Services Analytical Applications Infrastructure User Guide
- OFS Advanced Analytical Applications Infrastructure (OFS AAI) Application Pack Installation and Configuration Guide
- OFS Analytical Applications Infrastructure Administration Guide
- Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide

For additional documents, click the following links:

- [OFSAA Licensing User Manual Release 8.1.1.0.0](#)
- [OFS Analytical Applications Infrastructure Security Guide](#)
- [OFS Analytical Applications 8.1.1.0.0 Technology Matrix](#)
- [Oracle Financial Services Analytical Applications Infrastructure Cloning Guide](#)

## 1.3 Conventions and Abbreviations

The following text conventions are used in this document:

Conventions	Description
<b>boldface</b>	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.
<a href="#">Hyperlink</a>	Hyperlink type indicates links to external websites, internal document links to sections.

## 1.4 Abbreviations

The following table lists the abbreviations used in this document:

Abbreviation	Meaning
DEFQ	Data Entry Forms and Queries
DML	Data Manipulation Language
EAR	Enterprise Archive

Abbreviation	Meaning
EJB	Enterprise JavaBean
ERM	Enterprise Resource Management
FTP	File Transfer Protocol
GUI	Graphical User Interface
HTTPS	Hypertext Transfer Protocol Secure
J2C	J2EE Connector
J2EE	Java 2 Enterprise Edition
JDBC	Java Database Connectivity
JDK	Java Development Kit
JNDI	Java Naming and Directory Interface
JRE	Java Runtime Environment
JVM	Java Virtual Machine
LDAP	Lightweight Directory Access Protocol
LHS	Left Hand Side
MOS	My Oracle Support
OFS	Oracle Financial Services
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OLAP	On-line Analytical Processing
OSDC	Oracle Software Delivery Cloud
OS	Operating System
RAM	Random Access Memory
RDMS	Relational Database Management System
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

# Part I

**Topics:**

- [Pre-installation](#)
- [Installation](#)
- [Post-installation](#)

## 2 About Oracle Financial Services Analytical Applications (OFSAA)

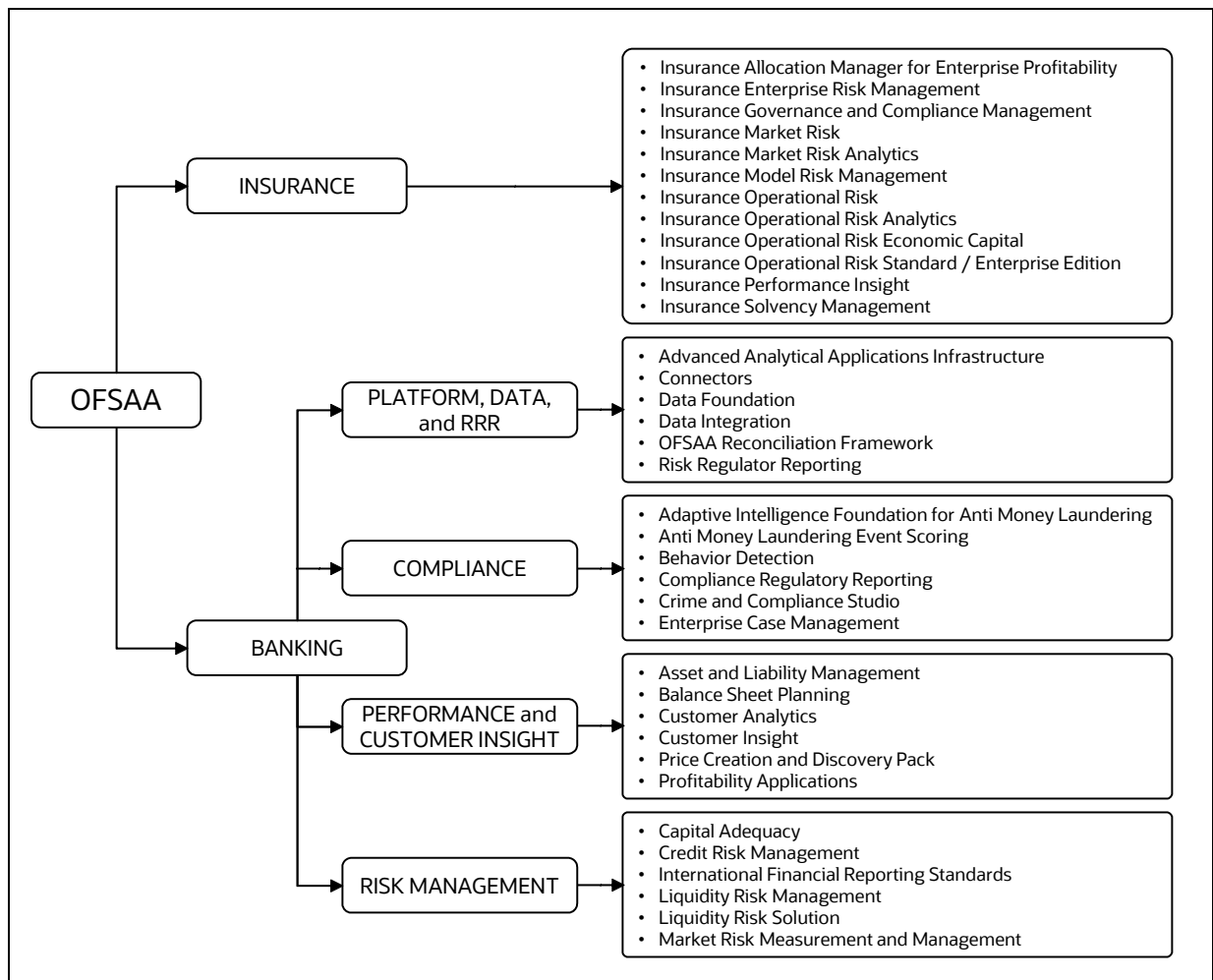
In today's turbulent markets, financial institutions require a better understanding of their risk-return, while strengthening competitive advantage and enhancing long-term customer value. Oracle Financial Services Analytical Applications (OFSAA) enable financial institutions to measure and meet risk 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.

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

**Figure 1: Application Packs of OFSAA**



**Topics:**

- [Oracle Financial Services Analytical Applications Infrastructure \(OFS AAI\)](#)
- [Oracle Financial Services Analytical Applications Reconciliation Framework Pack 8.1.1.0.0](#)
- [OFS AAI Extension Pack](#)
- [Installation Overview](#)

## **2.1 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 needed to analyze, understand and report on specific performance, risk, compliance and customer insight issues by providing a strong foundation for the entire family of Oracle Financial Services Analytical Applications across the domains of Risk, Performance, Compliance and Customer Insight.

**Topics:**

- [Components of OFSAA Infrastructure](#)
- [OFSAA Infrastructure High Availability](#)
- [Deployment Topology](#)

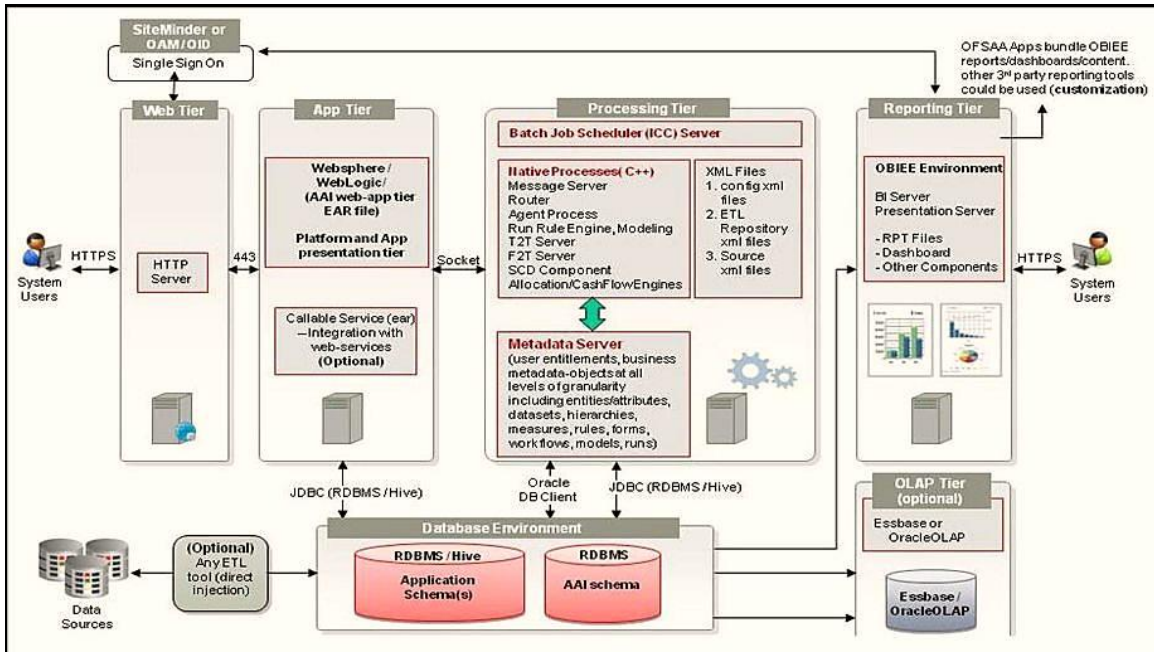
### **2.1.1 Components of OFSAA Infrastructure**

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, while the UI and presentation logic run on the other. The UI and presentation layer are deployed on any of the supported J2EE Servers.

The following figure depicts the various frameworks and capabilities that make up the OFSAA Infrastructure.

Figure 2: Components of OFSAAI



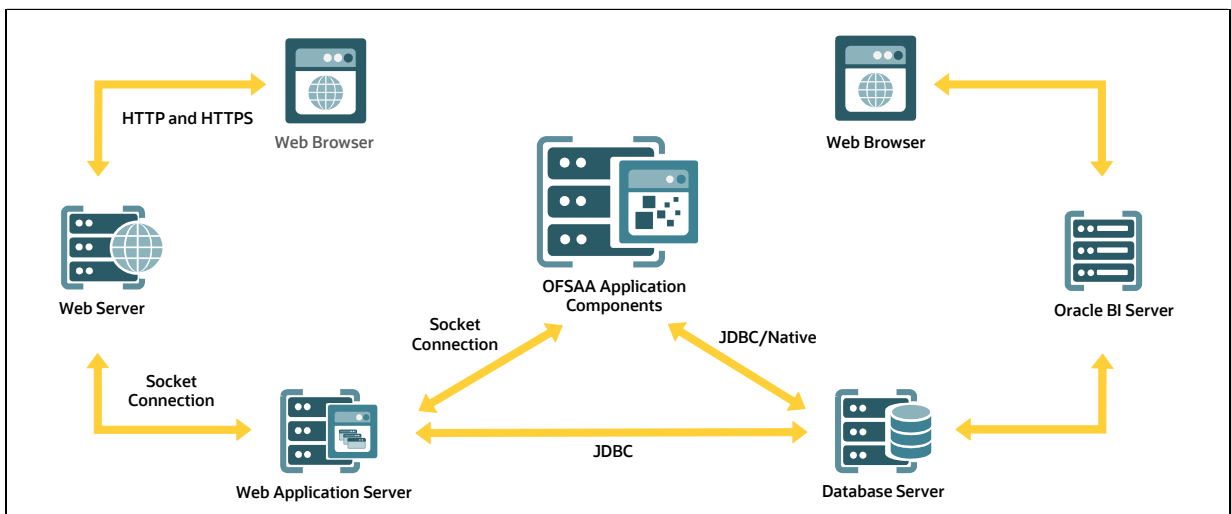
### 2.1.2 OFSAA Infrastructure High Availability

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

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

### 2.1.3 Deployment Topology

Figure 3: The logical architecture implemented for OFSAA Application Packs



## 2.2 Oracle Financial Services Analytical Applications Reconciliation Framework Pack 8.1.1.0.0

This fresh installer installs the OFSAA Reconciliation Framework Pack Release 8.1.1.0.0.

The Oracle Financial Services Reconciliation Framework reconciles the balances from the operational systems of a bank with the balances as maintained in the General Ledger (hereinafter referred to as GL) of the bank. With this application banks can also reconcile between General Ledgers maintained in the bank. The balances in the GL of a bank are the ones which are audited and duly certified by the internal and external auditors. The GL balances are considered to be the final version of truth in a bank. Therefore, all data extracted from any other operational systems of a bank must be reconciled with the balances maintained in the GL to ensure that they are complete, accurate, and comprehensive. It then acts as an authentic and reliable base for any further decision making.

### NOTE

OFSAA Reconciliation Framework Pack has to be used with other application packs such as:

- Oracle Financial Services Data Foundation Application Pack
- Oracle Financial Services Capital Adequacy Pack
- Oracle Financial Services Profitability Applications Pack

## 2.3 OFS AAI Extension Pack

The Oracle Financial Services Analytical Applications Infrastructure Extension (OFS AAIE) Pack adds a set of new advanced features for the 8.1.1.0.0 Release across OFSAA applications. This pack can be installed on an OFSAA instance having one or more OFSAA application packs.

The Oracle Financial Services Analytical Applications Infrastructure Extension Pack includes the following advanced features and functionalities:

- Distributed Processing Capabilities
- Analytic Pipeline and Process models
- Attribution Analysis
- Content Management Interoperability Services

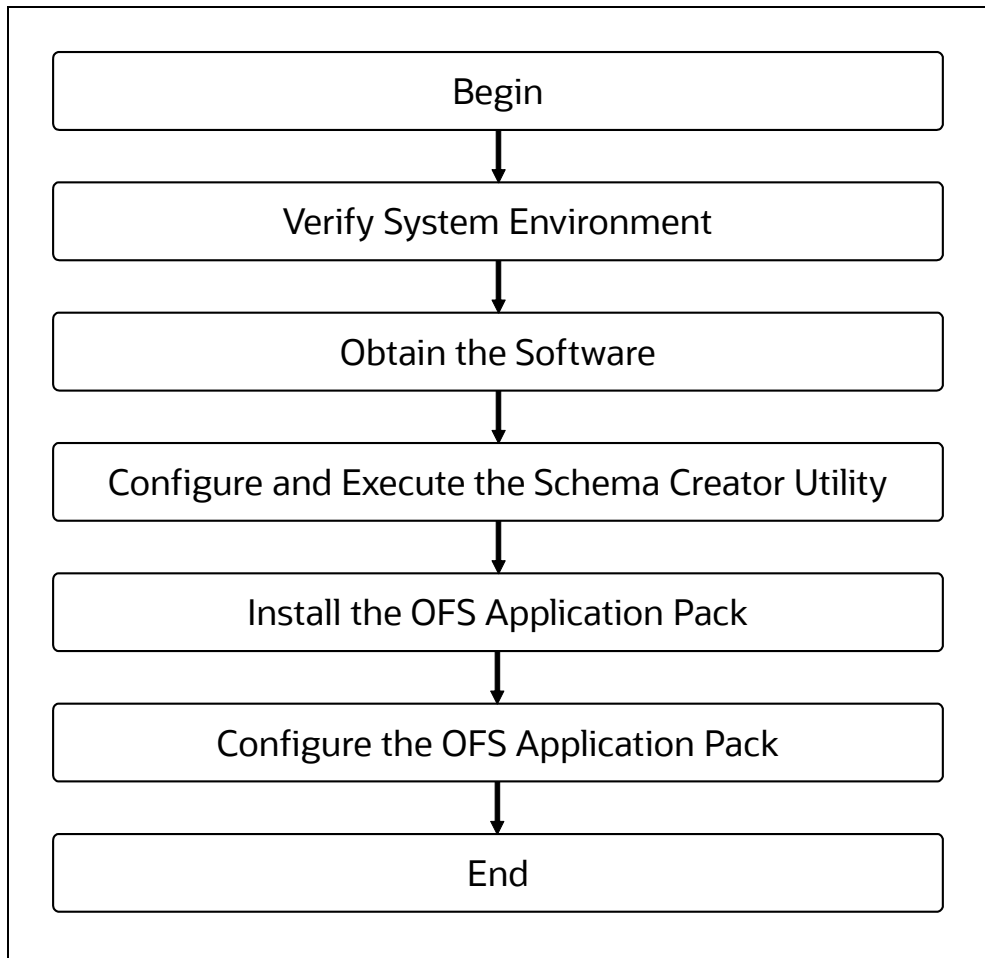
### NOTE

The pack is enabled by procurement of an additional license. For more information, see the OFS AAIE Release Notes and Installation Guide on the [OHC](#).

## 2.4 Installation Overview

Release 8.1.1.0.0 of OFSAA Reconciliation Framework Applications Pack supports fresh installation and also upgrade from versions 8.0.7.0.0.

The following illustration shows the sequence of steps you need to follow to perform the installation.





## 3 Complete Installation Checklist

To install and configuring the software, you must perform the steps listed in the Complete Installation Checklist.

### TIP

Clicking a hyperlink in the following table will lead you either to an appropriate section in this document or open an appropriate section in a different document.

When you click a hyperlink that takes you the appropriate section in this document, to get back to this page, right-click and select **Previous View**.

Alternatively, you can press **Alt + Left arrow** on your keyboard.

**Table 1: Complete Installation Checklist**

Sl. No.	Pre-installation Activity
1	<a href="#">Install</a> all the prerequisite hardware and software as per the Tech Stack.
2	<a href="#">Verify</a> the System Environment using the Environment Check Utility.
3	<a href="#">Configure</a> the Database Instance settings.
4	<a href="#">Install</a> and configure the web application server.
5	<a href="#">Configure</a> the HTTP settings on the webserver.
6	<p><a href="#">Create</a> the Installation, Download, and Metadata Repository Directories:</p> <ul style="list-style-type: none"> <li>• Installation directory</li> <li>• Temporary directory</li> <li>• Staging Area/Metadata Repository</li> </ul> <p>Download directory</p>
7	<p><a href="#">Configure</a> the following Operating System and File System settings:</p> <ul style="list-style-type: none"> <li>• File Descriptor</li> <li>• Total number of processes</li> <li>• Port(s)</li> <li>• .profile file permissions</li> <li>• Add FTP/SFTP configuration for file transfer</li> </ul>
8	<p><a href="#">Update</a> the following Environment Settings as required for the installation in the .profile file:</p> <ul style="list-style-type: none"> <li>• Java settings</li> <li>• Oracle Database Server and Client settings</li> <li>• Add TNS entries in the TNSNAMES .ORA file</li> <li>• Oracle Essbase settings</li> <li>• Time Zone settings</li> </ul>
9	<a href="#">Apply</a> pre-install mandatory patches.
10	<a href="#">Download</a> the installer kit.

Sl. No.	Pre-installation Activity
11	<a href="#">Extract</a> the installer kit.

Sl. No.	Installation Activity
1	<a href="#">Configure</a> the OFS_DM_PACK.xml file.
2	<a href="#">Configure</a> the OFS_DM_SCHEMA_IN.xml file.
3	<a href="#">Configure</a> the OFS_DM_SCHEMA_BIGDATA_IN.xml file
4	<a href="#">Execute</a> the Schema Creator Utility in Online, Offline modes, and verify the log file.
5	<a href="#">Configure</a> the OFSAAI_InstallConfig.xml file.
6	<a href="#">Trigger</a> the installation.
7	<a href="#">Apply</a> post-installation mandatory patches
8	<a href="#">Verify</a> the log files
9	<a href="#">Verify</a> the installation

Sl. No.	Post-installation Activity
1	<a href="#">Verify</a> that all patches are successfully installed.
2	<a href="#">Backup</a> the OFS_DM_SCHEMA_IN.xml, OFS_DM_SCHEMA_OUTPUT.xml, and Silent.props Files.
3	<a href="#">Stop</a> the OFSAA Infrastructure services.
4	<a href="#">Create</a> and deploy EAR or WAR files.
5	<a href="#">Deploy</a> EAR or WAR files across multiple OFSAA instances
6	<a href="#">Assign</a> grants for schemas
7	<a href="#">Start</a> the OFSAA Infrastructure services.
8	<a href="#">Access</a> the OFSAA Application.
9	<a href="#">Configure</a> the excludeURLList.cfg file .
10	<a href="#">Configure</a> Tomcat
11	<a href="#">Change</a> the ICC Batch Ownership
12	<a href="#">Configure</a> Hive for Reconciliation Framework
13	<a href="#">Excel</a> upload mapping and template.
14	<a href="#">Add</a> TNS entries in the TNSNAMES.ORA File
15	<a href="#">Configure</a> Data Source
16	<a href="#">Create</a> and Deploy the Application Pack Web Archive
17	<a href="#">Configure</a> Transparent Data Encryption (TDE) and Data Redaction in OFSAA

Sl. No.	Post-installation Activity
18	<a href="#">Implement</a> Data Protection in OFSAA

Sl. No.	Post-deployment configurations
1	<a href="#">Installing</a> OBIEE or OAS Server
2	<a href="#">Installing</a> OBIEE or OAS Windows Administration Client
3	<a href="#">Configuring</a> Reconciliation Framework Analytics v8.1.1.0.0 Dashboards and Reports
4	<a href="#">Deploying</a> Reconciliation Framework Pack Analytics
5	<a href="#">Starting</a> Node Manager and WebLogic Servers
6	<a href="#">Logging</a> in as System Administrator
7	<a href="#">Create</a> Application Users.
8	<a href="#">Map</a> the Application User(s) to User Groups.

Sl. No.	Additional Configuration Activity
1	<a href="#">Configure</a> the webserver.
2	<a href="#">Configure</a> Resource Reference in the web servers.
3	<a href="#">Configure</a> Work Manager in the web application servers.
4	<a href="#">Add</a> FTP/SFTP Configuration for File Transfer.
5	<a href="#">Configure</a> the Infrastructure Server Memory.
6	<a href="#">Retrieve</a> the Patch Information.
7	<a href="#">Set</a> OLAP Data Server Configuration
8	<a href="#">Change</a> IP or Hostname, Ports, Deployed Paths of the OFSAA Instance.
9	<a href="#">Execute</a> the OFSAAI Setup Information Fetching Tool.
10	<a href="#">Execute</a> the Encryption Changer.
11	<a href="#">Set</a> Infrastructure LDAP Configuration.
12	<a href="#">Configure</a> the OFSAAI Web Services.
13	<a href="#">Enable</a> Parallel Execution of DML statements
14	<a href="#">Configure</a> the Message Details in Forms Designer.
15	<a href="#">Clear</a> the application cache.
16	<a href="#">Configure</a> Password Changes.
17	<a href="#">Configure</a> Java Virtual Machine.

Sl. No.	Additional Configuration Activity
18	<a href="#">Configure</a> Internal Service.

## 4 Hardware and Software Requirements

This section describes the Operating Systems, Database, Web Servers, and Web Application Server versions, and other variants on which this release of the Oracle Financial Services Analytical Applications Reconciliation Framework Pack has been qualified.

