Oracle Financial Services Capital Adequacy Pack

Installation and Configuration Guide

Release 8.1.0.0.0

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Financial Services

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Oracle Financial Services Capital Adequacy Pack Installation and Configuration Guide

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Document Control

Version Number	Revision Date	Change Log
1.4	July 2024	Added information about the ECA configuration.
1.3	May 2022	Added **Configuring Tomcat for User Group Authorization, Data Mapping, and Disabling WADL for the Web Service** section.
1.2	October 2020	Updated sections Upgrade from Release 8.0.6.1.0 or Later and Upgrade an Already Installed 8.0.6.1.0 or Later Application and Add New Applications from the Same Pack in Upgrade for alter table configuration query.
1.1	August 2020	Added information for the mandatory one-off patch 31605076 and 31545589 in the Download the OFS CAP ADQ Applications Pack Installer and Extract the Software sections.
1.0	July 2020	Created the document with instructions for the installation of the OFS CAP ADQ Release 8.1.0.0.0.

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1 Preface

This section provides supporting information for the Oracle Financial Services Capital Adequacy Pack Installation Guide.

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

Before you begin the installation, ensure that you have access to My Oracle Support with the required login credentials to quickly notify us of any issues at any stage.

Topics:

- Intended Audience
- Related Documents
- Conventions
- Abbreviations

1.1 Intended Audience

The OFS CAP ADQ Installation Guide is intended for administrators, business users, strategists, data analysts, and implementation consultants who are responsible for installing and maintaining the application pack components.

This document assumes that you have experience installing enterprise components and basic knowledge of the following:

- Oracle Financial Services Capital Adequacy Pack components
- OFSAA Architecture
- UNIX Commands
- Database Concepts
- Web Server or Web Application Server

1.2 Related Documents

We strive to keep this and all other related documents updated regularly; visit the OHC Documentation Library to download the latest version available there. The list of related documents is provided here.

- OHC Documentation Library **for OFS Capital Adequacy Application Pack**:
  - *OFS Basel Regulatory Compliance User Guide*
  - *OFS Basel Regulatory Analytics User Guide*
  - *OFS Basel Regulatory Capital Adequacy Admin Guide*
  - *OFS Capital Adequacy Security Guide*
  - *OFS Capital Adequacy Cloning Guide*

- OHC Documentation Library **for OFS AAAI Application Pack**:
  - *OFS Advanced Analytical Applications Infrastructure (OFS AAAI) Application PackInstallation and Configuration Guide*
  - *OFS Analytical Applications Infrastructure User Guide*
  - *OFS Analytical Applications Infrastructure Administration Guide*
  - *Oracle Financial Services Analytical Applications Infrastructure Environment Check UtilityGuide*
- **Additional documents**:
  - OFSAA Licensing User Manual, Release 8.1.0.0.0
  - OFS Analytical Applications Infrastructure Security Guide
  - OFSAAI FAQ Document
  - OFS Analytical Applications 8.1.0.0.0 Technology Matrix
  - Oracle Financial Services Analytical Applications Infrastructure Cloning Guide
  -

1.3 Conventions

The following text conventions are used in this document:

Table 1: Document Conventions

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

1.4 Abbreviations

The following table lists the abbreviations used in this document:

Table 2: Abbreviations

Abbreviation	Meaning
AIX	Advanced Interactive eXecutive
DEFQ	Data Entry Forms and Queries
DML	Data Manipulation Language

Abbreviation	Meaning
EAR	Enterprise Archive
EJB	Enterprise JavaBean
ERM	Enterprise Resource Management
FTP	File Transfer Protocol
GUI	Graphical User Interface
HTTPS	Hypertext Transfer Protocol Secure
Infodom	Information Domain
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
MFA	Multi-Factor Authentication
MOS	My Oracle Support
OFSAA	Oracle Financial Services Analytical Application
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OFSCAP	Oracle Financial Services Capital Adequacy Pack
OLAP	On-Line Analytical Processing
OS	Operating System
RAM	Random Access Memory
RDMS	Relational Database Management System
SFTP	Secure File Transfer Protocol
SID	System Identifier
SSL	Secure Sockets Layer
TDE	Transparent Data Encryption
TNS	Transparent Network Substrate
URL	Uniform Resource Locator
VM	Virtual Machine
Web Archive	WAR