**NOTE** OFS Analytical Applications Reconciliation Framework Pack installation can be performed on both Virtual and Physical servers.

See the [OFSAA Technology Matrix](#) for the hardware and software required to install OFSAA Reconciliation Framework Release 8.1.1.0.0.

The following software combinations are recommended.

**Table 2: Recommended Software Combinations**

Operating System	Database	Web Application Server	Web Server
Oracle Linux	Oracle Database	Oracle WebLogic Server/ Apache Tomcat Server/ IBM WebSphere Application Server	Oracle HTTP Server/ Apache HTTP Server/ IBM HTTP Server
Oracle Solaris	Oracle Database	Oracle WebLogic Server/ Apache Tomcat Server	Oracle HTTP Server/ Apache HTTP Server

### Topics:

- [Third-Party Licensing Information](#)
- [Verify System Environment](#)

### 4.1 Third-party Licensing Information

For details on the third-party software tools used in OFSAA Reconciliation Framework Pack, see the [OFSAA Licensing Information User Manual Release 8.1.1.0.0](#).

### 4.2 Verify System Environment

To verify that 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 notifies you if any requirements are not met.

It can also be obtained separately by contacting [Oracle Support](#).

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

For more details on download and usage of this utility, see the [Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide](#).

## 5 Pre-installation

This section describes the necessary software settings, installation of mandatory patches and procedures you must perform before proceeding to install the Oracle Financial Services Analytical Applications Reconciliation Framework Pack.

Topics:

- [Pre-installation Checklist](#)
- [Oracle Database Instance Settings](#)
- [Web Application Server Settings](#)
- [Web Server Settings](#)
- [Create the Installation, Download, and Metadata Repository Directories](#)
- [Configure the OS File System Settings and Environment Settings in the .profile File](#)
- [Apply Pre-install Mandatory Patches](#)
- [Download the OFS Analytical Applications Reconciliation Framework Pack Installer](#)
- [Extract the Software](#)

### 5.1 Pre-installation Checklist

Table 3: Pre-installation Checklist

Sl. No.	Pre-installation Activity
1	<a href="#">Install</a> all the prerequisite hardware and software as per the Tech Stack.
2	<a href="#">Verify</a> the System Environment using the Environment Check Utility.
3	<a href="#">Configure</a> the Database Instance settings.
4	<a href="#">Install</a> and configure the web application server.
5	<a href="#">Configure</a> the HTTP settings on the webserver.
6	<p><a href="#">Create</a> the Installation, Download, and Metadata Repository Directories:</p> <ul style="list-style-type: none"> <li>• Installation directory</li> <li>• Temporary directory</li> <li>• Staging Area/Metadata Repository</li> </ul> <p>Download directory</p>
7	<p><a href="#">Configure</a> the following Operating System and File System settings:</p> <ul style="list-style-type: none"> <li>• File Descriptor</li> <li>• Total number of processes</li> <li>• Port(s)</li> <li>• .profile file permissions</li> <li>• Add FTP/SFTP configuration for file transfer</li> </ul>
8	<p><a href="#">Update</a> the following Environment Settings as required for the installation in the .profile file:</p> <ul style="list-style-type: none"> <li>• Java settings</li> </ul>

Sl. No.	Pre-installation Activity
	<ul style="list-style-type: none"> <li>Oracle Database Server and Client settings</li> <li>Add TNS entries in the TNSNAMES.ORA file</li> <li>Oracle Essbase settings</li> <li>Time Zone settings</li> </ul>
9	<a href="#">Apply</a> pre-install mandatory patches.
10	<a href="#">Download</a> the installer kit.
11	<a href="#">Extract</a> the installer kit.

## 5.2 Oracle Database Instance Settings

Ensure that the following database instance settings are configured:

- NLS\_CHARACTERSET to AL32UTF8
- NLS\_LENGTH\_SEMANTICS to BYTE
- OPEN\_CURSORS limit to greater than 1000

## 5.3 Web Application Server Settings

Ensure that the web application server is installed and the profile (if using WebSphere) or domain (if using WebLogic) is created.

**Table 4: Web Application Server Settings**

Description	Example Value
WebSphere/ WebLogic/ Tomcat	<p>You will be prompted to enter the WebSphere Profile path, the WebLogic Domain path, or the Tomcat Deployment path during OFSAAI installation.</p> <p><b>NOTE:</b> See <a href="#">Configure the Web Server</a> for information on creating WebSphere Profile and WebLogic Domain.</p>

## 5.4 Web Server Settings

This is an optional requirement. If you have installed an HTTP Server, then configure the appropriate HTTP server settings:

**Table 5: Web Server Settings**

Description	Example Value
Apache HTTP Server/ Oracle HTTP Server/ IBM HTTP Server	<p>Configure the HTTP Server and note down the IP or Hostname and Port details as you will be prompted to enter these details during the installation.</p> <p><b>NOTE:</b> See <a href="#">Configure the Web Server</a> for more details.</p>



## 5.4.1 Big Data Settings

This is an optional section and is required only if you intend to install OFSAA Big Data Processing. See the [OFSAA Technology Matrix](#) for the software required for Data software Hadoop Distribution on the Oracle Financial Services Analytical Applications Reconciliation Framework Pack Release 8.1.1.0.0.

1. Install CDH. For installation information, see the Cloudera documentation at <https://www.cloudera.com/>.
2. Ensure that the Hadoop client is already installed and configured in the `.profile` file before proceeding with the Big Data installation (Stage and Results on Hive). For more information, see the [Pre-installation steps for the Stage and Results on Hive mode of the Big Data Installation](#) section.
3. Install the Apache Livy (Incubating) web service:
  - a. Go to <https://incubator.apache.org/clutch/livy.html>.
  - b. Download the `livy-0.4.0-incubating` zip files.
  - c. Install `livy-0.4.0-incubating` for Spark 2.
4. Copy the `ofsaa-hive-udf.jar` file from the installer kit (`OFS_DM_PACK/OFS_AAAI_PACK/fichome/utility/DMT/UDF/lib`) to the `HiveAuxDir` of the cluster. For more information, see [Managing User-Defined Functions \(UDFs\) with HiveServer2](#).

## 5.5 Create the Installation, Download, and Metadata Repository Directories

To install OFSAA Reconciliation Framework, create the following directories:

- **OFSAA Download Directory (Optional):** This is the directory where the downloaded installer or patches can be copied. You can copy the OFSAA Application Pack Installer File (archive). Assign 755 permission to this directory.
- **Temporary Directory:** The default temporary directory where the installation files are stored for a short time to support faster installation. Configure adequate space on the `/tmp` directory. It is recommended that you allocate more than 10 GB space. Assign 755 permission to this directory with NOEXEC option disabled.
- For installation on UNIX OS, your UNIX administrator must give you the required read-write permissions for the `/tmp` directory and disable the NOEXEC option.

### NOTE

If the NOEXEC option is enabled, the extraction of files by the installer into the `/tmp` directory is prevented and the binaries will not execute in the directory, which will fail the installation.

- **OFSAA Installation Directory (Mandatory):** Create an installation directory where the product binaries are installed. Set the variable `FIC_HOME` in the `.profile` file to point to the OFSAA Installation Directory. Assign 755 user permission to the installation directory.

- **OFSAA Staging/Metadata Directory (Mandatory):** A directory to hold the application metadata artifacts and additionally act as the staging area for the flat files. This directory is also referred to as "FTP SHARE". Create a Staging/Metadata Repository directory to copy data files, save data extracts, and so on.

The directory must 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 must have RWX (775) permissions to this directory.

**NOTE**

Ensure the OFSAA Staging Directory:

- Is not set to the same path as the OFSAA Installation Directory
- Is not a subdirectory inside the OFSAA Installation Directory

## 5.6 Configure the OS File System Settings and Environment Settings in the .profile File

### Topics:

- [Configure Operating System and File System Settings](#)
- [Configure the Environment Settings](#)

A `.profile` file is a start-up file of a UNIX user. Create the `.profile` file at the home directory of the logged-in user if it is not already available. The user must have 755 permission on the file to execute it. This file consists of various parameters for Environment Settings, OS, and File System Settings.

To set the parameters for the `.profile` file, login as a non-root user, and configure the Environment Settings.

**WARNING**

Do not modify any parameter other than the ones mentioned in the following subsections.

### 5.6.1 Configure Operating System and File System Settings

Table 6: Configure Operating System and File System Settings

Parameter	Configuration Action
Installation Directory	In the <code>.profile</code> file, set the variable <code>FIC_HOME</code> to point to the OFSAA Installation Directory.

Parameter	Configuration Action
File Descriptor Settings	<p>In the <code>sysctl.conf</code> file, to change the number of file descriptors, do the following as the root user:</p> <ol style="list-style-type: none"> <li>Edit the following line in the <code>/etc/sysctl.conf</code> file:  <code>fs.file-max = &lt;value&gt;</code>            where <code>&lt;value&gt;</code> is greater than 15000</li> <li>Apply the change by running the following command:  <code># /sbin/ sysctl -p</code></li> </ol> <p><b>NOTE:</b> 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.</p>
Total Number of Process Settings	<p>In the <code>sysctl.conf</code> file, set a value greater than 4096.</p> <p><b>NOTE:</b> 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.</p>
Port Settings	<p>Default port numbers to be enabled on the system are 6500, 6501, 6505, 6507, 6509, 6510, 6666, 9999, and 10101.</p>

## 5.6.2 Configure the Environment Settings

### Topics:

- [Java Settings](#)
- [Oracle Database Server and Client Settings](#)
- [TNS entries in the TNSNAMES.ORA file for Non-TCPS and TCPS](#)
- [Oracle Essbase Settings](#)
- [Time Zone Settings](#)
- [Mandatory Patches](#)

### 5.6.2.1 Java Settings

Table 7: Java Settings

Description	Example Value
<p>In the <code>.profile</code> file, set the Java tool options for all versions JDK 11.0.20 and above updates. Ensure that SYMBOLIC links to JAVA installation are not set in the PATH variable.</p>	<pre>JAVA_TOOL_OPTIONS=" - Djdk.util.zip.disableZip64ExtraFieldValidation=true" export JAVA_TOOL_OPTIONS</pre>

Description	Example Value
In the <code>.profile</code> file, set <code>PATH</code> to include the Java Runtime Environment bin path.	<pre>JAVA_BIN=/scratch/⟨⟨version⟩⟩/jre/bin</pre> For example: <pre>PATH=/usr/java/jre1.8.0_221/bin:\$ORACLE_HOME/bin:\$PATH</pre>
Enable unlimited cryptographic policy for Java.	For more information, see the <i>Enabling Unlimited Cryptographic Policy</i> section in the <a href="#">OFS Analytical Applications Infrastructure Administration Guide</a> .

### 5.6.2.2 Oracle Database Server and Client Settings

Table 8: Oracle Database Server and Client Settings

Description	Example Value
In the <code>.profile</code> file, set <code>TNS_ADMIN</code> to the appropriate <code>tnsnames.ora</code> file.	<code>TNS_ADMIN=\$HOME/tns</code>
In the <code>.profile</code> file, set <code>ORACLE_HOME</code> to the appropriate Oracle Client installation.	<code>ORACLE_HOME=/scratch/oraofss/app_client18c/product/18.0.0/client_1</code>
In the <code>.profile</code> file, set <code>PATH</code> to include the appropriate <code>\$ORACLE_HOME/bin</code> path.	<code>PATH=\$JAVA_HOME/bin:\$ORACLE_HOME/bin</code>

### 5.6.2.3 TNS entries in the TNSNAMES.ORA file for Non-TCPS and TCPS

#### Non-TCPS

Table 9: TNS entries in the TNSNAMES.ORA file for Non-TCPS

Description	Example Value
Ensure that an entry (with <code>SID</code> or <code>SERVICE NAME</code> ) is added in the <code>tnsnames.ora</code> file on the OFSAA server.	<pre>&lt;SID_NAME&gt; = DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP) (HOST = &lt;HOST_NAME&gt;.in.oracle.com) (PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = &lt;SID_NAME&gt;)) &lt;ATOMIC_SCHEMA_NAME&gt; = (DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP) (HOST = &lt;HOST_NAME&gt;.in.oracle.com) (PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = &lt;SID_NAME&gt;)))</pre>

```
<<SID NAME> =
(DESCRIPTION =
```

```

        (ADDRESS_LIST =
          (ADDRESS = (PROTOCOL = TCP) (HOST = <HOST NAME>) (PORT = <PORT
NUMBER>))
        )
        (CONNECT_DATA =
          (SERVICE_NAME = <SID NAME>)
        )
      )
<ATOMICSCHEMANAME> =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = <HOST NAME>) (PORT = <PORT
NUMBER>))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = <SID NAME>)
    )
  )
)

```

**NOTE** The ATOMIC SCHEMA NAME must be the same as defined in the OFS\_DM\_SCHEMA\_IN.xml file.

## TCPS

**Table 10: TNS entries in the TNSNAMES.ORA file for TCPS**

Description	Example Value
Ensure that an entry (with SID or SERVICE NAME) is added in the tnsnames.ora file on the OFSAA server.	<pre> &lt;SID_NAME&gt; = DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCPS) (HOST = &lt;HOST_NAME&gt;.in.oracle.com) (PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = &lt;SID_NAME&gt;)) &lt;ATOMIC_SCHEMA_NAME&gt; = (DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCPS) (HOST = &lt;HOST_NAME&gt;.in.oracle.com) (PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = &lt;SID_NAME&gt;))) (security=(ssl_server_cert_dn=CN=&lt;HOST_NAME&gt;))) </pre>

Description	Example Value
Ensure that an entry (with <code>WALLET_HOME</code> and wallet parameters) is added in the <code>sqlnet.ora</code> file on the OFSAA server and must be the same as the Oracle database server running with TCPS.	<pre> NAMES.DIRECTORY_PATH= (TNSNAMES, EZCONNECT) WALLET_LOCATION = (SOURCE = (METHOD = FILE) (METHOD_DATA = (DIRECTORY = &lt;PATH TO WALLET DIRECTORY&gt;))) SQLNET.WALLET_OVERRIDE = TRUE SSL_CLIENT_AUTHENTICATION = FALSE  SQLNET.AUTHENTICATION_SERVICES = (TCPS,NTS,BEQ)  SSL_CIPHER_SUITES = (SSL_RSA_WITH_AES_256_CBC_SHA, SSL_RSA_WITH_3DES_EDE_CBC_SHA) </pre>

```

<SID NAME> =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCPS) (HOST = <HOST NAME>) (PORT = <PORT
NUMBER>))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = <SID NAME>)
      (security=(ssl_server_cert_dn=CN=<HOST NAME>))
    )
  )
<ATOMICSCHEMANAME> =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCPS) (HOST = <HOST NAME>) (PORT = <PORT
NUMBER>))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = <SID NAME>)
      (security=(ssl_server_cert_dn=CN=<HOST NAME>))
    )
  )

```

**NOTE**

The ATOMIC SCHEMA NAME must be the same as defined in the `OFS_DM_SCHEMA_IN.xml` file, which also includes prefix without underscore. For example, `DEVOFSAAATM`.

### 5.6.2.4 Oracle Wallet Settings for Installation in TCPS Mode

In the `.profile` file, set the following parameters for Oracle Wallet if you want to run the installer in the TCPS mode:

- `OFS_ORA_WAL_ENABLED=TRUE`
- `export OFS_ORA_WAL_ENABLED`

#### NOTE

Installation in TCPS mode with Oracle Wallet requires Config and Atomic Schema credentials in Oracle Wallet along with certificates.

If you do not configure this variable, the system defaults to `OFS_ORA_WAL_ENABLED=FALSE`.

### 5.6.2.5 Oracle Essbase Settings

In the `.profile` file, set the following parameters only if you want to use Oracle Hyperion Essbase OLAP features.

**Table 11: Oracle Essbase Settings**

Description	Example Value
ARBORPATH to an appropriate Oracle Essbase Client installation.	<code>PATH=\$PATH:\$ARBORPATH/bin</code>
ESSBASEPATH to an appropriate Oracle Essbase Client installation.	<code>ESSBASEPATH=/scratch/essps3/Oracle/MiddlewareHome/EPMSysstem11R1/common/EssbaseRTC-64/11.1.2.0</code> <code>export ESSBASEPATH</code>
HYPERION_HOME to an appropriate Oracle Essbase Client installation.	<code>HYPERION_HOME=/scratch/essps3/Oracle/MiddlewareHome/EPMSysstem11R1/common/EssbaseRTC-64/11.1.2.0</code> <code>export HYPERION_HOME</code>

### 5.6.2.6 Time Zone Settings

In the `.profile` file, set the Time Zone parameter to indicate the time zone of your region/ location.

**Table 12: Time Zone Settings**

Description	Example Value
Time Zone	<code>TZ=Asia/Calcutta</code>

## 5.7 Download the OFS Analytical Applications Reconciliation Framework Pack Installer

To download the OFS Analytical Applications Reconciliation Framework Pack Installer Release 8.1.1.0.0, follow these steps:

1. Log in to the [My Oracle Support \(MOS\)](#) with a valid Oracle account.
2. In the **Patches & Updates** tab, search for the OFS Analytical Applications Reconciliation Framework Pack installer patch [32666718](#) and download the patch. Copy the patch to your OFSAA server in the Binary mode in the setup identified for OFS Analytical Applications Reconciliation Framework installation.

**NOTE**

Select the required archive files for either Solaris SPARC or Linux based on the operating system of your OFSAAI.

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

**ATTENTION**

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](#).

## 5.8 Extract the Software

You must be logged in to the UNIX operating system as a non-root user to perform the following steps. To extract the software, follow these steps:

1. If you already have an unzip utility to extract the contents of the downloaded archive, skip this step.

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.

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.

2. Assign execute (751) to the file with the following command:

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



For example: `chmod 751 unzip_sparc`

3. Extract the contents of the Oracle Financial Services Analytical Applications Reconciliation Framework Pack Release 8.1.1.0.0 installer archive file in the download directory with the following command:

```
unzip -a OFS_DM_8.1.1.0.0_<OS>.zip
```

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

```
chmod -R 750 OFS_DM_PACK
```

## 6 Installation

### Topics:

- [Prerequisite](#)
- [Installation Checklist](#)
- [Configure the OFS\\_DM\\_PACK.xml File](#)
- [Configure the Schema Creator Utility](#)
- [Execute the Schema Creator Utility](#)
- [Verify the Log File](#)
- [Configure the OFSAAI\\_InstallConfig.xml File](#)
- [Install the OFS Analytical Applications Reconciliation Framework Pack](#)
- [Apply Post-installation Mandatory Patches](#)
- [Verify the Log File](#)
- [Verify the Installation](#)

### 6.1 Prerequisite

If you are using Data Governance (DGS) along with Reconciliation Framework application, then perform the below steps:

**For Example:** If you are using a higher version of DGS of 8.1.2.0.0 version and Reconciliation Framework of 8.1.1.1.5, then the `DataAdjustment.jar` of any one-off patch of Reconciliation Framework is not applied.

To rectify this:

1. Modify the AAI table in **config schema** `aai_pack_app_file_details` for the `DataAdjustment.jar` file and rename the file with suffix as `'_YYYYMMDD_tag'`.
2. Apply the Reconciliation Framework patch on the environment and the new `DataAdjustment.jar` file will be copied by the installer.

### 6.2 Installation Checklist

Table 13: Installation Checklist

Sl. No.	Installation Activity
1	<a href="#">Configure</a> the OFS_DM_PACK.xml file.
2	<a href="#">Configure</a> the OFS_DM_SCHEMA_IN.xml file.
3	<a href="#">Configure</a> the OFS_DM_SCHEMA_BIGDATA_IN.xml file
4	<a href="#">Execute</a> the Schema Creator Utility in Online, Offline modes, and verify the log file.
5	<a href="#">Configure</a> the OFSAAI_InstallConfig.xml file.

Sl. No.	Installation Activity
6	<a href="#">Trigger</a> the installation.
7	<a href="#">Apply</a> post-installation mandatory patches
8	<a href="#">Verify</a> the log files
9	<a href="#">Verify</a> the installation

## 6.3 Configure the OFS\_DM\_PACK.xml File

The `OFS_DM_PACK.xml` file has details of the products that are packaged in the OFSAA Reconciliation Framework Pack. This section provides information about the tags and parameters available in this file and the values you must update before installing the OFSAA Reconciliation Framework Pack.

**NOTE** Enable licenses as per your Service Level Agreement (SLA).

**NOTE** The Hybrid installation mode of OFSAA Reconciliation Framework supports only full Hive deployment for those application packs where Hive is enabled. (For example – Oracle Financial Services Data Foundation). As a part of the installation process, you must use only the Hybrid templates to install OFSAA Reconciliation Framework on Hive.

To configure the `OFS_DM_PACK.xml` file, follow these steps:

1. Navigate to the `OFS_DM_PACK/conf` directory.
2. Open the `OFS_DM_PACK.xml` file in a text editor.
3. Configure the `OFS_DM_PACK.xml` file as mentioned in the following table.

**NOTE** In case of HIVE, rename the following files and then proceed.

- `OFS_DM_PACK.xml` to `OFS_DM_PACK.xml.bkp`.
- `OFS_DM_PACK.xml.HYBRID.template` to `OFS_DM_PACK.xml`.

Figure 4: Sample OFS\_DM\_PACK.xml File

```
PP_PACK_CONFIG>
<APP_PACK_ID>OFS_DM_PACK</APP_PACK_ID>
<APP_PACK_NAME>Financial Services Data Management Pack</APP_PACK_NAME>
<APP_PACK_DESCRIPTION>Applications for Data Management</APP_PACK_DESCRIPTION>
<VERSION>8.1.1.0.0</VERSION>
<APP>
  <APP_ID PREREQ="" DEF_SEL_FLG="YES" ENABLE="YES">OFS_AAI</APP_ID>
  <APP_NAME>Financial Services Analytical Applications Infrastructure</APP_NAME>
  <APP_DESCRIPTION>Base Infrastructure for Analytical Applications</APP_DESCRIPTION>
  <VERSION>8.1.1.0.0</VERSION>
</APP>
<APP>
  <APP_ID PREREQ="OFS_AAI" ENABLE="YES">OFS_GLRECON</APP_ID>
  <APP_NAME>Financial Services Analytical Applications Reconciliation Framework</APP_NAME>
  <APP_DESCRIPTION>Framework for General Ledger Reconciliation</APP_DESCRIPTION>
  <VERSION>8.1.1.0.0</VERSION>
</APP>
APP_PACK_CONFIG>
```

Table 14: OFS\_DM\_PACK.xml File Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/ N)	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 is the prerequisite set. For certain other applications, an appropriate Application ID would be set. DO NOT modify this value.
APP_ID DEF_SEL_FLG	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	Y	Possible Values: YES or NO <ul style="list-style-type: none"> <li>• YES for Infrastructure</li> <li>• NO for Others</li> </ul> Set this attribute-value to YES against every APP_ID which is licensed and should be enabled for use. <b>Note:</b> Application/ Product once enabled cannot be disabled. However, Application/ Product not enabled during installation can be enabled later through the Administration UI.

Tag Name/ Attribute Name	Description	Mandatory (Y/ N)	Comments
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.

## 6.4 Configure the Schema Creator Utility

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

You must configure and execute the schema creator utility before installing any OFSAA Application Pack.

### Topics:

- [Prerequisites](#)
- [Configure Schema Creator Utility for RDBMS Installation](#)
- [Configuring the Schema Creator Utility for Hive Schema](#)

### 6.4.1 Prerequisites

Ensure you have the following before configuring the Schema Creator Utility:

- Oracle User ID/Password with SYSDBA privileges.
- JDBC Connection URL for RAC/Non-RAC database.
- The HOSTNAME/IP of the server on which OFSAA is getting installed.

In the case of the HIVE installation, you must also have the following:

- HIVE connection credentials (For example: Kerberos connection properties).
- Hostname/IP of the HIVE server installation
- Install mandatory schema creator patches. See [Pre-install Mandatory Patches](#) for details.

### 6.4.2 Configure the Schema Creator Utility for RDBMS Installation

If the installation is performed for RDBMS, provide the Pack specific schema details in the `OFS_DM_SCHEMA_IN.xml` file.

You can configure the following types of schemas:

- **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.

#### Topics:

- [Configure the OFS\\_DM\\_SCHEMA\\_IN.xml File](#)
- [Example of TDE Enablement and TABLESPACES with Encryption ON](#)

### 6.4.2.1 Configure the OFS\_DM\_SCHEMA\_IN.xml File

The `OFS_DM_SCHEMA_IN.xml` file contains details of the various application schemas. Update the values of the various tags and parameters available in this file before executing the Schema Creator Utility.

- NOTE**
- This file must be configured if the database is RDBMS.
  - If using Hive, rename `OFS_DM_SCHEMA_IN.xml` to `OFS_DM_SCHEMA_IN.xml.bkp` and then rename `OFS_DM_SCHEMA_BIGDATA_IN.xml.HYBRID.template` to `OFS_DM_SCHEMA_BIGDATA_IN.xml`
  - This file need not be configured for an HDFS ONLY installation.

To configure the `OFS_DM_SCHEMA_IN.xml` file, follow these steps:

1. Log in to the system as a non-root user.
2. Navigate to the `OFS_DM_PACK/schema_creator/conf` directory.
3. Edit the `OFS_DM_SCHEMA_IN.xml` file using a text editor and configure the values as mentioned in the following table.
4. Save the file.

**Figure 5: Sample OFS\_DM\_SCHEMA\_IN.xml File**

```
<APPACKSCHEMA>
  <APP_PACK_ID>OFS_DM_PACK</APP_PACK_ID>
  <IS_TCPS>FALSE</IS_TCPS>
  <JDBC_URL>jdbc:oracle:thin:@whf00dny.in.oracle.com:1521/DIH18PDB</JDBC_URL>
  <JDBC_DRIVER>oracle.jdbc.driver.OracleDriver</JDBC_DRIVER>
  <HOST>10.40.90.48</HOST>
  <SETUPINFO_NAME>"DMP" PREFIX_SCHEMA_NAME="N"/>
  <PASSWORD_APPLYSAMEFORALL>"Y" DEFAULT="" />
  <!--
  <ADV_SEC_OPTIONS>
    <OPTION NAME="TDE" VALUE="TRUE"/>
    <OPTION NAME="DATA_REDACT" VALUE="TRUE" />
  </ADV_SEC_OPTIONS>
  -->
  <TABLESPACES>
    <TABLESPACE NAME="OFS_GL_DATA_TBS" VALUE="GL_DATA_TABLE_SPACE" DATAFILE="/scratch/onaofss/oradata/DIH18CDB/DIH18PDB/GL_data_tablespace1.dbf"
    SIZE="1096M" AUTOEXTEND="ON" />
  </TABLESPACES>

  <SCHEMAS>
    <SCHEMA TYPE="CONFIG" NAME="USR123CONFIG" PASSWORD="" APP_ID="OFS_AAI" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA ="UNLIMITED" />
    <SCHEMA TYPE="ATOMIC" NAME="USR123ATOMIC" PASSWORD="" APP_ID="OFS_GLRECON" INFODOM="FSDFINFO" DEFAULTTABLESPACE="USERS"
    TEMPTABLESPACE="TEMP" QUOTA ="UNLIMITED" />
  </SCHEMAS>
</APPACKSCHEMA>
```



**Table 15: OFS\_DM\_SCHEMA\_IN.xml file 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.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<JDBC_URL>	Enter the JDBC URL. <b>Note:</b> You can enter RAC and NON-RAC enabled database connectivity URL.	Y	Example, jdbc:oracle:thin:@<DBSERVER IP/HOST/IP>:<PORT>:<SID> or jdbc:oracle:thin:@//[HOST][:PORT]/SERVICE or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(port=[PORT]))(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(PORT=[PORT]))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=[SERVICE]))) For example, jdbc:oracle:thin:@//dbhost.server.com:1521/service1 or jdbc:oracle:thin:@//dbshost.server.com:1521/scan-1 or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost1.server.com)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost2.server.com)(PORT=1521))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=service1)))	Ensure you 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.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<JDBC_DRIVER>	By default, this driver's name is seeded. <b>Note:</b> Do not edit this attribute value.	Y	Example: oracle.jdbc.driver.Oracle Driver	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	
<IS_HYBRID>/ VALUE = TRUE	Flag to identify the mode of installation	Y	TRUE	This flag value should be TRUE in case of Hybrid mode of installation only.
<SETUPINFO>/ NAME	Enter the acronym for the type of implementation. This information will be displayed in the OFSAA Home Page. <b>Note:</b> 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 a 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.
<SETUPINFO>/ PREFIX_SCHEMA_NAME	Identifies if the value specified in <SETUPINFO>/ NAME attribute should be prefixed to the schema name.	N	YES or NO	The default value is YES.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<PASSWORD>/ APPLYSAMEFORALL	<p>Enter Y if you want to apply the password specified in DEFAULT attribute for all the schemas.</p> <p>If you enter N, you need to provide individual passwords for all schemas.</p> <p><b>Note:</b> 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.</p>	Y	<p>Default – N</p> <p>Permissible – Y or N</p>	Setting this attribute value is mandatory if DEFAULT attribute is set.
<PASSWORD>/ DEFAULT*	<p>Enter the password if you want to set a default password for all schemas.</p> <p><b>Note:</b> You must also set the APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.</p>	N	The maximum length allowed is 30 characters. Special characters are not allowed.	

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ TYPE	<p>The types of schemas supported in this release are ATOMIC, CONFIG, SANDBOX, and ADDON.</p> <p>By default, the schema types are seeded based on the Application Pack.</p> <p><b>Note:</b> Do not edit this attribute value.</p>	Y	<p>ATOMIC/CONFIG/SANDBOX/ADDON</p> <p><b>Note:</b> SANDBOX AND ADDON schemas are not applicable for OFS AAAI 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 another miscellaneous schema (not applicable to this application pack).</p>
<SCHEMA.>/ NAME	<p>By default, the schema names are seeded based on the application pack.</p> <p>You can edit the schema names if required.</p> <p><b>Note:</b> The Schema Name will have a prefix of the SETUPINFO/ NAME attribute.</p> <p>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 are allowed. No special characters are allowed except underscore '_'.</p>	<p>SETUPINFO/ NAME attribute value would be prefixed to the schema name being created.</p> <p>For example., if you set 'ofsaatm' as the name and setupinfo as 'uat' then schema being created would be 'uat_ofsaatm'.</p> <p>NAME should be the 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><b>Note:</b> If this attribute is left blank, then the password specified in the &lt;PASSWORD&gt;/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><b>Note:</b> It is mandatory to enter the password if you have set the &lt;PASSWORD&gt;/ APPLYSAMEFORALL attribute as N.</p>

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ APP_ID	By default, the Application ID is seeded based on the application pack. <b>Note:</b> Do not edit this attribute value.	Y	Unique Seeded Value	Identifies the Application/ Product for which the schema is being created. DO NOT modify this value.
<SCHEMA>/ DEFAULTTABLESPACE	Enter the available default tablespace for DB User. <b>Note:</b> 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. <b>Note:</b> If this attribute is left blank, 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 (Optional for Atomic and mandatory for sandbox)	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed.	Enter this field in UPPERCASE. If the OFSAA Reconciliation Framework Pack is the first media pack installation in the setup, then INFODOM has to be specified mandatorily else it is optional.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<ADV_SEC_OPTION S>	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_OPTION S>/TDE	Tag to enable/disable TDE.	N	The 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_OPTION S>/ DATA_REDACT	Tag to enable/disable the Data Redaction feature.	N	The default is FALSE. To enable DATA_REDACT, set this to TRUE	Ensure this tag is not commented if you have uncommented <ADV_SEC_OPTIONS>/
<TABLESPACES>	Parent tag to hold <TABLESPACE> elements	N	NA	Uncomment the tag and edit. ONLY if tablespaces are to be created as part of the installation. For details, see the example following the table. <b>Note:</b> When TDE is TRUE in ADV_SEC_OPTIONS, then it is mandatory for the <TABLESPACES> tag to be present in the XML file.
<TABLESPACE>/ NAME	Logical Name of the tablespace to be created.	Y		Name. If specified, should be referred to 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.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<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.



### 6.4.2.2 Example of TDE Enablement and TABLESPACES with Encryption ON

Encryption of tablespaces requires enabling Transparent Data Encryption (TDE) on the Database Server.

The following snippet shows that TDE is enabled and therefore, the tablespaces are shown with the 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/ora19c/app/oracle/oradata/OFSQA19CDB/ts_users1.dbf"
SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />
<TABLESPACE NAME="OFS_AAI_TBSP_2" VALUE="TS_USERS2"
DATAFILE="/scratch/ora19c/app/oracle/oradata/OFSQA19CDB/ts_users2.dbf"
SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />
</TABLESPACES>

<SCHEMAS>
<SCHEMA TYPE="CONFIG" NAME="ofsaaconf" PASSWORD="" APP_ID="OFS_AAI"
DEFAULTTABLESPACE="##OFS_AAI_TBSP_1##" TEMPTABLESPACE="TEMP"
QUOTA="unlimited"/>
<SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_AAAI"
DEFAULTTABLESPACE="##OFS_AAI_TBSP_2##" TEMPTABLESPACE="TEMP"
QUOTA="unlimited" INFODOM="OFSAAAIINFO"/>
</SCHEMAS>
-----
```

### 6.4.3 Configuring the Schema Creator Utility for Hive Schema

For configuring Schema Creator Utility for OFS Reconciliation Framework on Hive, navigate to /OFS\_DM\_PACK/schema\_creator/conf and rename the following files (for Hive based installation use only the HYBRID template):

- OFS\_DM\_SCHEMA\_IN.xml to OFS\_DM\_SCHEMA\_IN.xml.bkp
- OFS\_DM\_CFG.dat to OFS\_DM\_CFG.dat.bkp
- OFS\_DM\_SCHEMA\_BIGDATA\_IN.xml.HYBRID.template to OFS\_DM\_SCHEMA\_BIGDATA\_IN.xml
- OFS\_DM\_CFG.dat.HYBRID.template to OFS\_DM\_CFG.dat

Fill the pack specific schema details in the OFS\_DM\_SCHEMA\_BIGDATA\_IN.xml file before executing the utility.

For more information on the XML file, see the [Configure the OFS DM\\_SCHEMA\\_BIGDATA\\_IN.xml file](#).

You can configure the following types of schemas:

- **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. This schema is created only in RDBMS.

- **METADOM:** This schema holds the OFSAA Reconciliation Framework metadata information. One METADOM schema is attached to one information domain.

**NOTE** There can be multiple METADOM schemas per OFSAA Instance. This schema is created only in RDBMS. It has only platform entities that hold the metadata details. However, it does not hold the data model entities.

- **DATADOM:** This schema holds data model entities. One DATADOM schema is attached to one information domain.

**NOTE** There can be multiple DATADOM schemas per OFSAA Instance.

### 6.4.3.1 Configure the OFS\_DM\_SCHEMA\_BIGDATA\_IN.xml file

Configure this file only if installing OFS Analytical Applications Reconciliation Framework Pack for HDFS-ONLY target.

This file need not be configured for an RDBMS-ONLY target installation.

The `OFS_DM_SCHEMA_BIGDATA_IN.xml` file contains details of the various application schemas. Update the values of the various tags and parameters available in this file before executing the Schema Creator Utility.

To configure the `OFS_DM_SCHEMA_BIGDATA_IN.xml` file, follow these steps:

1. Log in to the system as a non-root user.
2. Navigate to the `OFS_DM_PACK/schema_creator/conf` directory.
3. Rename the `OFS_DM_SCHEMA_BIGDATA_IN.xml.HYBRID.template` file to `OFS_DM_SCHEMA_BIGDATA_IN.xml`.
4. Edit the `OFS_DM_SCHEMA_BIGDATA_IN.xml` file using a text editor and configure the values as mentioned in the following table.
5. Save the file.

**NOTE** On successful execution of the utility, the passwords entered in the OFS\_DM\_SCHEMA\_IN.xml file are nullified.

**NOTE** If there are any errors during the script execution, reconfigure the OFS\_DM\_SCHEMA\_IN.xml file and execute the utility. This regenerates the scripts with the updated information.

Figure 6: Sample OFS\_DM\_SCHEMA\_BIGDATA\_IN.xml File

```

<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<APPACKSCHEMA>
  <APP_PACK_ID>OFS_DM_PACK</APP_PACK_ID>
  <IS_TCPS>FALSE</IS_TCPS>
  <JDBC_URL></JDBC_URL>
  <JDBC_DRIVER>oracle.jdbc.driver.OracleDriver</JDBC_DRIVER>
  <HOST></HOST>
  <IS_HYBRID VALUE="TRUE"/>
  <SETUPINFO NAME="DMP" PREFIX_SCHEMA_NAME="Y"/>
  <PASSWORD APPLYSAMEFORALL="Y" DEFAULT="" />
  <!--
  <ADV_SEC_OPTIONS>
    <OPTION NAME="TDE" VALUE="TRUE"/>
    <OPTION NAME="DATA_REDACT" VALUE="TRUE" />
  </ADV_SEC_OPTIONS>
  -->
  <TABLESPACES>
    <TABLESPACE NAME="OFS_GL_DATA_TBS" VALUE="GL_DATA_TABLESPACE" DATAFILE="<../GL_data_tablespace1.dbf" SIZE="1096M" AUTOEXTEND="ON" />
  </TABLESPACES>
  <SCHEMAS TYPE="RDBMS">
    <SCHEMA TYPE="CONFIG" NAME="OFSAACONF" PASSWORD="" APP_ID="OFS_AAI" DEFAULTTABLESPACE="##OFS_GL_DATA_TBS##" TEMPTABLESPACE="TEMP" QUOTA="" />
    <SCHEMA TYPE="ATOMIC" NAME="OFSAAATH" PASSWORD="" APP_ID="OFS_GLRECON" APP_GRP="1" INFODOM="DMINFO" DEFAULTTABLESPACE="##OFS_GL_DATA_TBS##" TEMPTABLESPACE="TEMP" QUOTA="" />
    <SCHEMA TYPE="ATOMIC" NAME="OFSAAHETA" PASSWORD="" APP_ID="OFS_GLRECONHV" INFODOM="DMHVINFO" DEFAULTTABLESPACE="##OFS_GL_DATA_TBS##" TEMPTABLESPACE="TEMP" QUOTA="" />
  </SCHEMAS>
  <SCHEMAS TYPE="HDFS">
    <HIVE_SERVER_HOST>##HIVE_SERVER##</HIVE_SERVER_HOST>
    <HIVE_LTB_PATH>##HIVE_LTB_PATH##</HIVE_LTB_PATH>
    <SCHEMA TYPE="DATADOM" NAME="OFSAAHDATA" APP_ID="OFS_GLRECONHV" DB_TYPE="HIVE" INFODOM="DMHVINFO">
      <SCHEMA_PROPERTIES>
        <PROPERTY ID="COMMENT" VALUE="" />
        <PROPERTY ID="LOCATION" VALUE="" />
      </SCHEMA_PROPERTIES>
      <CONNECTION_PROPERTIES>
        <PROPERTY ID="JDBC_DRIVER" VALUE="##HIVE_JDBC##" />
        <PROPERTY ID="JDBC_URL" VALUE="##HIVE_JDBC##" />
        <PROPERTY ID="AUTH_TYPE" VALUE="##AUTH_TYPE##" />
        <PROPERTY ID="AUTH_ALIAS" VALUE="##AUTH_NAME##" />
        <PROPERTY ID="PRINCIPAL" VALUE="##PRINCIPAL##" />
        <PROPERTY ID="PASSWORD" VALUE="##PASSWORD##" />
        <PROPERTY ID="KRB_GSS3AAS_FILE_NAME" VALUE="##KEYTAB_PATH##" />
        <PROPERTY ID="KRB_REALM_FILE_NAME" VALUE="##KEYTAB_CONF##" />
      </CONNECTION_PROPERTIES>
    </SCHEMA>
  </SCHEMAS>
</APPACKSCHEMA>

```

Table 17: OFS\_DM\_SCHEMA\_BIGDATA\_IN.xml file Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<APP_PACK_ID>	Seeded unique ID for the OFSAA application pack	Y	Seeded	DO NOT modify this value.
<JDBC_URL>	Enter the JDBC URL <b>Note:</b> You can enter the RAC/ NON-RAC enabled database connectivity URL.	Y	Example: jdbc:oracle:thin:@<HOST/ IP>:<PORT>:<SID>  or jdbc:oracle:thin:@//[HOS T][:PORT]/SERVICE  or jdbc:oracle:thin:@(DESCRI PTION=(ADDRESS_LIST=(ADDRESS=(PROT OCOL=TCP) (HOST=[HO ST]) (port=[PORT])) (ADD RESS=(PROTOCOL=TCP) (HOST=[HOST]) (PORT=[ PORT])) (LOAD_ BALANCE=yes) (FAILOV ER=yes) (CONNECT_ DATA=(SERVICE_NAME=[SERVICE]))))  <b>For example:</b> jdbc:oracle:thin:@//dbhos t.server.com:1521/service 1  or jdbc:oracle:thin:@//dbsho st.server.com:1521/scan-1  or jdbc:oracle:thin:@(DESCRI PTION=(ADDRESS_LIST=(ADDRESS=(PROT OCOL=TCP) (HOST=dbho st1.server.com) (port=1521) ) (ADDRESS=(PROTOCO L=TCP) (HOST=dbhost2.s erver.com) (PORT=1521)) ( LOAD_ BALANCE=yes) (FAILOV ER=yes) (CONNECT_ DATA=(SERVICE_ NAME=service1)))	In the case of an HDFS ONLY target, this URL should be of the RDBMS instance that hosts the application's METADOM.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<JDBC_DRIVER>	By default, this driver name is seeded. <b>Note:</b> 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	
<SETUPINFO>/ PREFIX_SCHEMA_NAME	Identifies if the value specified in the <SETUPINFO>/ NAME attribute should be prefixed to the schema name.	N	YES or NO	The default value is YES.
<SETUPINFO>/ NAME	Enter the acronym for the type of implementation. This information will be displayed in the OFSAA Home Page. <b>Note:</b> On executing the Schema Creator Utility, this value will be prefixed with each schema name. For example: dev_ofsaaconf, uat_ofsaaconf.	Y	Accepts strings with a minimum length of two and a 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 example: dev_ofsaaconf, uat_ofsaaconf etc.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<PASSWORD>/ DEFAULT*	<p>Enter the password if you want to set a default password for all schemas.</p> <p><b>Note:</b> You also need to set the APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.</p>	N	The maximum length allowed is 30 characters. Special characters are not allowed.	Applies only to the RDBMS type METADOM schema(s).
<PASSWORD>/ APPLYSAMEFO RALL	<p>Enter Y if you want to apply the password specified in DEFAULT attribute for all the schemas.</p> <p>If you enter N, you must provide individual passwords for all schemas.</p> <p><b>Note:</b> In case you have entered Y in the APPLYSAMEFORALL attribute and also have specified individual passwords for all the schemas, then the specified individual passwords will take precedence.</p>	Y	Default - N Permissible - Y or N	<p><b>Note:</b> Setting this attribute value is mandatory if the DEFAULT attribute is set.</p> <p>Applies only to the RDBMS type METADOM schema(s).</p>

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMAS>/ TYPE=RDBMS	Identifies the RDBMS schema details.	Y	Default names for schemas within the pack would be derived in absence of any value specified.	In an HDFS ONLY target, the application's METADOM (that hosts the metadata) for an application is stored in RDBMS schema and the data model entities of the application are stored in the DATADOM (which would be on Hive).
<SCHEMA>/ TYPE	The different types of schemas that are supported in this release are ATOMIC, CONFIG, SANDBOX, and ADDON. By default, the schema types are seeded based on the application pack. <b>Note:</b> Do not edit this attribute value.	Y	ATOMIC/CONFIG/SANDBOX/ADDON <b>Note:</b> SANDBOX AND ADDON schemas are not applicable for OFS AAAI Application Pack.	Only one CONFIG schema can exist in the file. ATOMIC schema refers to the METADOM within the Information Domain. CONFIGURATION schema holds the OFSAA setup details and other metadata information. SANDBOX schema refers to the SANDBOX schema. ADDON schema refers to other miscellaneous schemas (not applicable for this application pack). Multiple ATOMIC/ SANDBOX/ ADDON schemas can exist in the file.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ NAME	By default, the schema names are seeded based on the application pack. You can edit the schema names, if required. <b>Note:</b> The Schema Name will have a prefix of the SETUPINFO/ NAME attribute. SCHEMA NAME must be the same for all the ATOMIC Schemas of applications within an application pack.	Y	The permissible length is 15 characters and only alphanumeric characters are allowed. No special characters are allowed except underscore '_'.	SETUPINFO/ NAME attribute value will be prefixed to the schema name being created.  For example, if the name is set as 'ofsaaatm' and setupinfo as 'uat' then schema being created would be 'uat_ofsaaatm'.  NAME should be the same where APP_GRP=1 for all SCHEMA tags (Not applicable for this application pack).
<SCHEMA>/ PASSWORD	Enter the password of the schema to be created. <b>Note:</b> If this attribute is left blank, then the password specified in the <PASSWORD>/DEFAULT attribute is applied as the Schema Password.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	<b>Note:</b> You need to mandatorily enter the password if you have set the <PASSWORD>/ APPLYSAMEFORALL attribute as N.
<SCHEMA>/ APP_ID	By default, the Application ID is seeded based on the application pack. <b>Note:</b> Do not edit this attribute value.	Y	Unique Seeded Value	Identifies the Application/ Product for which the schema is being created.  DO NOT modify this value.



Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ DEFAULTTABL ESPACE	Enter the available default tablespace for DB User.  <b>Note:</b> If this attribute is left blank, then USERS is set as the default tablespace.	N	Default - USERS Permissible - Any existing valid tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ TEMPTABLESP ACE	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.
<SCHEMAS>/ TYPE=HDFS	Type of schemas being created.	Y		Refers to the DATADOM of the application pack being installed.
<HIVE_SERVER_ HOST>	IP/Hostname of the server where HIVE is installed.	Y		

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<HIVE_LIB_PATH>	Folder path where HIVE related drivers/jar files are copied.	Y		Should contain the list of jars mentioned in the sections: <a href="#">Copy Jars to the OFSAA Installation Directory</a> and <a href="#">Copy KEYTAB and KRB5 Files in OFSAAI</a> . Manually copy the preceding listed files from CDH distribution to this identified folder.
<SCHEMA>/NAME	By default, the schema names are seeded based on the application pack. You can edit the schema names if required. <b>Note:</b> The Schema Name will have a prefix of the SETUPINFO/NAME attribute.	Y	The permissible length is 20 characters and only alphanumeric characters are allowed.	Schema Name should not be the same as Schema Name specified for Schema Type ATOMIC.
<SCHEMA>/TYPE	Identifies the type of schema where the data model entities would reside.	Y	By default, the TYPE attribute in this tag is set to DATADOM.	DO NOT modify this value.
<SCHEMA>/DBTYPE	Identifies the type of driver to be used for the connection.	Y	By default, the only supported type is HIVE in this release.	In the upcoming releases, the type value can be HIVE/IMPALA, etc.
<SCHEMA>/<PROPERTY>/COMMENT	COMMENTS for HIVE schema	N		
<SCHEMA>/<PROPERTY>/LOCATION	You can optionally specify a location for the table data	N		

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<CONNECTION_PROPERTIES>/<PROPERTY>/JDBC_DRIVER	HIVE JDBC driver details	Y	com.cloudera.hive.jdbc4.HS2Driver	The default Cloudera HiveServer 2 driver name.
<CONNECTION_PROPERTIES>/<PROPERTY>/JDBC_URL	Enter HIVE JDBC URL	Y	JDBC URL format : jdbc:hive2://<FQDN>:<port>/<db>;AuthMech=1;KrbServiceName=<KrbServiceName>;KrbHostFQDN=<FQDN>;KrbRealm=<KrbRealm>  Example: jdbc:hive2://abc.in.oracle.com:10000/GLDATADOM;AuthMech=1;KrbServiceName=hive;KrbHostFQDN=abc.in.oracle.com;KrbRealm=ABC.ORACLE.COM	<db> name should be same as Datadom name given in <SCHEMA>/NAME
<CONNECTION_PROPERTIES>/<PROPERTY>/AUTH_TYPE	Authentication Type	Y	Permissible values: KERBEROS_WITH_KEYTAB	Only "Kerberos with keytab" based authentication is supported in this release.
<CONNECTION_PROPERTIES>/<PROPERTY>/AUTH_ALIAS	Alias name for authentication credentials	Y		An Alias name mapping to a principal and password combination specified in the following tags.
<CONNECTION_PROPERTIES>/<PROPERTY>/PRINCIPAL	Authentication principal name	Y		Principal name used in authentication to connect to the Hive Server.
<CONNECTION_PROPERTIES>/<PROPERTY>/PASSWORD	Authentication password	Y		Password used in authentication to connect to the Hive Server.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<CONNECTION_ PROPERTIES>/<PR OPERTY>/ KRB_GSSJAAS_ FILE_NAME	A keytab file containing pairs of Kerberos principals and an encrypted copy of that principal's key.	Y		This file should be copied to the location specified in <HIVE_LIB_PATH>
<CONNECTION_ PROPERTIES>/<PR OPERTY>/ KRB_REALM_ FILE_NAME	REALM configuration file	Y		This file should be copied to the location specified in <HIVE_LIB_PATH>

## 6.5 Execute the 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 from the following options:

- [Execute the Schema Creator Utility in Offline Mode](#)
- [Execute the Schema Creator Utility in Online Mode](#)
- [Execute the Schema Creator Utility while Installing Subsequent Applications Pack](#)

### 6.5.1 Execute the Schema Creator Utility in Offline Mode

In the Offline mode, the utility generates an SQL script with all the required DDLs for Users, Objects, and Grants. This script must be executed by the DBA on the appropriate database identified for OFSAA usage. If you do not have the SYSDBA privileges, you can execute the Schema Creator Utility in the Offline mode and generate the script file that contains the Schemas, Objects, and Grants information. Subsequently, a SYSDBA user can execute the script file manually. To run the OFSAA Application Pack installer in Silent mode, it is mandatory to execute the schema creator utility with the `-s` option.

To execute the utility in Offline mode, you must have 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 the offline mode, follow these steps:

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

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

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).

4. Enter `Y` to proceed.
5. Enter the DB Username with SELECT privileges.

6. Enter the User Password.
7. 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).
8. Enter `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).  
On successful execution of the schema creator utility, the console displays the following status message:  
Schema Creator executed successfully. Please execute  
`/OFS_DM_PACK/schema_creator/sysdba_output_scripts.sql` before proceeding with the installation.

**NOTE** If there are any errors during the SQL script execution, reconfigure the `OFS_DM_SCHEMA_IN.xml`, and repeat steps in this procedure to execute the utility. This regenerates the scripts with the correct information.

9. Navigate to the `OFS_DM_PACK/schema_creator` directory.
10. Log in to SQLPLUS as a user having SYSDBA Privileges.
11. 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 after providing appropriate execute permissions.
12. Make a TNS entry for the new users created. For details, see [Add the TNS entries in TNSNAMES.ORA file](#) section.

**NOTE** See the `sysdba_output_scripts.log` file for execution status. If there are any errors, contact [Oracle Support](#). If there are no errors in the execution, the log file is empty.

The result of this task is that the `OFS_DM_SCHEMA_OUTPUT.XML` file is generated. Do not modify this file.

After creating the schema, proceed to [Configure the OFSAAI InstallConfig.xml File](#) section.

## 6.5.2 Execute the Schema Creator Utility in Online Mode

In the Online mode, the utility connects to the database and executes the DDLs for Users, Objects, and Grants. If you have SYSDBA privileges you can execute the Schema Creator Utility in the Online mode

and thereby create the Users, Objects, and Grants during the execution process. To execute the utility in the Online mode, you must connect as "<User> AS SYSDBA".

If you want to run the OFSAA Application Pack Installer in the Online mode, it is mandatory to execute the schema creator utility with the -s option.

To execute the utility with the -s option in the Online mode, follow these steps:

1. Edit the file `/OFS_DM_PACK/schema_creator/conf/OFS_DM_SCHEMA_IN.xml` in a text editor. See [Configure the OFS\\_DM\\_SCHEMA\\_IN.xml File](#) section for values to modify in the XML file.
2. Execute the utility with the -s option. Example: `./osc.sh -s`
3. Make a TNS entry for the new users created. For details, see [Add the TNS entries in TNSNAMES.ORA file.](#)

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` to proceed.

The following message is displayed:

You have chosen to install this application pack on INFODOM "<INFODOM\_NAME>". Do you wish to proceed? (Y/y or N/n).

5. Enter `Y` to proceed.

The result of this task is that the `OFS_DM_SCHEMA_OUT.XML` file is generated. Do not modify this file.

After creating the schema, proceed to the [Configure the OFSAAI InstallConfig.xml File](#) section.

### 6.5.3 Execute the Schema Creator Utility while Installing Subsequent Applications Pack

When executing the Schema Creator Utility during the installation of a subsequent Applications Pack, you can choose to install the pack either on the same Information Domain / Atomic Schema of the existing application pack or on a new Information Domain / Atomic Schema. You can execute the Schema Creator Utility either in the Online or the Offline mode.

#### NOTE

OFS Analytical Applications Reconciliation Framework Pack can be installed on any Information Domain/ Atomic schema where any OFS Application Pack is installed other than OFS Behavior Detection Application Pack or OFS Compliance Regulatory Reporting Application Pack.

To execute the Schema Creator Utility while installing OFSAA Reconciliation Framework Application Pack over an existing Application Pack, follow these steps:

1. Edit the file `/OFS_DM_PACK/schema_creator/conf/OFS_DM_SCHEMA_IN.xml` in a text editor. See the [Configure the OFS\\_DM\\_SCHEMA\\_IN.xml File](#) section for values to modify in the XML file.

2. Execute the utility with the -s option. Example: `./osc.sh -s -o`

After the schema creation is successful, execute the `sysdba_output_scripts.sql` file

**NOTE** You must use the same config schema user name as the previous application pack.

3. 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
  - List of installed application packs
4. Enter Y/y to start the schema creation.
5. If you enter N/n, the list of Atomic Users is displayed.
6. Select the Atomic User on which you want to install the application pack.
7. Make a TNS entry for the new users created. For details, see [Add TNS entries in TNSNAMES.ORA file](#) section.

On successful execution of the Schema Creator Utility, the console displays the following status message:

Success. Please proceed with the installation.

- NOTE**
1. See the log file in `OFS_DM_PACK/schema_creator/logs` directory for execution status.
  2. See the log file `sysdba_output_scripts.log` for execution status if executed in the Offline mode. This log will be empty if there are no errors in execution.
  3. If there are any errors, contact [Oracle Support](#).

## 6.6 Verify the Log File

If schema creation is successful, the console will display an appropriate message. However, if the schema creation runs into errors, see the following log file.

```
<<OFSDMAP Installer
directory>>/<<OFS_DM_PACK>>/schema_creator/logs/<<OFS_DM>>_osc_<timestamp>.l
og for further details.
```

You may contact Oracle support anytime for assistance.



## 6.7 Configure the OFSAAI\_InstallConfig.xml File

To configure the `OFS_InstallConfig.xml` file, follow these steps:

1. Navigate to the `OFS_DM_PACK/OFS_AAI/conf/` directory.
2. Open the `OFSAAI_InstallConfig.xml` file in a text editor.
3. Configure the `OFSAAI_InstallConfig.xml` file as mentioned in the following table.
4. Manually set the `InteractionVariable` parameter values as mentioned in the table. If a value is not applicable, enter NA. Ensure that the value is not entered as NULL.

Table 18: OFSAAI\_InstallConfig.xml file Parameters

Interaction Variable Name	Significance and Expected Value
<Layer name="GENERAL">	
InteractionGroup name="WebServerType"	<pre>&lt;UserInteractions&gt;   &lt;Layer name="GENERAL"&gt;     &lt;InteractionGroup name="WebServerType" &gt;       &lt;InteractionVariable name="WEBAPPSERVERTYPE"&gt;NA&lt;/InteractionVariable&gt;     &lt;/InteractionGroup&gt;   &lt;/Layer&gt; &lt;/UserInteractions&gt;</pre>
WEBAPPSERVERTYPE (Mandatory)	<p>Identifies the web application server on which the OFSAA Infrastructure web components would be deployed.</p> <p>Set the following numeric value depending on the type:</p> <ul style="list-style-type: none"> <li>• Apache Tomcat = 1</li> <li>• IBM WebSphere Application Server = 2</li> <li>• Oracle WebLogic Server = 3</li> </ul> <p>For example, &lt;InteractionVariable name="WEBAPPSERVERTYPE"&gt;3&lt;/InteractionVariable&gt;</p>
InteractionGroup name="OFSAA Infrastructure Server Details"	<pre>&lt;InteractionGroup name="OFSAA Infrastructure Server Details"&gt;   &lt;InteractionVariable name="DBSERVER_IP"&gt;NA&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre>
DBSERVER_IP (Mandatory)	<p>Identifies the hostname or IP address of the system on which the Database Engine is hosted.</p> <p><b>Note:</b> For RAC Database, the value should be NA.</p> <p>For example, &lt;InteractionVariable name="DBSERVER_IP"&gt;IPAddress&lt;/InteractionVariable&gt; or &lt;InteractionVariable name="DBSERVER_IP"&gt;dbhost.server.com&lt;/InteractionVariable&gt;</p>
InteractionGroup name="Database Details"	<pre>&lt;InteractionGroup name="Database Details" &gt;   &lt;InteractionVariable name="ORACLE_SID/SERVICE_NAME"&gt;NA&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="ABS_DRIVER_PATH"&gt;NA&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre>
ORACLE_SID/SERVICE_NAME (Mandatory)	<p>Identifies the Oracle DB Instance SID or SERVICE_NAME.</p> <p><b>Note:</b> The Oracle_SID value should be exactly the same as it is mentioned in JDBC_URL.</p> <p>For example, &lt;InteractionVariable name="ORACLE_SID/SERVICE_NAME"&gt;ofsaser&lt;/InteractionVariable&gt;</p>

Interaction Variable Name	Significance and Expected Value
<p>ABS_DRIVER_PATH (Mandatory)</p>	<p>Identifies the directory where the JDBC driver (ojdbc&lt;version&gt;.jar) exists. This would typically be: \$ORACLE_HOME/jdbc/lib</p> <p>For example, &lt;InteractionVariable name="ABS_DRIVER_PATH"&gt;&gt;/oradata6/revwb7/oracle&lt;/InteractionVariable&gt;</p>
<p>InteractionGroup name="OLAP Detail"</p>	<pre data-bbox="785 391 1871 475">&lt;InteractionGroup name="OLAP Detail"&gt;   &lt;InteractionVariable name="OLAP_SERVER_IMPLEMENTATION"&gt;0&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre>
<p>OLAP_SERVER_IMPLEMENTATION (Optional)</p>	<p>Identifies if the OFSAA Infrastructure OLAP component must be configured depending on whether you intend to use the OLAP feature. Set one of the following values:</p> <ul style="list-style-type: none"> <li>• YES - 1</li> <li>• NO - 0</li> </ul> <p><b>Note:</b> If the value for OLAP_SERVER_IMPLEMENTATION is set to 1, a check is performed to determine if the following environment variables are set in the .profile file: ARBORPATH, HYPERION_HOME, and ESSBASEPATH.</p>
<p>InteractionGroup name="SFTP Details"</p>	<pre data-bbox="785 756 1871 870">&lt;InteractionGroup name="SFTP Details"&gt;   &lt;InteractionVariable name="SFTP_ENABLE"&gt;1&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="FILE_TRANSFER_PORT"&gt;22&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre>
<p>SFTP_ENABLE (Mandatory)</p>	<p>Identifies if the SFTP (Secure File Transfer Protocol) feature has to be enabled. Set one of the following values:</p> <ul style="list-style-type: none"> <li>• For SFTP, set this field to 1 or -1. - 1</li> <li>• For FTP, set this field to - 0</li> </ul> <p><b>Note:</b> 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 use FTP by setting SFTP_ENABLE to 0. You can change this selection later by using the OFSAAI administration interface.</p> <p>Set SFTP_ENABLE to -1 to configure ftpshare and weblocal path as local path mounted for the OFSAAI server.</p>
<p>FILE_TRANSFER_PORT (Mandatory)</p>	<p>Identifies the port used for the file transfer service. The default value specified is 22 (SFTP). Specify default value as 21 (FTP) if SFTP_ENABLE is 0. Alternatively, this value can be any Port configured by System Administrators to support SFTP/FTP.</p> <p>For example: &lt;InteractionVariable name="FILE_TRANSFER_PORT"&gt;21&lt;/InteractionVariable&gt;</p>

Interaction Variable Name	Significance and Expected Value
<b>InteractionGroup name="Locale Detail"</b>	<pre data-bbox="785 240 1850 342">&lt;InteractionGroup name="Locale Detail"&gt;   &lt;InteractionVariable name="LOCALE"&gt;en_US&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre>
LOCALE (Mandatory)	Identifies the locale information to be used during the installation. Only US English is currently supported.  For example: <InteractionVariable name="LOCALE">en_US</InteractionVariable>
<b>InteractionGroup name="OFSAA Infrastructure Communicating ports"</b>	<pre data-bbox="785 511 1864 816">&lt;InteractionGroup name="OFSAA Infrastructure Communicating ports" &gt;   &lt;InteractionVariable name="JAVAPORT"&gt;9999&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="NATIVEPORT"&gt;6666&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="AGENTPORT"&gt;6510&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="ICCPORT"&gt;6507&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="ICCNATIVEPORT"&gt;6509&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="OLAPPORT"&gt;10101&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="MSGPORT"&gt;6501&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="ROUTERPORT"&gt;6500&lt;/InteractionVariable&gt;   &lt;InteractionVariable name="AMPORNT"&gt;6505&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre> <p data-bbox="785 829 1864 946"><b>Note:</b> These ports are used internally by the various OFSAA Infrastructure services. The default values mentioned are set in the installation. To specify a different value, update the parameter value accordingly, and ensure the port value is in the range of 1025 to 65535 and the respective port is enabled.</p>
JAVAPORT (Mandatory)	9999
NATIVEPORT (Mandatory)	6666
AGENTPORT (Mandatory)	6510
ICCPORT (Mandatory)	6507
ICCNATIVEPORT (Mandatory)	6509

Interaction Variable Name	Significance and Expected Value
OLAPPORT (Mandatory)	10101
MSGPORT (Mandatory)	6501
ROUTERPORT (Mandatory)	6500
AMPORT (Mandatory)	6505
<b>InteractionGroup name="Web Details"</b>	
HTTPS_ENABLE (Mandatory)	<pre data-bbox="785 639 1852 704">&lt;InteractionGroup name="WEB_DETAILS" &gt;   &lt;InteractionVariable name="HTTPS_ENABLE"&gt;1&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 716 1852 776">Identifies if the UI should be accessed using the HTTP or HTTPS scheme. The default value is 0. Set one of the following values:</p> <ul data-bbox="800 787 909 852" style="list-style-type: none"> <li>• YES - 1</li> <li>• NO - 0</li> </ul> <p data-bbox="785 863 1852 924"><b>Note:</b> If the 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.</p>
WEB_SERVER_IP (Optional)	<pre data-bbox="785 948 1852 980">&lt;InteractionVariable name="WEB_SERVER_IP"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 992 1852 1052">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 data-bbox="785 1063 1852 1089">If no separate HTTP Server is available, the value should be Web Application Server IP/Hostname.</p> <p data-bbox="785 1101 1852 1161">For example: <code>&lt;InteractionVariable name="WEB_SERVER_IP"&gt;MyWebserverIPAddress&lt;/InteractionVariable&gt;</code></p> <p data-bbox="785 1172 810 1198">or</p> <p data-bbox="785 1209 1852 1269"><code>&lt;InteractionVariable name="WEB_SERVER_IP"&gt;myweb.server.com&lt;/InteractionVariable&gt;</code></p>

Interaction Variable Name	Significance and Expected Value
WEB_SERVER_PORT (Optional)	<pre data-bbox="785 240 1850 272">&lt;InteractionVariable name="WEB_SERVER_PORT"&gt;443&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 289 1864 347">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 the Web Server.</p> <p data-bbox="785 358 1864 417"><b>Note:</b> The port value will not be accepted as 80 if HTTPS_ENABLE is 1 and as 443 if HTTPS_ENABLE is 0.</p> <p data-bbox="785 428 1423 487">For example: <code>&lt;InteractionVariable name="WEB_SERVER_PORT"&gt;80&lt;/InteractionVariable&gt;</code></p>
CONTEXT_NAME (Mandatory)	<pre data-bbox="785 511 1850 544">&lt;InteractionVariable name="CONTEXT_NAME"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 553 1864 612">Identifies the web application context name which will be used to build the URL to access the OFSAA applications. The context name can be identified from a URL as given here:</p> <p data-bbox="785 623 1566 649"><code>&lt;scheme&gt;://&lt;host&gt;:&lt;port&gt;/&lt;context-name&gt;/login.jsp</code></p> <p data-bbox="785 660 926 686">Sample URL:</p> <p data-bbox="785 698 1356 724"><code>https://myweb:443/ofsaadev/login.jsp</code></p> <p data-bbox="785 735 1486 794">For example: <code>&lt;InteractionVariable name="CONTEXT_NAME"&gt;ofsaadev&lt;/InteractionVariable&gt;</code></p>
WEBAPP_CONTEXT_PATH (Mandatory)	<pre data-bbox="785 820 1881 852">&lt;InteractionVariable name="WEBAPP_CONTEXT_PATH"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 862 1675 888">Identifies the absolute path of the exploded .ear file on the Web Application Server.</p> <ul data-bbox="848 899 1864 1182" style="list-style-type: none"> <li data-bbox="848 899 1654 958">• For Tomcat, specify the Tomcat directory path till /webapps. Example: <code>/oradata6/revwb7/tomcat/webapps/.</code></li> <li data-bbox="848 974 1864 1110">• For WebSphere, enter the WebSphere path as <code>&lt;WebSphere profile directory&gt;/installedApps/&lt;NodeCellName&gt;</code>. Example: <code>/data2/test//WebSphere/AppServer/profiles/&lt;Profile_Name&gt;/installedApps/aix-imfNode01Cell</code>. Where aix-imf is Host name.</li> <li data-bbox="848 1127 1793 1182">• For WebLogic, provide the WebLogic home directory path as <code>&lt;WebLogic home directory path&gt;/bea/wlserver_10.3</code></li> </ul>
WEB_LOCAL_PATH (Mandatory)	<pre data-bbox="785 1203 1850 1235">&lt;InteractionVariable name="WEB_LOCAL_PATH"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 1245 1843 1304">Identifies the absolute path to any directory on the web application server that can hold temporary files being uploaded as part of the application's usage.</p> <p data-bbox="785 1315 1822 1373"><b>Note:</b> In case of a clustered deployment, ensure this path and the directory is the same on all the nodes.</p>
<b>InteractionGroup name="Weblogic Setup Details"</b>	

Interaction Variable Name	Significance and Expected Value
WEBLOGIC_DOMAIN_HOME (Optional)	<pre data-bbox="785 240 1871 321">&lt;InteractionGroup name=" Weblogic Setup Details" &gt;   &lt;InteractionVariable name="WEBLOGIC_DOMAIN_HOME"&gt;NA&lt;/InteractionVariable&gt; &lt;/InteractionGroup&gt;</pre> <p data-bbox="785 334 1776 391">Identifies the WebLogic Domain Home. Specify the value only if WEBSERVERTYPE is set as 3 (WebLogic).</p> <p data-bbox="785 404 1866 492">For example, &lt;InteractionVariable name="WEBLOGIC_DOMAIN_HOME"&gt;/home/weblogic/bea/user_projects/domains/mydomain&lt;/InteractionVariable&gt;</p>
InteractionGroup name="OFSAAI FTP Details"	
OFSAAI_FTPSHARE_PATH (Mandatory)	<pre data-bbox="785 560 1871 613">&lt;InteractionGroup name="OFSAAI FTP Details"&gt;   &lt;InteractionVariable name="OFSAAI_FTPSHARE_PATH"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 626 1671 651">Identifies the absolute path to the directory identified as the file system stage area.</p> <p data-bbox="785 664 1822 721"><b>Note:</b> The directory should exist on the same system on which the OFSAA Infrastructure is being installed (can be on a separate mount).</p> <p data-bbox="785 734 1835 790">The user mentioned in APP_SFTP_USER_ID parameter below should have RWX permission on the directory.</p> <p data-bbox="785 803 1866 891">For example: &lt;InteractionVariable name="APP_FTPSHARE_PATH"&gt;"/oradata6/revwb7/ftpshare&lt;/InteractionVariable&gt;</p>
OFSAAI_SFTP_USER_ID (Mandatory)	<pre data-bbox="785 914 1856 954">&lt;InteractionVariable name="OFSAAI_SFTP_USER_ID"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 967 1661 1024">Identifies the user who has RWX permissions on the directory identified under the APP_FTPSHARE_PATH parameter.</p>
OFSAAI_SFTP_PRIVATE_KEY (Optional)	<pre data-bbox="785 1044 1856 1084">&lt;InteractionVariable name="OFSAAI_SFTP_PRIVATE_KEY"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 1097 1346 1122">Identifies the SFTP private key for OFSAAI. Example:</p> <pre data-bbox="785 1135 1612 1192">&lt;InteractionVariable name="OFSAAI_SFTP_PRIVATE_KEY"&gt;/home/ofsaapp/.ssh/id_rsa&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 1205 1667 1261">By default, the value is NA, which indicates password will be prompted for the user &lt;OFSAAI_SFTP_USER_ID&gt; for authentication.</p> <p data-bbox="785 1274 1797 1331">For more information on generating the SFTP Private key, see the <a href="#">Set Up the SFTP Private Key</a> section.</p>

Interaction Variable Name	Significance and Expected Value
OFSAAI_SFTP_PASSPHRASE (Optional)	<pre data-bbox="785 240 1850 272">&lt;InteractionVariable name="OFSAAI_SFTP_PASSPHRASE"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 285 1850 380">Identifies the passphrase for the SFTP private key for OFSAAI. For example:  <code>InteractionVariable name="OFSAAI_SFTP_PASSPHRASE"&gt;enter a pass  phrase here&lt;/InteractionVariable&gt;</code></p> <p data-bbox="785 393 1850 425">By default, the value is NA.</p> <p data-bbox="785 438 1850 490">If OFSAAI_SFTP_PRIVATE_KEY value is given and this is kept NA, then it is assumed to be an empty passphrase.</p>
InteractionGroup name="Hive Details"	<p data-bbox="785 513 1850 571">The default value set for the interaction variables under this group is set as NA. These are required only for Hive configuration.</p>
HIVE_SERVER_PORT (Mandatory only for HIVE configuration)	<pre data-bbox="785 589 1850 646">&lt;InteractionGroup name="HIVE_DETAILS" &gt;    &lt;InteractionVariable name="HIVE_SERVER_PORT"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 659 1850 717">Identifies the port used for the file transfer service. The default value set is 22 (SFTP). Set this value as 21 for FTP.</p> <p data-bbox="785 730 1850 763">For example:</p> <pre data-bbox="785 776 1850 824">InteractionVariable name="HIVE_SERVER_PORT"&gt;22&lt;/InteractionVariable&gt;</pre>
HIVE_SERVER_FTPDRIVE (Mandatory only for HIVE configuration)	<pre data-bbox="785 844 1850 876">&lt;InteractionVariable name="HIVE_SERVER_FTPDRIVE"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 889 1850 922">Identifies the absolute path to the directory identified as the file system stage area of the HIVE server.</p> <p data-bbox="785 935 1850 967">For example:</p> <pre data-bbox="785 980 1850 1052">InteractionVariable  name="HIVE_SERVER_FTPDRIVE"&gt;/scratch/ofsaa/ftpshare&lt;/InteractionVariable&gt;</pre>
HIVE_SERVER_FTP_USERID (Mandatory only for HIVE configuration)	<pre data-bbox="785 1076 1850 1109">&lt;InteractionVariable name="HIVE_SERVER_FTP_USERID"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 1122 1850 1180">Identifies the user who has RWX permissions on the directory identified under the preceding parameter HIVE_SERVER_FTPDRIVE.</p> <p data-bbox="785 1193 1850 1226">For example:</p> <pre data-bbox="785 1239 1850 1287">InteractionVariable name="HIVE_SERVER_FTP_USERID"&gt;ofsaa&lt;/InteractionVariable&gt;</pre>



Interaction Variable Name	Significance and Expected Value
HIVE_SERVER_FTP_PROTOCOL (Mandatory only for HIVE configuration)	<pre data-bbox="785 240 1869 267">&lt;InteractionVariable name="HIVE_SERVER_FTP_PROTOCOL"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 285 1612 313">If the HIVE_SERVER_PORT is 21, then set the value as FTP, else set it as SFTP.</p> <p data-bbox="785 326 926 354">For example:</p> <pre data-bbox="785 363 1451 415">InteractionVariable name="HIVE_SERVER_FTP_PROTOCOL"&gt;SFTP&lt;/InteractionVariable&gt;</pre>
HIVE_SFTP_PRIVATE_KEY (Mandatory only for HIVE configuration)	<pre data-bbox="785 438 1864 466">&lt;InteractionVariable name="HIVE_SFTP_PRIVATE_KEY"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 480 1472 508">Identifies the SFTP private key for the HIVE server. For example:</p> <pre data-bbox="785 518 1675 570">&lt;InteractionVariable name="HIVE_SFTP_PRIVATE_KEY"&gt;/scratch/testuser/.ssh/id_rsa&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 584 1709 644">By default, the value is NA, which indicates the password will be prompted for the user &lt;HIVE_SERVER_FTP_USERID&gt; for authentication.</p> <p data-bbox="785 659 1845 686">For more information on generating SFTP Private key, see the <a href="#">Set Up the SFTP Private Key</a> section.</p>
HIVE_SFTP_PASSPHRASE (Mandatory only for HIVE configuration)	<pre data-bbox="785 706 1864 734">&lt;InteractionVariable name="HIVE_SFTP_PASSPHRASE"&gt;NA&lt;/InteractionVariable&gt;</pre> <p data-bbox="785 748 1566 776">Identifies the passphrase for the SFTP private key for HIVE. For example:</p> <pre data-bbox="785 786 1656 837">&lt;InteractionVariable name="HIVE_SFTP_PASSPHRASE"&gt;NA&lt;/InteractionVariable&gt;.</pre> <p data-bbox="785 818 1656 846">By default, the value is NA.</p> <p data-bbox="785 859 1822 919">If HIVE_SFTP_PRIVATE_KEY value is given and this is kept NA, then it is assumed to be an empty passphrase.</p>

## 6.7.1 Adding FTP/ SFTP Configuration for File Transfer

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

To ensure the OFSAA server recognizes the web application server during file transfers, follow these steps:

1. Login to the web application server.
2. Type `sftp <user>@<OFSAA Server>`
3. Specify `Yes` when prompted for permission. This will add an entry into the "known\_hosts" file and a confirmation message is displayed.

## 6.7.2 Set Up the SFTP Private Key

Log in to the OFSAA UNIX user using the Putty tool, and where you are installing generate a pair of authentication keys using the `ssh-keygen` command. If required, set a passphrase else set the OFSAAI\_SFTP\_PASSPHRASE tag to NA.

To generate a 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 directories:

- permissions of `.ssh` must be 700
- permissions of `.ssh/authorized_keys` must be 640
- permission of `.ssh/id_rsa` must be 400
- Permission of UNIX User created must be 755

## 6.8 Install the OFS Analytical Applications Reconciliation Framework Pack

To install the OFSAA Reconciliation Framework Pack, perform the following 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 `FIC_HOME=<OFSAA Installation Directory>export FIC_HOME`
3. Execute the user `.profile`.
4. Navigate to the `/OFS_DM_PACK/schema_creator/conf` directory and depending on whether you are installing on an RDBMS or Hive-Hybrid installation, perform one of the following:
  - a. **RDBMS:** Edit the `OFS_DM_SCHEMA_IN.xml` to set the appropriate attribute values. Optionally, you can include `INFODOM = "<Infodom Name>"` in the `OFS_DM_SCHEMA_IN.xml` file. If not specified, a default `INFODOM` name is generated. See [Configure the OFS\\_DM\\_SCHEMA\\_IN.xml File](#) for more details.
  - b. **Hive-Hybrid:** Rename the `OFS_DM_SCHEMA_IN.xml` to `OFS_DM_SCHEMA_IN.xml.bkp` and then rename `OFS_DM_SCHEMA_BIGDATA_IN.xml.HYBRID.template` to `OFS_DM_SCHEMA_BIGDATA_IN.xml`. Edit the `OFS_DM_SCHEMA_BIGDATA_IN.xml` to set the appropriate attribute values. See [Configure the OFS\\_DM\\_SCHEMA\\_BIGDATA\\_IN.xml file](#) for more details.

### NOTE

Ensure you create TNS entries for the users who have been created in the `TNSNAMES.ORA` file. For details, see [Add TNS entries in the TNSNAMES.ORA File](#).

5. Execute the Schema Creator Utility with the `-s` option.

### NOTE

This is a mandatory step and must be executed before every additional OFSAA application pack installation. See [Execute the Schema Creator Utility](#) for more details.

6. Navigate to the `/OFS_DM_PACK/conf/` directory and depending on whether you are installing on an RDBMS or Hive-Hybrid installation, perform one of the following:
  - a. **RDBMS:** Edit the `OFS_DM_PACK.xml` to enable product licenses. Set the attribute `ENABLE=YES` of `<APP_ID>` tag to license the app.
  - b. **Hive-Hybrid:** In case of Hive-Hybrid based installation for OFSAA Reconciliation Framework, rename the `OFS_DM_PACK.xml` to `OFS_DM_PACK.xml.bkp` and then rename `OFS_DM_PACK.xml.HYBRID.template` to `OFS_DM_PACK.xml`. Now edit the `OFS_DM_PACK.xml` to enable the product licenses. Update the attribute `ENABLE=YES/NO` for licensing the app in the pack.
  - c. If any application mentions `OFS_AAAL` as `PREREQ` in the `<APP_ID>` tag, set the attribute `"ENABLE=YES"` for `OFS_AAAL`.

**NOTE** See [Configure the OFS\\_DM\\_PACK.xml File](#) for more details.

7. Navigate to the `/OFS_DM_PACK/OFS_AAI/conf/` directory and edit the `OFSAAI_InstallConfig.xml` file to set the appropriate infrastructure installation attribute values.

**NOTE** This step can be ignored if an installation of OFSAA 8.1.1.0.0 already exists. See [Configure the OFSAAI\\_InstallConfig.xml File](#) for more details.

8. Create a copy of the `Silent.template` file present in the installer `/OFS_DM_PACK/appsLibConfig/conf` location and rename it as `Silent.props`.
9. In the case of Hive-Hybrid based installation for OFSAA Reconciliation Framework, only use the HYBRID template and perform the following steps:
  - a. Rename `Silent.template.HYBRID.template` to `Silent.props`.
  - b. Navigate to `/OFS_DM_PACK/OFS_GLRECON/conf`
  - c. Rename `default.properties` to `default.properties.bkp`.
  - d. Rename `default.properties.HYBRID.template` to `default.properties`.

Silent installation is achieved via a properties file [`Silent.props`] that must be updated with proper values, before attempting to install using the silent mode. The following table lists all the properties that need to be specified:

**NOTE** In the Hybrid mode of installation of the OFSAA Reconciliation Framework Pack 8.1.1.0.0, the following parameters in the `Silent.props` (after renaming from `Silent.template.HYBRID.template`) must be configured as: `UPLOAD_MODEL=1`

**Table 19: Silent Mode Installation properties**

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	1 = Debug 0 = General	Default : 0
SEGMENT_1_CODE	Segment Code	Not Applicable	Provide a new segment code for OFSAA Reconciliation Framework Pack.

Property Name	Description of Property	Permissible values	Comments
APFTP_P_LOG_PATH=	Infodom Maintenance log path (to be created) for the new RDBMS Infodom	Not Applicable	
DBFTP_LOG_PATH	Infodom Maintenance log path (to be created) for the new RDBMS Infodom	Not Applicable	
HIVE_APPFTP_LOG_PATH	Infodom Maintenance log path (to be created) for the new HIVE Infodom	Not Applicable	Applicable only for Hybrid Installation
HIVE_DBFTP_LOG_PATH	Infodom Maintenance log path (to be created) for the new HIVE Infodom	Not Applicable	Applicable only for Hybrid Installation
UPLOAD_MODEL	Specify if you want to perform Model Upload for RDBMS	<ul style="list-style-type: none"> <li>0 = If you have already performed Model Upload and want to skip the model upload process</li> <li>1 = If you want to perform Model Upload</li> </ul>	
MODEL_TYPE	Specify if you want to use the released datamodel or customized datamodel for model upload process for RDBMS	<ul style="list-style-type: none"> <li>0 = If you want to upload the released datamodel</li> <li>1 = If you want to upload the customized datamodel</li> </ul>	
DATAMODEL	Specify the file (DATAMODEL) name for the customized datamodel for RDBMS	Not Applicable	Mandatory only if you want to upload the customized datamodel i.e. you have specified MODEL_TYPE=1
DM_DIRECTORY	Specify the path (DM_DIRECTORY) for the customized datamodel for RDBMS	Not Applicable	Mandatory only if you want to upload the customized datamodel i.e you have specified MODEL_TYPE=1
HIVE_UPLOAD_MODEL	Specify if you want to perform Model Upload for HIVE	<ul style="list-style-type: none"> <li>0 = If you have already performed Model Upload and want to skip the model upload process</li> <li>1 = If you want to perform Model Upload</li> </ul>	Applicable only for Hybrid installation.

Property Name	Description of Property	Permissible values	Comments
HIVE_MODEL_TYPE	Specify if you want to use the released datamodel or the customized datamodel for the model upload process for HIVE	<ul style="list-style-type: none"> <li>0 = If you want to upload the released datamodel</li> <li>1 = If you want to upload the customized datamodel</li> </ul>	Applicable only for Hybrid installation.
DATAMODEL_HIVE	Specify the file (DATAMODEL) name for the customized datamodel for HIVE	Not Applicable	Applicable only for Hybrid installation. Mandatory only if you want to upload the customized datamodel i.e. you have specified MODEL_TYPE=1
DM_DIRECTORY	Specify the path (DM_DIRECTORY) for the customized datamodel for HIVE	Not Applicable	Applicable only for Hybrid installation. Mandatory only if you want to upload the customized datamodel i.e. you have specified MODEL_TYPE=1
ETL_APPSRC_TYPE	Specify if you want to create a new ETL Src or use an existing one	<ul style="list-style-type: none"> <li>0 = If you want to create a new ETL src</li> <li>1 = If you want to use an existing pair</li> </ul>	
ETL_SRC_1_NAME	Specify a new ETL Source Name for RDBMS	Not Applicable	
ETL_SRC_2_NAME	Specify a new ETL Source Name for HIVE	Not Applicable	Applicable only for Hybrid installation.
ETL_SRC_1_DESC	Specify a new ETL Source Description for RDBMS	Not Applicable	
ETL_SRC_2_DESC	Specify a new ETL Source Description for HIVE	Not Applicable	Applicable only for Hybrid installation.

10. On successful execution of the Schema Creator Utility, navigate to `OFS_DM_PACK/bin/` and execute the application pack installer with the `SILENT` option.

11. Execute `./setup.sh SILENT` in the console.

12. Enter the Infrastructure FTP/SFTP password value, when prompted.

Console Prompts	User Inputs
Please enter Infrastructure FTP/SFTP password	Enter the password to access Product Staging/Metadata repository directory in the application server.

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

The OFSAAI License Agreement is displayed.

14. To accept the License Agreement, enter Y/y.

**NOTE** SYSADMN and SYSAUTH are the two default OFSAAI administrative users created.

**NOTE** The installation process continues on the console. Do not close the console until the installation process is complete.

15. The following message is displayed in the console:

*Installation completed...*

Congratulations! Your installation is complete.

## 6.9 Verify the Log File

Refer the following logs files for more information:

- Refer the `Pack_Install.log` in the `OFS_DM_PACK/logs/` directory for the OFSAA Reconciliation Framework Pack installation log file.
- Refer the log file(s) located at `OFS_DM_PACK/OFS_AAI/logs/` directory for Infrastructure installation log.
- Refer the log file(s) located at `OFS_DM_PACK/OFS_GLRECON/logs` directory for application installation log.

**NOTE** If you are installing an application pack on an environment, where another application pack is already installed, you may get a warning message: "Object Already Exists". You can ignore this message.

**NOTE** For Pack on Pack installation, the following errors might be logged in the installation log. You can ignore these messages.

```
-----  
'create sequence SEQ_DIM_GL_ACCOUNT  
  minvalue 1  
maxvalue 99999999999999999999999999999999  
start with 1  
increment by 1
```

```
cache 20'  
Warning:Object already exists
```

---

## 6.10 Verify the Installation

To verify that you have successfully installed the Oracle Financial Services Analytical Applications Reconciliation Framework Pack, perform the following steps:

1. Login in to the atomic schema.
2. Verify all the database objects such as view, procedure, and functions have been compiled without any compilation error.
3. Deploy the war file and ensure the application screen appears.



# 7 Post-installation

**Topics:**

- [Post-Installation Checklist](#)
- [Patch OFSAA Infrastructure Installation](#)
- [Backup Essential Files](#)
- [Stop the Infrastructure Services](#)
- [Create and Deploy the EAR/WAR Files](#)
- [EAR/WAR File - Build Once and Deploy Across Multiple OFSAA Instances](#)
- [Assign Grants for Schemas](#)
- [Start the Infrastructure Services](#)
- [Access the OFSAA Application](#)
- [OFSAA Landing Page](#)
- [Configure the excludeURLList.cfg File](#)
- [Configure Tomcat](#)
- [Change the ICC Batch Ownership](#)
- [Configure Hive for Reconciliation Framework](#)
- [Excel Upload Mapping and Template](#)
- [Add TNS entries in the TNSNAMES.ORA File](#)
- [Configure Data Source](#)
- [Create and Deploy the Application Pack Web Archive](#)
- [Configure Transparent Data Encryption \(TDE\) and Data Redaction in OFSAA](#)
- [Implement Data Protection in OFSAA](#)

## 7.1 Post-Installation Checklist

**Table 20: Post-installation Checklist**

Sl. No.	Post-installation Activity
1	<a href="#">Verify</a> that all patches are successfully installed.
2	<a href="#">Backup</a> the OFS_DM_SCHEMA_IN.xml, OFS_DM_SCHEMA_OUTPUT.xml, and Silent.props Files.
3	<a href="#">Stop</a> the OFSAA Infrastructure services.
4	<a href="#">Create</a> and deploy EAR/WAR files.
5	<a href="#">Deploy</a> EAR/WAR files across multiple OFSAA instances
6	<a href="#">Assign</a> grants for schemas

Sl. No.	Post-installation Activity
7	<a href="#">Start</a> the OFSAA Infrastructure services.
8	<a href="#">Access</a> the OFSAA Application.
9	<a href="#">Configure</a> the excludeURLList.cfg file.
10	<a href="#">Configure</a> Tomcat
11	<a href="#">Change</a> the ICC Batch Ownership
12	<a href="#">Configure</a> Hive for Reconciliation Framework
13	<a href="#">Excel</a> upload mapping and template.
14	<a href="#">Add</a> TNS entries in the TNSNAMES.ORA File
15	<a href="#">Configure</a> Data Source
16	<a href="#">Create</a> and Deploy the Application Pack Web Archive
17	<a href="#">Configure</a> Transparent Data Encryption (TDE) and Data Redaction in OFSAA
18	<a href="#">Implement</a> Data Protection in OFSAA

## 7.2 Patch OFSAA Infrastructure Installation

Oracle strongly recommends installing the latest available patch set so that you are up-to-date with the various releases of OFSAA products.

Apply the following mandatory patch:

- 33663417

### ATTENTION

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](#).

For patch download information, see the **Download the OFSAAI Applications Pack Installer and Patches** section in [Pre-installation](#) for a new installation and in [Upgrade](#) for an upgrade installation.

See [Oracle Support](#). for more information on the latest releases.

## 7.3 Backup Essential Files

Backup the `OFS_DM_SCHEMA_IN.xml`, `OFS_DM_SCHEMA_OUTPUT.xml`, and the `Silent.props` files so you can reuse them in the future to upgrade existing apps or install new apps.

**Table 161: Files to Backup**

File Name	Directory
OFS_DM_SCHEMA_IN.xml	/OFS_DM_PACK/schema_creator/conf
OFS_DM_SCHEMA_OUTPUT.xml	/OFS_DM_PACK/schema_creator
Silent.props	/OFS_DM_PACK/appsLibConfig/conf

## 7.4 Stop the Infrastructure Services

See [Stop the Infrastructure Services](#) in the *OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide* for details.

## 7.5 Create and Deploy the EAR/WAR Files

See [Create and Deploy the EAR/WAR Files](#) in the *OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide* for details.

## 7.6 EAR/WAR File - Build Once and Deploy Across Multiple OFSAA Instances

See [EAR/WAR File - Build Once and Deploy Across Multiple OFSAA Instances](#) in the *OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide* for details.

## 7.7 Assign Grants for Schemas

Topics:

- [Grants for Atomic Schema](#)
- [Grants for Config Schema](#)
- [Grants on Config Schema Entities for Atomic Users](#)

### 7.7.1 Grants for Atomic Schema

Atomic Schema creation requires certain grants for object creation. This can be located in the `$FIC_HOME/privileges_atomic_user.sql` file

```
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
```

## 7.7.2 Grants for Config Schema

Config Schema creation requires certain grants for object creation. This can be located in the `$(FIC_HOME)/privileges_config_user.sql` file

The following are the grants for the 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
/
```

### 7.7.3 Grants on Config Schema Entities for Atomic Users

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

## 7.8 Start the Infrastructure Services

See [Start the Infrastructure Services](#) in the *OFS AAI Installation and Configuration Guide* for details.

## 7.9 Access the OFSAA Application

To access the OFSAA application, follow these steps:

1. In the web browser's Address field and enter the URL in the following format:

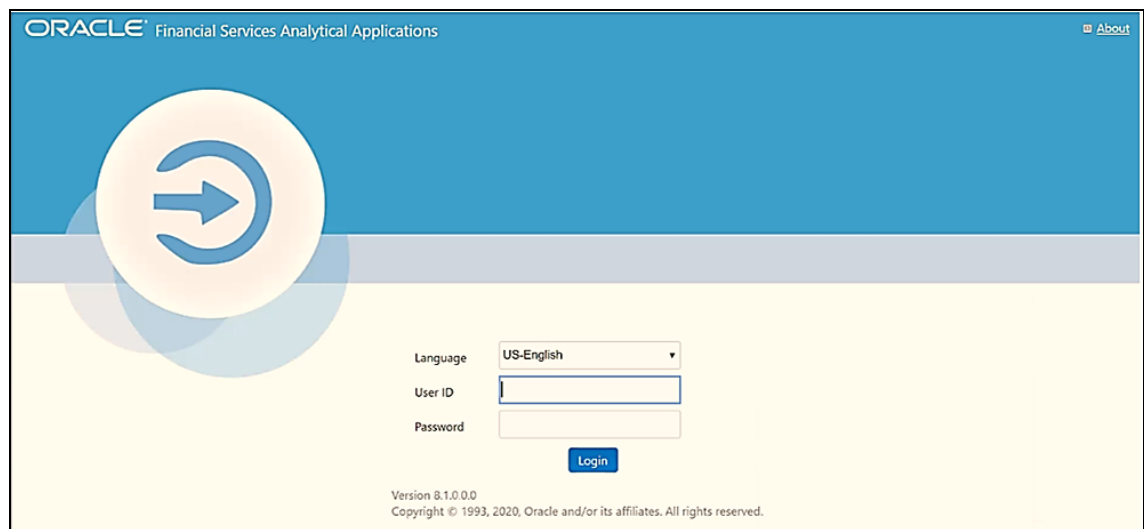
`<scheme>://<IP address/ hostname>:<port>/<context-name>/login.jsp`

For example, `https://192.0.2.2:8090/ofsaal/login.jsp`

The OFSAA Login window is displayed.

You can also log in with the hostname instead of the IP address. To do this, it is necessary to have the hostname mapped to the IP address in the hosts file the client Windows machine. The host's file is in `%systemroot%\system32\drivers\etc\directory`.

**Figure 7: OFSAA Login Window**



With the installation of every OFSAA application pack, a couple of seeded user profiles are configured in the system:

- SYSADMN System Administrator
- SYSAUTH System Authorizer

The SYSADMN and SYSAUTH users are configured with a default password, which you will require to log in for the first time. See the [MOS Doc ID: 2691681.1](#) for the password.

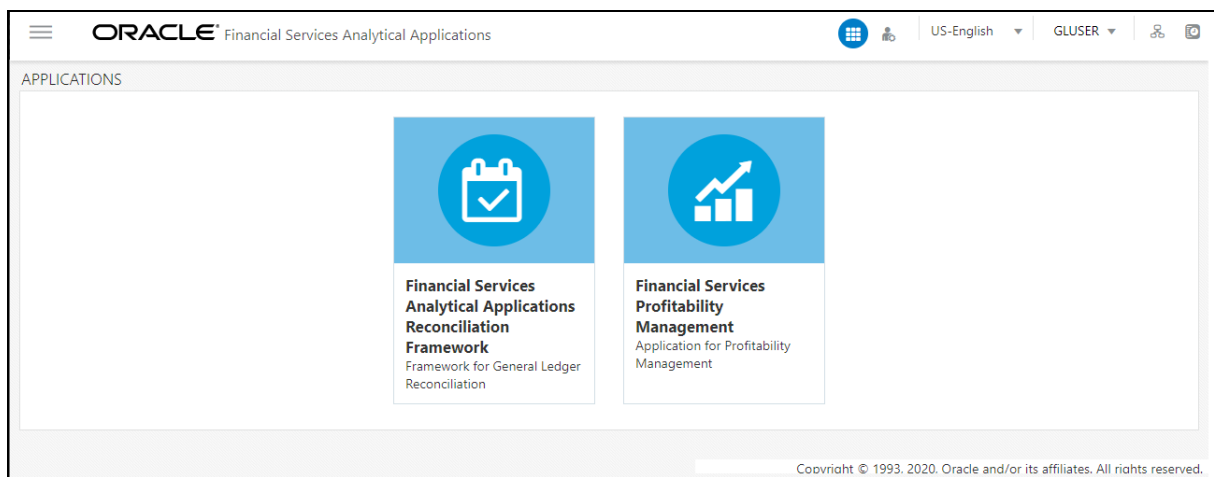
2. Log in to the application using the "SYSADMN" User ID and the default password. After the first login, you must change the password.

**ATTENTION** The password change is required only for a new installation scenario and not in case of an upgrade.

## 7.10 OFSAA Landing Page

On successful login, the *OFSAA Landing* screen is displayed. This is a common landing page for all users until a preferred application landing page is set by the user.

**Figure 8: OFSAA Landing screen**



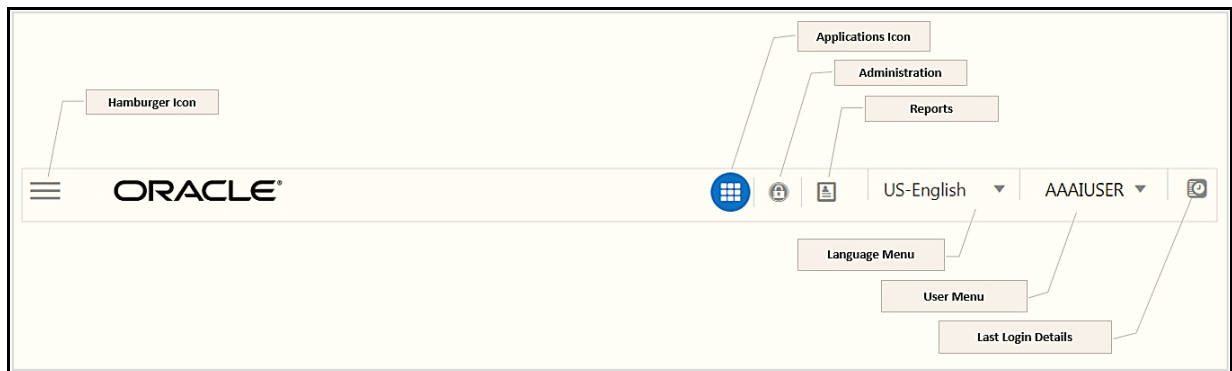
The OFSAA landing screen shows the available applications, for which the logged in user has access. Click the required application icon to launch that application. You can change the landing page based on your preference.

### Topics:

- [Header](#)
- [Navigation Drawer](#)
- [System Configuration](#)

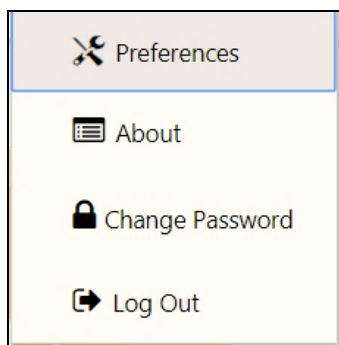
## 7.10.1 Header

Figure 9: User Interface Components



- **Navigation Menu:** This icon is used to trigger the Application Navigation Drawer.
- **Application Icon:** This icon is used to show the available applications installed in your environment at any time.
- **Administration Icon:** This icon is used to go to the *Administration* window. The *Administration* window displays modules like System Configuration, Identity Management, Database Details, manage OFSAA Product Licenses, Create New Application, Information Domain, Translation Tools, and process Modelling Framework as Tiles.
- **Reports Icon:** This icon is used to launch various User Reports such as user Status Report, User Attribute Report, User Admin Activity Report, User Access Report, and Audit Trial Report.
- **Language Menu:** It displays the language you selected in the OFSAA Login screen. The language options displayed in the Language Menu are based on the language packs installed in your OFSAA instance. Using this menu, you can change the language at any point in time.
- **User Menu:** Clicking this icon displays the following menu:

Figure 10: User Menu



- **Preferences:** To set the OFSAA Landing page.
- **Change Password:** To change your password. For more information, see the *Change Password* section in the [OFS AAI User Guide](#). This option is available only if SMS Authorization is configured.
- **Log Out:** To log out of OFSAA applications.
- **Last Login Details:** This displays the last login details as shown:

## 7.10.2 Navigation Drawer


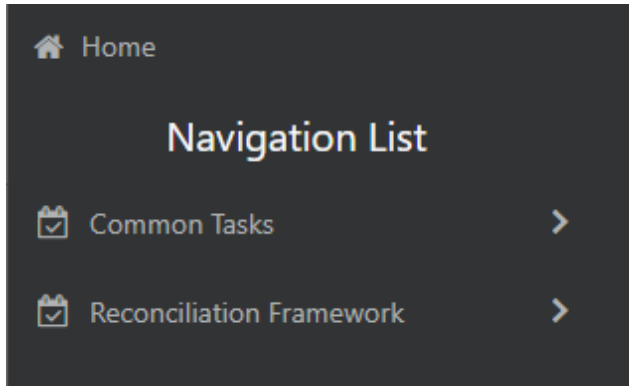
1. Click the **Navigation menu**  to launch the Navigation Drawer as shown:

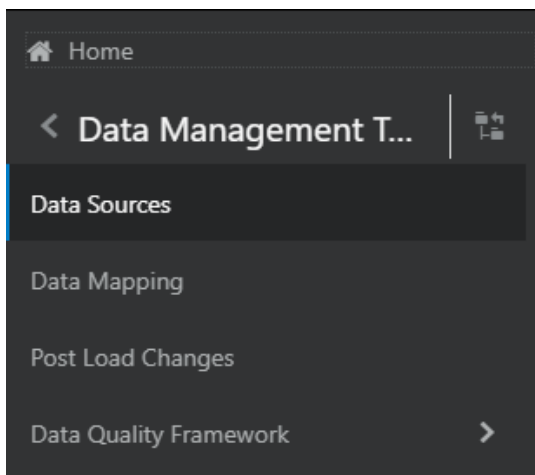
Figure 11: Navigation Drawer



Here the navigation items appear as a list. The First Level menu shows the installed applications. Clicking an application displays the second-level menu with the Common Tasks and Application Name menus. The arrangement of the menu depends on your installed application.

2. Clicking an item in the menu displays the next level sub-menu and so on. For example, to display Data Sources, click **Common tasks**, then select **Unified Analytical Metadata**, then select **Data Management Tools**, and then select **Data Sources**.

Figure 12: Navigation Drawer Menus and Submenus




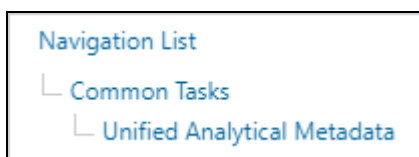

3. Click  **Hierarchical Menu** to display the navigation path of the current submenu as shown:

Figure 13: Navigation Submenu






4. The RHS content area shows the Summary page of Data Sources. Click anywhere in the content area to hide the Navigation Drawer. To launch it back, click the Navigation menu .
5. Click **Home** to display the OFSAA Landing screen.

### 7.10.3 System Configuration

The Administration and Configuration section allows System Administrators to configure Server details, Database details, OLAP details, and Information Domain along with the other Configuration processes such as segment and metadata mapping, and mapping segment to security. System Configuration is mostly a onetime activity which helps the System Administrator make the infrastructure system operational for usage.

#### 7.10.3.1 Navigate to System Configuration

Click the **Administration Icon**  from the header to display the Administration tools in the **Tiles** menu. Click **System Configuration** from the **Tiles** menu to view a submenu list.

#### NOTE


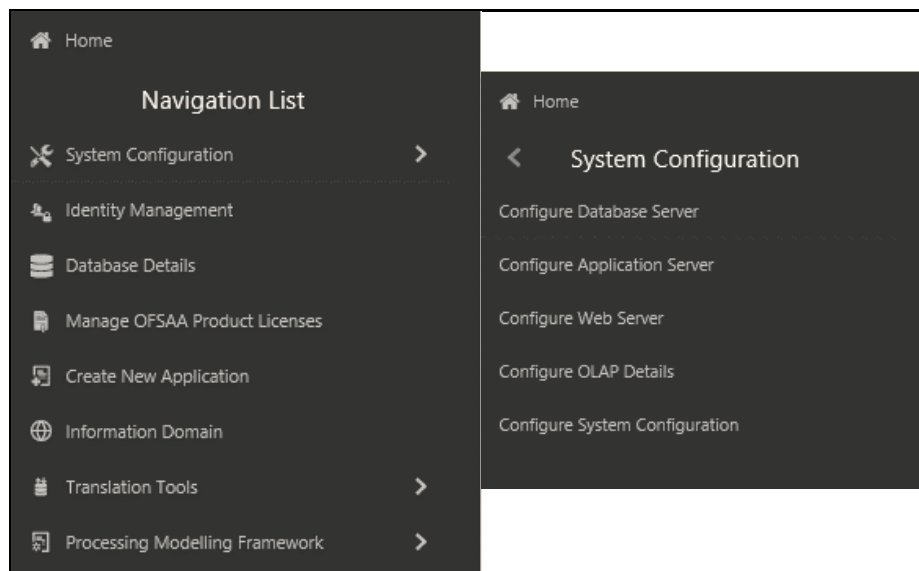
After you have accessed a tool from the submenu, the options are also available in the **Navigation List** to the left. Click the **Navigation menu**  to access the **Navigation List**.

Figure 14: System Configuration Submenu



You (System Administrator) must have full access rights to ftpshare directory with appropriate User ID and password to add and modify the server details.

#### 7.10.3.2 Components of System Configuration

System Configuration consists of the following sections.

- Database Server

- Application Server
- Web Server
- Database Details
- OLAP Details
- Information Domain
- Configuration
- Create Application

## 7.11 Configure the excludeURLList.cfg File

See [Configure the excludeURLList.cfg File](#) in the *OFS AAI Installation and Configuration Guide* for details.

## 7.12 Configure Tomcat

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

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

1. Navigate to the `tomcat/conf` directory.
2. Edit the `web.xml` file as follows:
3. Set the mapped file parameter to `False` in the `servlet` tag mentioned with:

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

## 7.13 Change the ICC Batch Ownership

By default, all seeded batches are created with `SYSADMN` as the owner. Update this with the username of the user who is responsible for maintaining the batches.

To do this, execute the following procedure in the config schema:

```
-----  
begin  
AAI_OBJECT_ADMIN.TRANSFER_BATCH_OWNERSHIP('fromUser','toUser','infodom;  
end;  
OR  
begin  
AAI_OBJECT_ADMIN.TRANSFER_BATCH_OWNERSHIP('fromuser','touser');
```

```
end;
```

-----

Where:

- `fromUser` indicates the user who currently owns the batch
- `toUser` indicates the user to whom the ownership must be transferred
- `infodomain` is an optional parameter. If specified, the ownership of the batches of that infodomain will be changed.

## 7.14 Configure Hive for Reconciliation Framework

Topics:

- [Livy Configuration](#)
- [Hive Configuration](#)

### 7.14.1 Livy Configuration

Populate the `AAI_DMT_DB_CLUSTER_PROPERTY` table in the config schema to point to the Livy URL against all the infodomains being used. Duplicate the entries for each infodomain.

V_DB_CLUSTER_ID	V_PROPERTY_NAME	V_PROPERTY_VALUE
<INFODOMNAME>	LIVY_AUTH_TYPE	DEFAULT
<INFODOMNAME>	LIVY_SERVICE_URL	< <a href="http://HostName:8998">http://HostName:8998</a> >

### 7.14.2 Hive Configuration

In the case of Hybrid deployment, the following are the Hive configurations:

- Copy the `hive-site.xml` from the `hive conf` directory to the `SPARK2 conf` directory.

For example.

```
cp /etc/hive/conf.cloudera.hive/hive-site.xml
/etc/spark2/conf.cloudera.spark2_on_yarn
```

- Edit the file to have the following entry in `SPARK2 conf`.

In Hive conf	In spark conf
<pre>&lt;property&gt; &lt;name&gt;hive.metastore.warehouse.dir&lt;/name&gt; &lt;value&gt;/user/hive/warehouse&lt;/value&gt; &lt;/property&gt;</pre>	<pre>&lt;property&gt; &lt;name&gt;spark.sql.warehouse.dir&lt;/name&gt; &lt;value&gt;/user/hive/warehouse&lt;/value&gt; &lt;/property&gt;</pre>

#### NOTE

For additional information see the OFS AAI Installation and Configuration guide from the [OHC Documentation Library](#).

## 7.15 Add 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 the **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.

Alternatively, you can connect to the CONFIG schema and execute the following query:

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

## 7.16 Configure Data Source

- Create a connection pool in the Information Domain. For more information, see the [OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide](#).
- JNDI name of the connection pool must be `<res-ref-name>` as mentioned in the `web.xml` file. Example: `jdbc/OFSINFDOM`
- Create and deploy the web components into the webserver. For more information on deploying the web components, see the [OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide](#).
- The following tag must be added manually in `web.xml` if not already present in the `web.xml` file.

```
-----
<resource-ref>
<!-- description>DB Connection INFODOM</description -->
<res-ref-name>jdbc/ INFODOM</res-ref-name>
<res-type>javax.sql.DataSource</res-type>
<res-auth>Container</res-auth>
</resource-ref>
-----
```

## 7.17 Create and Deploy 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 any time later, refer to the [Create and Deploy EAR/WAR File](#) section in the *OFS AAI Installation and Configuration Guide*.

**NOTE**

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

## 7.18 **Configure Transparent Data Encryption (TDE) and Data Redaction in OFSAA**

Oracle Advanced Security comprises Transparent Data Encryption and Oracle Data Redaction. For more information, see the [Configure Transparent Data Encryption \(TDE\) and Data Redaction in OFSAA](#) section.

## 7.19 **Implement Data Protection in OFSAA**

See the [Oracle Financial Services Data Foundation Application Pack Data Protection Implementation Guide Release 8.1.x.0.0](#) for details.

## 8 Remove OFSAA Infrastructure

See the [Remove OFSAA Infrastructure](#) section in the *OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide* to complete these procedures:

1. Uninstall the OFSAA Infrastructure
2. Uninstall the EAR Files
  - a. Uninstall the EAR Files in WebSphere
  - b. Uninstall the EAR Files in WebLogic
  - c. Uninstall the WAR Files in Tomcat
3. Clean up the environment.
4. Uninstall OFSAA Reconciliation.

## 9 Post Deployment Configurations

### Topics:

- [Post Deployment Configuration Checklist](#)
- [Managing OBIEE or OAS Activities](#)
- [Configuring Reconciliation Framework Analytics v8.1.1.0.0 Dashboards and Reports](#)
- [Deploying Reconciliation Framework Pack Analytics](#)
- [Starting Node Manager and WebLogic Servers](#)
- [Logging in as System Administrator](#)
- [Creating Application Users](#)
- [Mapping Application User\(s\) to User Group](#)

### 9.1 Post Deployment Configuration Checklist

Sl. No.	Post-deployment configurations
1	<a href="#">Installing</a> OBIEE or OAS Server
2	<a href="#">Installing</a> OBIEE or OAS Windows Administration Client
3	<a href="#">Configuring</a> Reconciliation Framework Analytics v8.1.1.0.0 Dashboards and Reports
4	<a href="#">Deploying</a> Reconciliation Framework Pack Analytics
5	<a href="#">Starting</a> Node Manager and WebLogic Servers
6	<a href="#">Logging</a> in as System Administrator
7	<a href="#">Create</a> Application Users.
8	<a href="#">Map</a> Application User(s) to User Groups.

### 9.2 Managing OBIEE or OAS Activities

#### Topics:

- [Installing OBIEE or OAS Server](#)
- [Installing OBIEE or OAS Windows Administration Client](#)

#### 9.2.1 Installing OBIEE or OAS Server

To install the Oracle Business Intelligence Enterprise Edition (OBIEE) server, see the [Oracle® Fusion Middleware Installation Guide for Oracle Business Intelligence12c Release 1 \(12.2.1.4.0\)](#).

If installing OAS Server, see [Installing and Configuring Oracle Analytics Server](#).

After installation, get the Enterprise Manager URL, username, password, and OBIEE installed directory from the System Administrator.

## 9.2.2 Installing OBIEE or OAS Windows Administration Client

To install the OBIEE repository administration client for a Windows machine, see the [Oracle® Fusion Middleware Installation Guide for Oracle Business Intelligence12c Release 1 \(12.2.1.4.0\)](#).

## 9.3 Configuring Reconciliation Framework Analytics v8.1.1.0.0 Dashboards and Reports

To configure Reconciliation Framework Analytics v8.1.1.0.0 Dashboards and Reports after Oracle Business Intelligence (OBIEE) or Oracle Analytics Server (OAS) Server installation, follow steps provided in the following sections:

### Prerequisites

1. Make sure OBIEE (Version 12.2.1.4) or OAS (Version 5.5.0) is installed and is available.
2. If the OBIEE or OAS is installed in a non-Windows environment, make sure that a standalone OBIEE or OAS client is installed in a Windows environment.

### Topics:

- [Modify Repository Connection Pool Settings](#)
- [Deploy RPD file for OBIEE or OAS](#)
- [Deploy Web Catalog for OBIEE or OAS](#)

### 9.3.1 Modify Repository Connection Pool Settings

To modify Repository Connection Pool Settings, follow these steps:

1. Copy the Repository file from the `$FIC_HOME/GLBI` and place it in a local folder on the Windows system.
2. Open the BI Administration tool in the Windows client machine.
3. Click **Start** and then select **Programs** then **Oracle Business Intelligence Enterprise Edition Plus Client** and then **Administration**.
4. Click **File** and then **Open** and then **Offline**.
5. Locate and open the file named **OFS\_GL\_8.1.rpd**.
6. Provide **Repository Password**. See the [MOS Doc ID: 2691681.1](#) for the default password.
7. For connection pool settings, see the [configure the Connection Pool of the Repository](#) section.



### 9.3.2 Deploy RPD file for OBIEE or OAS

To deploy the RPD file, follow these steps:

1. EM does not have an option for deployment of RPD. It uploads a repository to a specific service instance. You must use the WebLogic scripting command “uploadrpd” to upload a repository to Oracle BI Server.
2. Execute the utility through a launcher script, `datamodel.sh` on UNIX, and `data-model-cmd.cmd` on Windows. Ensure you place the RPD file anywhere in the server where OBIEE is installed before starting the upload command.

3. You can find the launcher script at the following location:

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

4. Enter the following commands in shell to upload the RPD:

```
uploadrpd -I <RPDname> [-W <RPDpwd>] -SI <service_instance> -U
<cred_username> [-P <cred_password>] [-S <hostname>] [-N <port_number>]
[-SSL] [-H]
```

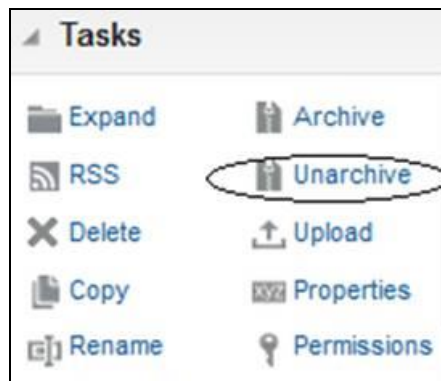
For example: `./datamodel.sh uploadrpd -I </PathofRPDfile/RepositoryName.rpd> -SI ssi -U weblogic -P password`

### 9.3.3 Deploy Web Catalog for OBIEE or OAS

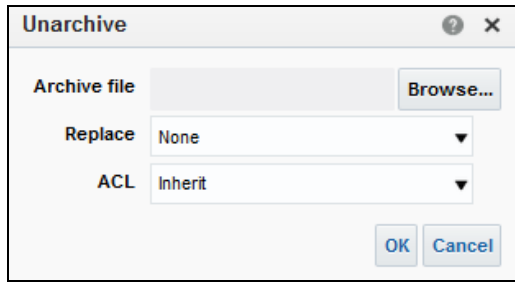
1. After logging on to the OBIEE or OAS URL, navigate to the **Catalog** tab and click **Shared Folders**.



2. Click **Unarchive** on the **Tasks** pane.



3. Browse to the path of the catalog file placed in your local machine and click **OK**.



4. Start the Analytics services

You can start the Oracle Business Intelligence system components by any of the following methods:

a. For OBIEE or OAS

- i. Navigate to `ORACLE_HOME\user_projects\domains\bi\bitools\bin`.
- ii. Run the `Start.sh` command to start services.

5. Testing the Analytics reports

- a. Log in to `http:// <host server name or IP>:<Port No default is 9502>/analytics/saw.dll?Dashboard` using your Administrator credentials created during platform install.
- b. Check for the availability of reports.

In case of any problem, check for the log files present in the respective diagnostic folders of the analytics server, that is, `<OBIEE or OAS Install Folder>/servers/bi_server1/logs`.

## 9.4 Deploying Reconciliation Framework Pack Analytics

To deploy Analytic Reports, perform the following steps:

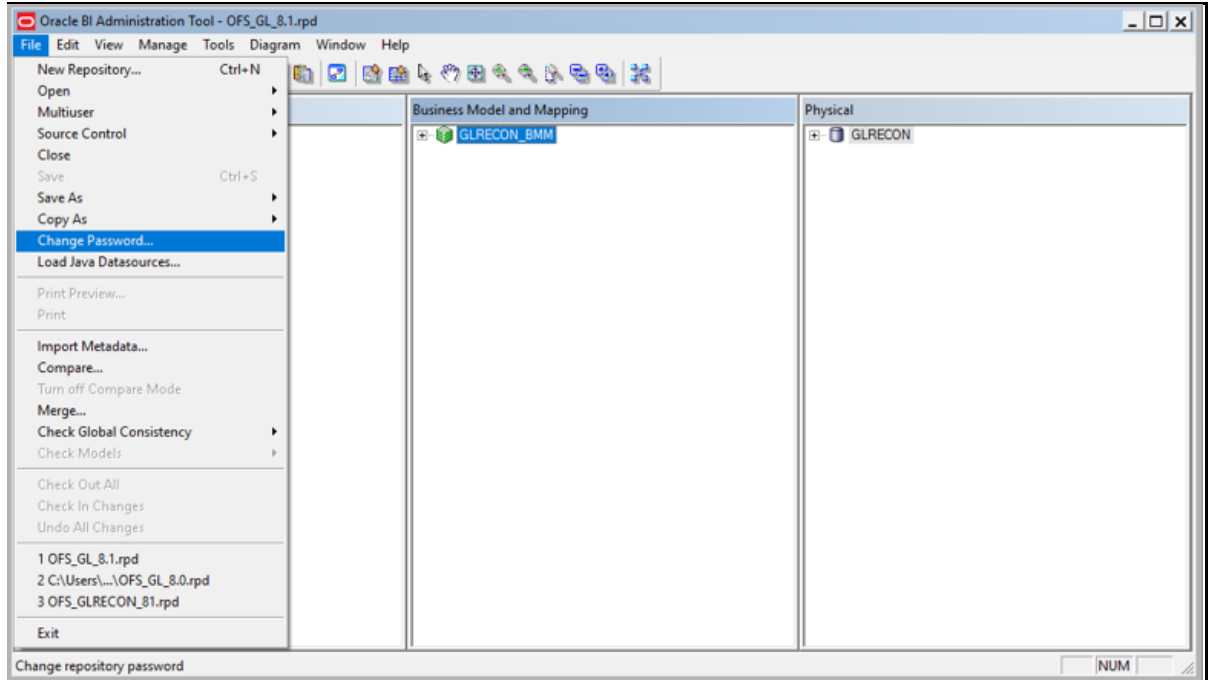
- 1. Copy `OFS_GL_8.1.rpd` from `$FIC_HOME/GLBI` of Web layer to the Windows machine where the OBIEE or OAS Windows administration client is installed.

To change the default password for the repository, perform the following steps:

- 1. Open the repository using OBIEE or OAS Windows administration client.
- 2. Select **OFS\_GL\_8.1.rpd** file. Click **Open**.

The *OBIEE or OAS Windows Administration Client* to enter Repository Default Password is displayed.

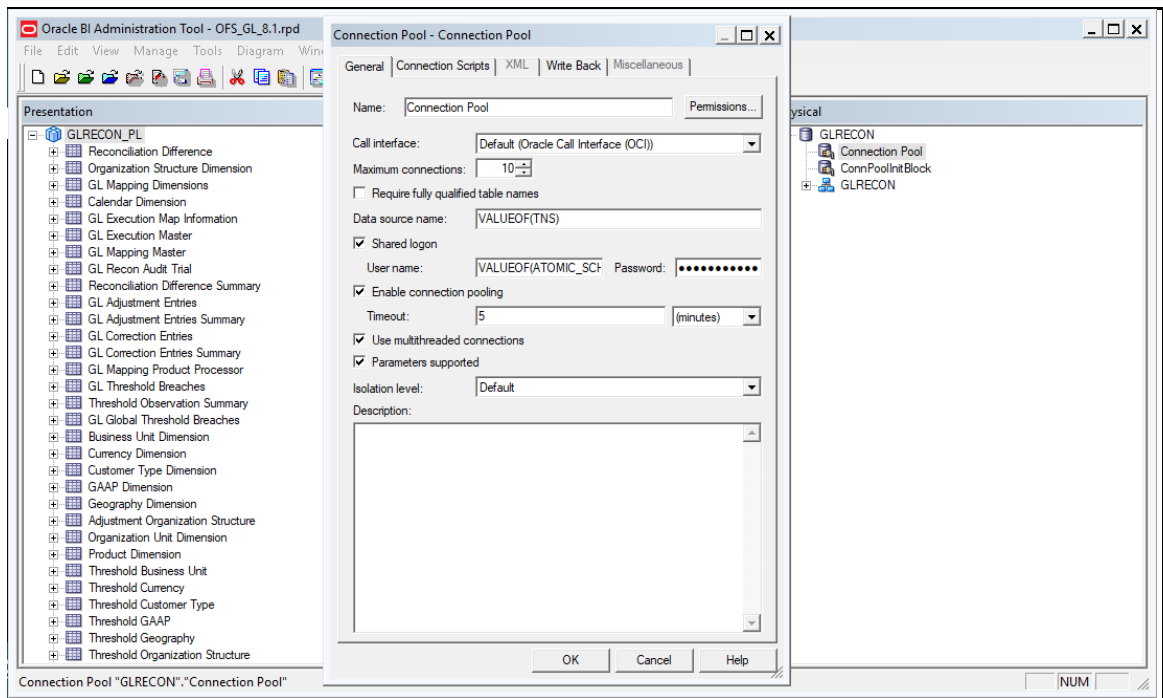
- 3. See the [MOS Doc ID: 2691681.1](#) for the default password.
- 4. Click the **File** menu and select **Change Password**.



5. Enter the new password. Click **OK**.

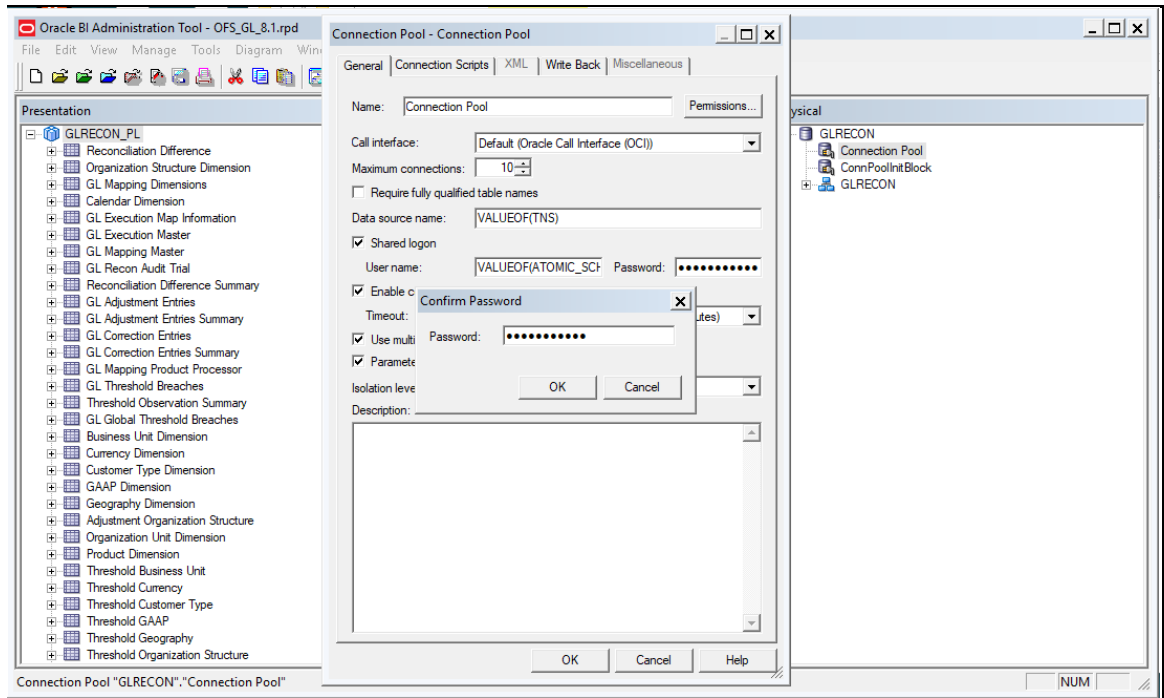
To configure the Connection Pool of the repository, perform the following steps:

1. In the **Physical** section, expand GL directory.



2. Double-click **Connection Pool** to open the **Connection Pool Properties** window.
3. Enter the atomic schema user password in the **Password** text box.

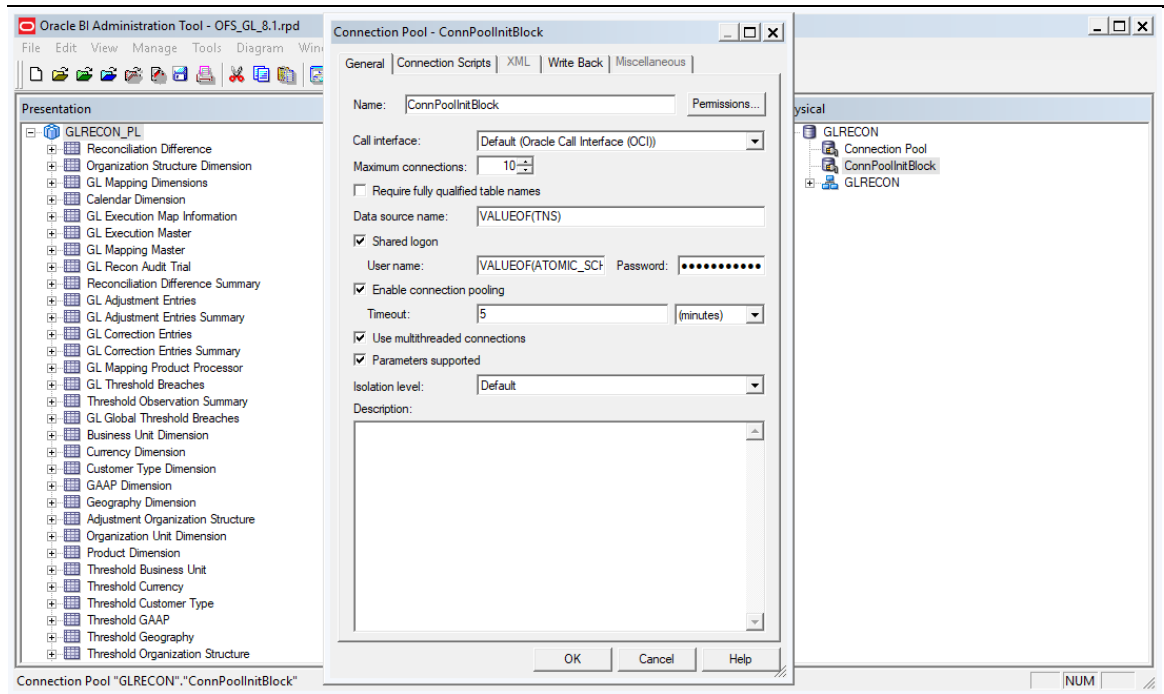
4. Click **OK**.



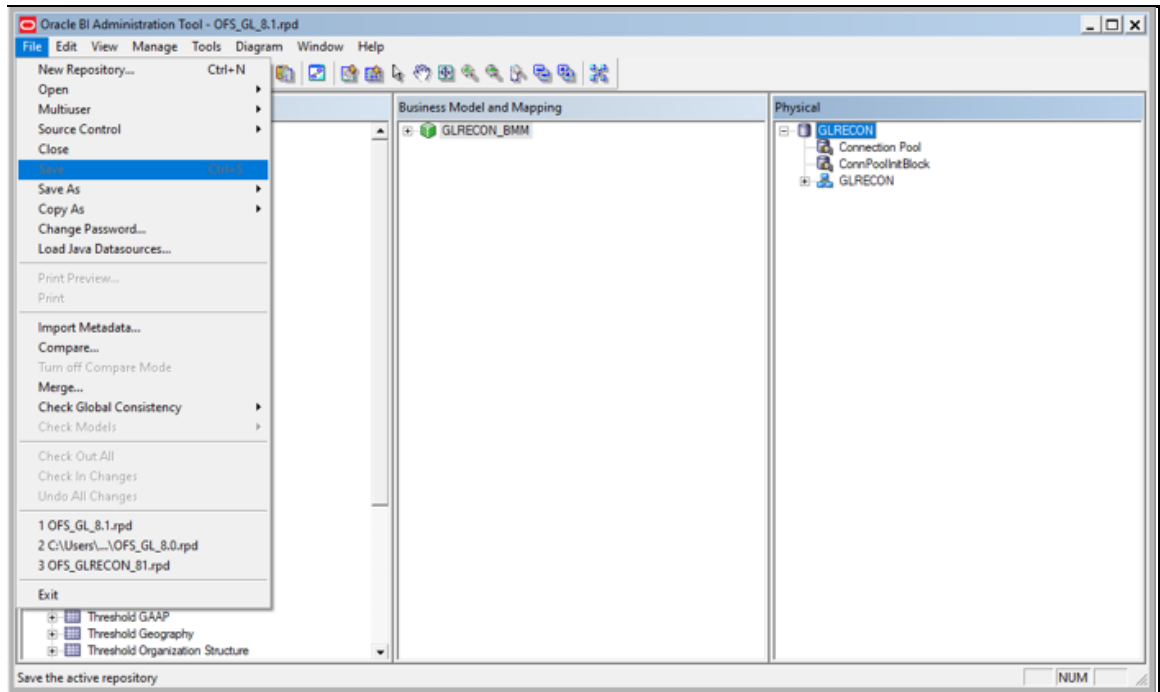
5. Double-click **Initialization Blocks** to open the **Connection Pool** window.

6. Enter the atomic schema password in the **Password** text box.

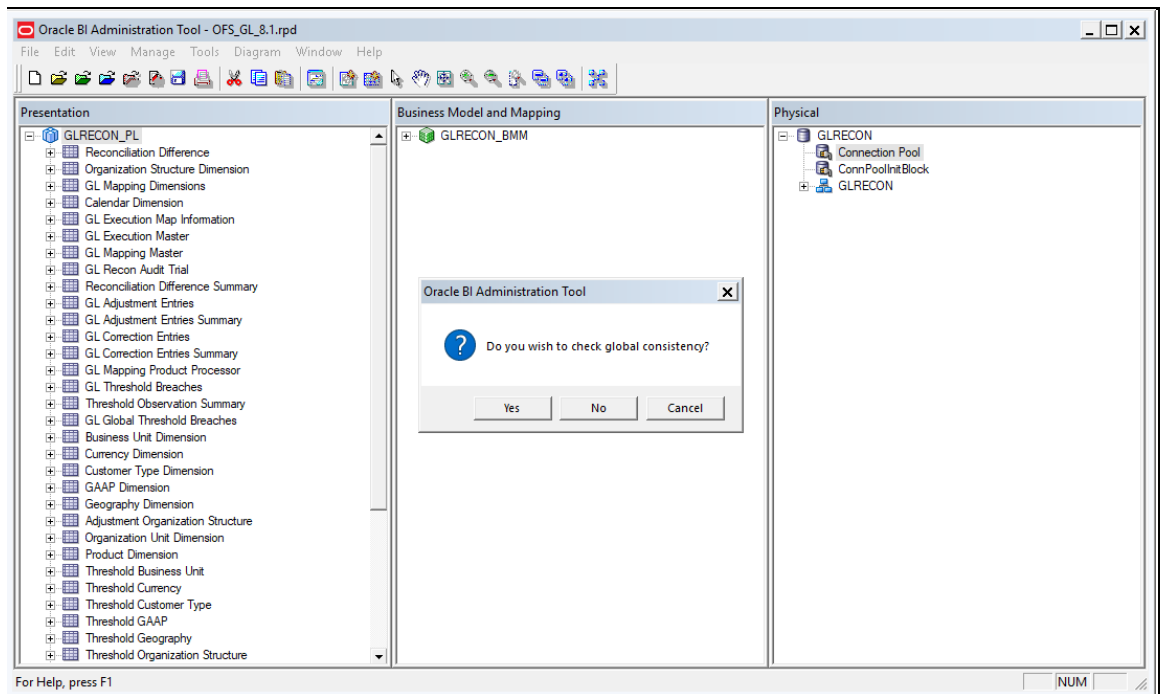
7. Click **OK**.



- Click the **File** menu and then click **Save**.

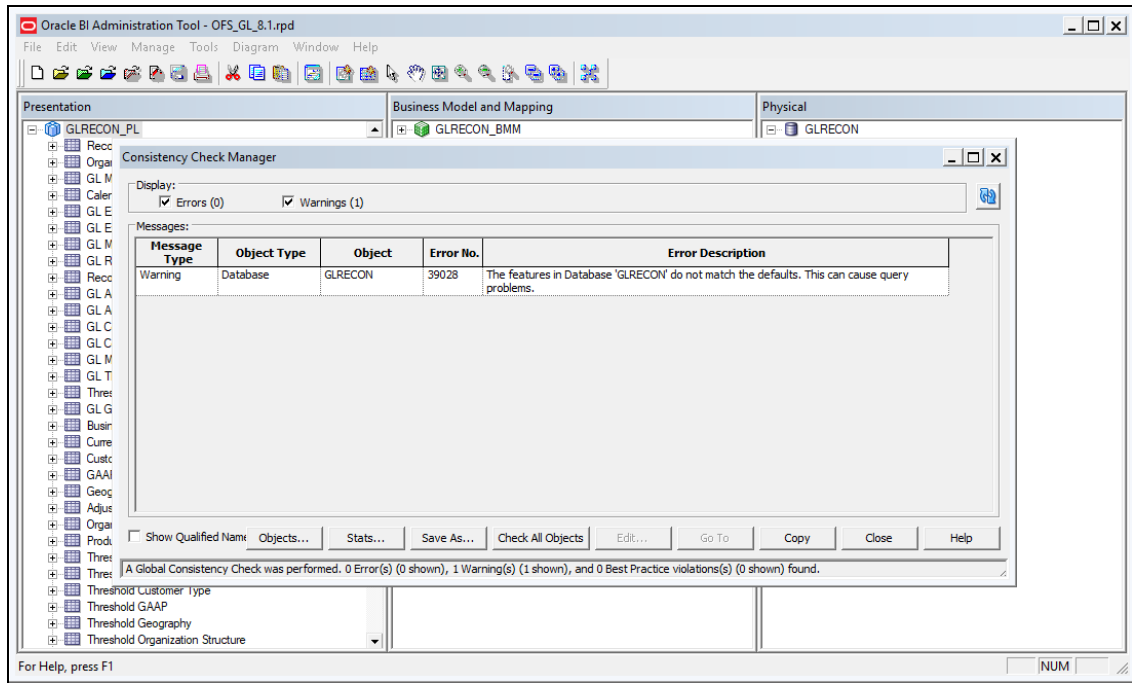


- Click **Yes** to acknowledge the message: *Do you want to check global consistency?*



- Click **OK** to acknowledge the confirmation message: *Consistency check didn't find any errors, warning or best practices violations.*

**NOTE** Warnings on consistency checks can be ignored.



The RPD and catalog are deployed, and the application is ready to view the reports.

## 9.5 Starting Node Manager and WebLogic Servers

For details, see [Oracle Business Intelligence Configuration Guide](#).

## 9.6 Logging in as System Administrator

This section includes information about the roles and privileges of the System Administrator.

### Topics:

- [Role of an Administrator](#)
- [Function Maintenance](#)
- [Role Maintenance](#)
- [Function - Role Mapping](#)
- [User Group Role Mapping](#)

### 9.6.1 Role of an Administrator

There are two types of Administrators as defined by the OFSAA Infrastructure: A User Administrator and a System Administrator.

- System Administration refers to a process of managing, configuring, and maintaining confidential data in a multi-user computing environment. A System Administrator creates functions, roles, and mapping functions to specific roles. They also maintain segment information, holiday list, and restricted passwords to ensure security within the application. In addition, the System Administrator also performs the following actions :
  - Function Maintenance
  - Role Maintenance
  - Function-Role Mapping
- User Administration is one of the core functions of Security Management which involves administrators to create user definitions, user groups, maintain profiles, authorize users and user groups, and map users to groups, domains, and roles. A User Administrator controls the user privileges in accessing the application and is based on business requirements to provide access to view, create, edit, or delete confidential data.

A User Administrator grants permissions based on user roles and requirements.

The respective roles must be mapped to an administrative user SYSADMN.

### **9.6.2 Function Maintenance**

For details, see the System Administrator section in the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

### **9.6.3 Role Maintenance**

For details, see the System Administrator section in the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

### **9.6.4 Function - Role Mapping**

For details, see the System Administrator section in the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

### **9.6.5 User Group Role Map**

For details, see the User Group Role Map section in [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

## **9.7 Creating Application Users**

To create application users in the OFSAA setup, see the User Administrator section in the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

## **9.8 Mapping Application User(s) to User Group**

For details, see the User Administrator section in the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

Beginning with the OFSAA 8.1.1.0.0 release, with the installation of the OFSAA Reconciliation Framework application pack, preconfigured Application user groups are seeded. These user groups are unique to every OFSAA Application Pack and have application roles pre-configured.

For more information on seeded User Groups, see OFSAA Reconciliation Framework application pack User Group Names.

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 details, see the Mapping/Unmapping Users section in the [Oracle Financial Services Analytical Applications Infrastructure User Guide](#).

The **User UserGroup Map** facilitates you to map user(s) to a specific user group which in turn is mapped to a specific Information Domain and role. Every UserGroup mapped to the infodom must be authorized. Else, it cannot be mapped to users.

The *User UserGroup Map* screen displays details such as User ID, Name, and the corresponding Mapped Groups. You can view and modify the existing mappings within the User UserGroup Maintenance screen.

With the installation of the OFSAA Reconciliation Framework Pack, pre-configured Application user groups are seeded. These user groups are unique to every OFSAA Application Pack and have application roles pre-configured.

You can access the User UserGroup Map by expanding the **User Administrator** section within the tree structure of the LHS menu.

After the user is created for Reconciliation Framework, map them to the following user groups:

1. Recon Administrator
2. Recon Framework Analyst
3. Recon Framework Authorizer
4. Adjustment Super Group



# Part II

**Topics:**

[Upgrade](#)

## 10 Upgrade

This section includes the procedures for the upgrade scenarios supported by OFSAA Reconciliation Framework Pack Release 8.1.1.0.0.

### ATTENTION

- If you are upgrading the OFSAA Application Pack to release v8.1.1.0.0, you must upgrade the other packs installed in the same environment to release v8.1.0.0.0, to ensure successful deployment.
- You can upgrade Oracle Financial Services Reconciliation Framework from base versions 8.0.7.0.0, 8.0.8.0.0, 8.1.0.0.0, or 8.1.0.1.0 only.
- Upgrade of only Stage Ledger Data and Stage Management Ledger source entities is performed.
- Hive-hybrid upgrade is not supported.

### Topics:

- [Pre-requisites](#)
- [Upgrading the OFS Analytical Applications Reconciliation Framework Pack](#)
- [Verify the Log File Information](#)
- [Application-Specific Post Upgrade Steps](#)
- [Post Upgrade Deployment Instructions](#)

### 10.1 Pre-requisites

Before you plan to install/upgrade any of your application packs to Release 8.1.1.0.0, ensure that all the application packs in your current OFSAA instance are available in the Release 8.1.1.0.0 version. For more information about the release version details, contact [My Oracle Support](#).

### ATTENTION

The minimum supported version is 8.0.7.0.0. If you are upgrading from a release before v8.0.7.0.0, then first upgrade to v8.0.7.0.0 or later. After this step, you can upgrade to v8.1.1.0.0 or later.

1. Backup the following in the OFS AAI environment:
  - The Database
  - The following environment files from the <OFS\_AAI\_PACK>/schema\_creator/conf directory:
    - OFS\_<App pack>.xml
    - OFS\_<PACK>\_SCHEMA\_IN.xml

— OFSAAI\_InstallConfig.xml

2. See the Oracle Financial Services Analytical Applications 8.1.1.0.0 Technology Matrix for the hardware and software required to upgrade to OFS AAI Release 8.1.1.0.0.
3. Enable unlimited cryptographic policy for Java.

For more information, see the *Enabling Unlimited Cryptographic Policy* section in the [OFS Analytical Applications Infrastructure Administration Guide](#).

4. Clone your environment.

For more information, see the [OFSAA Cloning Reference Guide](#).

**Topics:**

- [Upgrade from OFSAA Reconciliation Framework Release v8.0.x on AIX or Solaris x86 Operating System](#)
- [Clone Your Existing Environment](#)
- [Mandatory step before upgrading](#)

### 10.1.1 Upgrade from OFSAA Reconciliation Framework Release v8.0.x on AIX or Solaris x86 Operating System

Release v8.1.1.0.0 of OFSAA Reconciliation Framework is not certified for AIX and Solaris x86 Operating Systems. If you are currently running OFSAA v8.0.x on AIX or Solaris x86 Operating Systems and plan to upgrade to Release v8.1.1.0.0, migrate from AIX or Solaris x86 to Linux or Solaris SPARC. See the [OFSAA 8.0.x.x.x Migration Guide](#) for details.

### 10.1.2 Clone Your Existing Environment

If you are upgrading from one operating system (OS) to another or between different OS versions, do the following:

- Clone your existing environment to the v8.1.1.0.0 [OFSAA Technology Matrix](#).
- For cloning from OFS DM Release 8.0.7.0.0 or 8.0.8.0.0 to OFSAA Reconciliation Framework version 8.1.1.0.0, see the [Oracle Financial Services Analytical Applications Infrastructure Cloning Guide](#)

### 10.1.3 Mandatory step before upgrading

- Enter the following details in the OFSAA\_SETUP\_APPLN\_DTLS table in the config schema only if these entries are not present.

APPNAME	APPVERSION	DSNID	SEG_MAP_ID	SEGMENT_CODE	INSTALLED_FLAG	INSTALLED_DATE
GL	<last_version_installed> Ex: 8.0.7.0.0	<INFODOM> Ex: DMINFO	COMMON	<SEGMENT_CODE> Ex: DMSEG	Y	<ANY_DATE> Ex: 03-APR-20

## 10.2 Download the OFSAAAI Applications Pack Installer and Mandatory Patches

To download the OFSAAAI Applications Pack Installer Release 8.1.1.0.0, follow these steps:

1. Log in to the [My Oracle Support \(MOS\)](#) with a valid Oracle account.
2. In the **Patches & Updates** tab, search for the OFS Analytical Applications Reconciliation Framework Pack installer patch [32666718](#) and download the patch. Copy the patch to your OFSAA server in the Binary mode in the setup identified for OFS Analytical Applications Reconciliation Framework installation.

### NOTE

Select the required archive files for either Solaris SPARC or Linux based on the operating system of your OFSAAAI.

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

### ATTENTION

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](#).

## 10.3 Upgrading the OFS Analytical Applications Reconciliation Framework Pack

To upgrade the OFS DM application pack to 8.1.1.0.0, perform the following steps:

1. Download the OFSAA Reconciliation Framework Pack v8.1.1.0.0 archive file and copy it to your OFSAA server in the **Binary** mode, see [Download the OFS Analytical Applications Reconciliation Framework Pack Installer](#).

### NOTE

The archive files are different for every operating system such as Solaris and RHEL/Oracle Linux.

2. Log in to the OFSAA Server.
3. Shut down all the OFSAAI Services.

For more information, see [Stop the Infrastructure Services](#) section.

4. Execute the command:

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

5. If you have an unzip utility, skip to the next step. Otherwise, download the unzip utility (OS-specific) and copy it in **Binary** mode to the directory that is included in your PATH variable; typically the **\$HOME** path or directory in which you have copied the 8.1.1.0.0 installer.
6. Uncompress the unzip installer file using the command:

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

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

7. Give EXECUTE permission to the file using the command:
8. Extract the contents of the Oracle Financial Services Analytical Applications Reconciliation Framework Pack 8.1. 1.0.0 installer archive file, using the command:

```
chmod 751 OFS_DM_8.1.1.0.0_<OperatingSystem>.zip
```

```
Unzip -a OFS_DM_8.1.1.0.0_<os>.zip.
```

9. Give the EXECUTE permission to the OFS\_DM\_PACK folder using the command:

```
chmod -R 775 OFS_DM_PACK
```

10. For **RDBMS** upgrade:
  - a. Before triggering the installation, update the configuration in the **Silent.props** file.
  - b. Create a copy of the `Silent.template` file present in the installer `/OFS_DM_PACK/appsLibConfig/conf` location and rename it as `Silent.props`.

**NOTE** When you are entering the values, the names must be the same as the ones given in the previous full installation process.

- c. Edit the `OFS_DM_PACK/conf/OFS_DM_PACK.xml` to enable the product licenses. Update the attribute `ENABLE=YES/NO` in the `OFS_DM_PACK.xml` for licensing the app in the pack.

**NOTE** Before installing the OFSAA Reconciliation Framework Pack, see [Configure the OFS\\_DM\\_PACK.xml File](#) for instructions.

11. Navigate to `/OFS_DM_PACK/bin` and execute `setup.sh` file using the following command:

```
./setup.sh SILENT
```
12. Verify if the release is applied successfully by checking the log file generated in the installation folder. You can ignore ORA-00001, ORA-00955, ORA-02260, and ORA-01430 errors in the log file. In case of any other errors, contact [My Oracle Support \(MOS\)](#).
13. For information about securing your OFSAA Infrastructure, refer to the *OFSAA Security Guide* in the [OHC Documentation Library](#).

## 10.4 Verify the Log File Information

Verify the log files in the locations mentioned in the [Verify the Log File](#) section.

## 10.5 Application-Specific Post Upgrade Steps

Follow these steps after completing your upgrade:

1. Navigate to `ficweb/webroot/WEB-INF/web.xml` file. Remove the following entries from the `.xml` file.

```

-----
<filter>
    <filter-name>struts2</filter-name>
    <filter-
class>org.apache.struts2.dispatcher.ng.filter.StrutsPrepareAndExecuteFi
lter</filter-class>
    </filter>
    <filter>
        <filter-name>struts-cleanup</filter-name>
        <filter-
class>org.apache.struts2.dispatcher.ng.filter.StrutsPrepareFilter</filt
er-class>
    </filter>

    <filter-mapping>
        <filter-name>struts2</filter-name>
        <url-pattern>/glreconciliation/*</url-pattern>
        <url-pattern>/fsapps/*</url-pattern>
    </filter-mapping>
    <filter-mapping>
        <filter-name>struts-cleanup</filter-name>
        <url-pattern>/fsapps/*</url-pattern>
        <url-pattern>/glreconciliation/*</url-pattern>
    </filter-mapping>
-----

```

2. Navigate to the `<FIC_HOME>/ficweb/webroot/WEB-INF/classes` folder and perform the following changes:
  - a. Remove the `GL_Struts.xml` file from the folder.
  - b. Remove the tag: `<include file="GL_Struts.xml" />` from the `struts.xml` file.
3. Execute the `<INFODOM>_GL_MAPPING_POPULATION` batch.

## 10.6 Post Upgrade Deployment Instructions

Follow these deployment instructions after the upgrade is complete.

Sl. No.	Post-deployment configurations
1	<a href="#">Installing</a> OBIEE or OAS Server
2	<a href="#">Installing</a> OBIEE or OAS Windows Administration Client
3	<a href="#">Configuring</a> Reconciliation Framework Analytics v8.1.1.0.0 Dashboards and Reports
4	<a href="#">Deploying</a> Reconciliation Framework Pack Analytics
5	<a href="#">Starting</a> Node Manager and WebLogic Servers
6	<a href="#">Logging</a> in as System Administrator
7	<a href="#">Create</a> Application Users.
8	<a href="#">Map</a> Application User(s) to User Groups. For application specific user group refer <a href="#">Mapping Application User(s) to User Group</a> .

### 10.6.1 Enable Data Redaction in case of Upgrade

This section details the configurations required in case you want to enable Data Redaction in OFSAA applications after upgrade to OFSAA 8.1.1.0.0 version from a previous version. Additionally, these configurations are required in case you did not enable TDE during OFSAA Reconciliation Framework 8.1.1.0.0 installation but want to enable it at a later point of time.

For more information, see [Enable Data Redaction](#).

# Part III

**Topics:**

- [Configure the Web Server](#)
- [Configure Resource Reference in Web Servers](#)
- [Configure Work Manager in Web Application Servers](#)



## 11 Configure the Web Server

Webserver configuration includes the following activities. See the [Configure the Web Server](#) section in the [OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide](#) to complete these procedures.

Additionally, to [Configure Tomcat for User Group Authorization, Data Mapping, and Disabling WADL for the Web Service](#), see the section that appears in this topic later.

- **Configure WebSphere Application Server for Application Deployment**
  - Create a New Profile in WebSphere
  - Manage IBM WebSphere SDK Java Technology Edition Versions
  - Manage Applications in WebSphere
  - Configure WebSphere Application Server to Initialize Filters before Initializing Load-On Startup Servlets
  - Configure WebSphere Application Server Persistence to JPA Specification 2.0
  - Configure WebSphere Application Server to Use a Load Balancer or Proxy Server
  - Delete WebSphere Profiles
  - Configure WebSphere HTTPS
  - Configure WebSphere Memory Settings
- **Configure WebLogic for Application Deployment**
  - Create Domain in WebLogic Server
  - Delete Domain in WebLogic
  - Configure WebLogic Memory Settings
- **Configure Apache Tomcat Server for Application Deployment**
  - Tomcat User Administration
  - Configure Servlet Port
  - Configure SSL Port
  - Configure Apache Tomcat Memory Settings
  - Configure Tomcat for User Group Authorization
  - Uninstall WAR Files in Tomcat

### 11.1 Configure Tomcat for User Group Authorization, Data Mapping, and Disable WADL for the Web Service

This section applies only if the Web Application Server Type is Tomcat.

Users with System Authorization Roles can access User Group Authorization. However, to make it available on the Tomcat Web Server, you have to perform the following configuration steps:

1. Navigate to the `$FIC_WEB_HOME/webroot/WEB-INF/` Directory and open the `web.xml` File.
2. Enter the following in the `web.xml` File.

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

3. 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.
6. If the Tomcat Server is already running, it requires a re-start after the preceding configuration is done.

## 12 Configure Resource Reference in Web Servers

Configuring resource reference in webservers includes the following activities. See [Configure Resource Reference in Web Servers](#) section to complete these procedures.

- **Configure Resource Reference in WebSphere Application Server**
  - Create a JDBC Provider
  - Create Data Source
  - Create J2C Authentication Details
  - Define JDBC Connection Pooling
- **Configure Resource Reference in WebLogic Application Server**
  - Create Data Source
  - Create GridLink Data Source
  - Configure Multi Data Sources
  - Configure Advanced Settings for Data Source
  - Configure JDBC Connection Pooling
  - Create Work Manager
- **Configure Resource Reference in Tomcat Application Server**
  - Create Data Source
  - Define JDBC Connection Pooling
  - Configure ClassLoader for Apache Tomcat

## 13 **Configure Work Manager in Web Application Servers**

The process Modelling framework requires creating a Work Manager and mapping it to the OFSAA instance. This configuration is required for WebSphere and WebLogic Web application server types.

Configuring Work Manager in web application servers includes the following activities. See [Configure Work Manager in Web Application Servers](#) section to complete these procedures.

- **Configure Work Manager in WebSphere Application Server**
  - Creating a Work Manager
  - Mapping Work Manager to OFSAA WebSphere Instance
- **Configure Work Manager in WebLogic Application Server**

# Part IV

## Topics:

- [Additional Configurations for Application Packs](#)
- [Migrate Excel Upload Functionality](#)
- [FAQs](#)

## 14 Additional Configurations for Application Packs

This section provides information for additional configurations required for the OFSAA application packs.

### 14.1 Additional Configuration Checklist

Table 17: Additional Configuration Checklist

Sl. No.	Additional Configuration Activity
1	<a href="#">Configure</a> the webserver.
2	<a href="#">Configure</a> Resource Reference in the web servers.
3	<a href="#">Configure</a> Work Manager in the web application servers.
4	<a href="#">Add</a> FTP/SFTP Configuration for File Transfer.
5	<a href="#">Configure</a> the Infrastructure Server Memory.
6	<a href="#">Retrieve</a> the Patch Information.
7	<a href="#">Set</a> OLAP Data Server Configuration
8	<a href="#">Change</a> IP/Hostname, Ports, Deployed Paths of the OFSAA Instance.
9	<a href="#">Execute</a> the OFSAAI Setup Information Fetching Tool.
10	<a href="#">Execute</a> the Encryption Changer.
11	<a href="#">Set</a> Infrastructure LDAP Configuration.
12	<a href="#">Configure</a> the OFSAAI Web Services.
13	<a href="#">Enable</a> Parallel Execution of DML statements
14	<a href="#">Configure</a> the Message Details in Forms Designer.
15	<a href="#">Clear</a> the application cache.
16	<a href="#">Configure</a> Password Changes.
17	<a href="#">Configure</a> Java Virtual Machine.
18	<a href="#">Configure</a> Internal Service.

## 15 **Migrate Excel Upload Functionality**

See the [Migrate Excel Upload Functionality](#) section in the *OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide* to complete the procedures.

## 16 Frequently Asked Questions (FAQs) and Error Dictionary

For FAQs and installation error-related information, see the section [Frequently Asked Questions \(FAQs\) and Error Dictionary](#) in the *OFS AAI Release 8.1.1.0.0 Installation and Configuration Guide*.

### 16.1 Application Pack 8.1.1.0.0 FAQs

These Frequently Asked Questions help you resolve some of the OFSAA Reconciliation Framework Installation and configuration issues. They are intended for knowledge sharing and problem resolution for a few of the known issues. This is not intended as an official support document.

**1. What is an Application pack?**

An application pack is a suite of products. For more information, see [About Oracle Financial Services Analytical Applications \(OFSAA\) Application Packs](#).

**2. Can I get a standalone installer for OFSAAI 8.1?**

No. AAI is part of every application pack and installs automatically.

**3. Where can I download OFSAA 8.1.1.0.0 Application Pack?**

You can download the OFSAAI 8.1.1.0.0 Application Pack from Oracle Software Delivery Cloud (OSDC).

**4. What are the minimum system and software requirements for the OFSAA 8.1 Application Pack?**

See the [Hardware and Software Requirements](#) for more information.

**5. Is my environment compatible with OFSAA 8.1.1.0.0 Application Pack?**

Environment Check utility performs the task. It is part of the install and can also be run separately.

**6. Does the OFSAA 8.1.1.0.0 Application Pack support all Operating systems?**

See the [Hardware and Software Requirements](#) section.

**7. How can I install the OFSAA 8.1.1.0.0 Application Pack?**

See the [Oracle Financial Services Advanced Analytical Infrastructure Installation And Configuration Guide](#).

**8. Does this installation require any Third-party Software?**

For details on the third-party software tools used, see the *OFSAA Licensing Information User Manual Release 8.1.1.0.0* available in the [OHC Documentation Library](#).

**9. What languages are supported during the OFSAA 8.1.1.0.0 Application Pack installation?**

US English.

**10. What mode of installations is supported? [that is., Silent, GUI]**

Silent Mode only.



**11. Does OFSAA 8.1.1.0.0 Application Pack support Multi-tier Installations?**

OFSAA 8.1.1.0.0 supports only a single-tier installation. For more information, see the [Frequently Asked Questions \(FAQs\) and Error Dictionary](#).

**12. 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.

**13. What happens if it aborts during the installation of any application/products within an Application pack?**

You must restore the system and retrigger the installation.

**14. Does this Application pack 'Roll Back' if any application installation fails due to errors?**

The rollback of installation is not supported.

**15. 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.

**16. Can I re-install any of the Application Packs?**

You can retrigger in case of failure.

**17. 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.

**18. How many OFSAA Infrastructures can be installed in a single server?**

There are no issues 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 must be taken when running multiple OFSAAI installations on a single server. Adequate memory is required for each installation as several OFSAAI processes (model upload, DEFQ services, etc) take significant amounts of memory. So it depends on your server's memory.

**19. Is it possible to install OFSAA 8.1.1.0.0 Application pack on an existing 'Infodom' where another OFSAA 8.1.1.0.0 application is installed?**

Yes. However, the Behavioral Detection Application Pack and Compliance Regulatory Reporting Application pack are the exceptions. They must be installed in a different Infodom.

**20. Can I select an Infodom for the Application pack during installation?**

Yes. You can select or change the required infodom.

**21. 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 must be installed in a different Infodom.

**22. How many Infodoms can be created over a single OFSAA Infrastructure of 8.1.1.0.0?**

You can install only one infodom during installation. But after installation, you can create multiple infodoms.

**23. Is the 'Data Model' bundled specifically to an Application pack or an individual application?**

A merged data model for all applications within the application pack is bundled and uploaded.

**24. Does the Application pack create a sandbox automatically for the required applications?**

Yes, Sandbox creation is part of the application install process.

**25. Are upgrade Kits available for individual applications or the complete Application Pack?**

Maintenance Level (ML) Release / Minor Release upgrades are available across all applications.

**26. Can I upgrade AAI only?**

Yes, you can upgrade AAI alone.

**27. Is it possible to uninstall any Application from the Application pack?**

No, it is not possible to uninstall any Application from the Application Pack.

**28. Is it possible to uninstall only the application and retain AAI in the installed environment?**

No, you cannot uninstall only the application and retain AAI in the installed environment.

**29. Does Application Pack contain all Language Packs supported?**

Language Packs must be installed on the application packs.

**30. Can I install an Application Pack over another Application Pack (that is the same infodomain or different infodomain)?**

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 must be installed in a different Infodomain.

**31. What should I do if I get the following error message while running the schema creator utility, "HostName in the input XML file is not matching with the local hostname"?**

One possible reason can be the machine is configured for zonal partitioning. Ensure all the known IP Addresses of the machine are present in the `/etc/hosts` file.

**32. What are the Java versions supported in OFSAAAI Application Pack version 8.1.1.0.0?**

See the [Hardware and Software Requirements](#) section.

**33. Is OFSAAAI Application Pack version 8.1.1.0.0 supported on Java 9 and Java 11?**

For information about supported Java versions, see the [Hardware and Software Requirements](#) section

**34. 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 must 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, this can be 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, the 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>.

**35. What should I do when the Reconciliation Difference Report does now show all the mappings visible in the Reconciliation Adjustment Report?**

Follow the workaround mentioned in the [Reconciliation Difference Report](#) document.

## OFSAA Support

Raise a Service Request (SR) in [My Oracle Support \(MOS\)](#) for queries related to the OFSAA applications.

## Send Us Your Comments

Oracle welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- Are the examples correct? Do you need more examples?
- What features did you like most about this manual?

If you find any errors or have any other suggestions for improvement, indicate the title and part number of the documentation along with the chapter/section/page number (if available) and contact the Oracle Support.

Before sending us your comments, you might like to ensure that you have the latest version of the document wherein any of your concerns have already been addressed. You can access My Oracle Support site that has all the revised/recently released documents.