Abbreviation	Meaning
XML	Extensible Markup Language

Part I

Topics:

- Pre-installation
- Installation
- Post-installation

2 Introduction

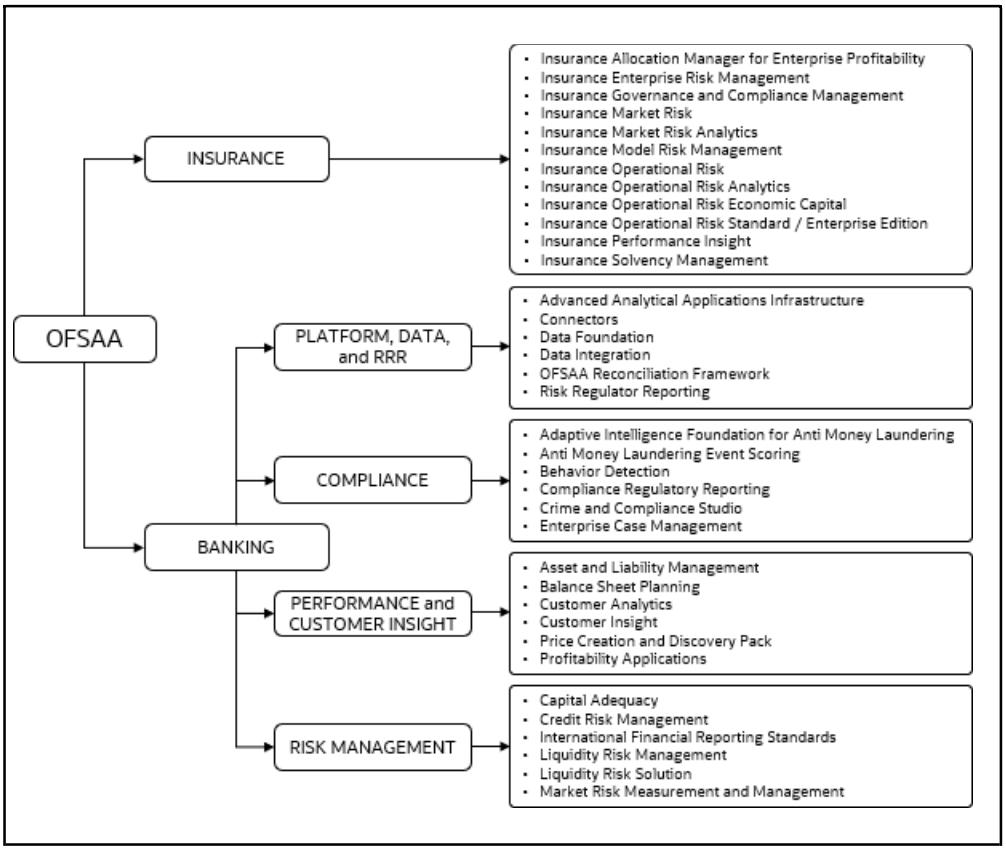
In today's turbulent markets, financial institutions require a better understanding of their risk-return, while strengthening competitive advantage and enhancing long-term customer value. Oracle Financial Services Analytical Applications (OFSAA) enable financial institutions to measure and meet risk-adjusted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

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 (OFSAAI)
- About the Oracle Financial Services Capital Adequacy Pack
- Installation and Upgrade Scenarios

2.1 Oracle Financial Services Analytical Applications Infrastructure (OFSAAI)

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

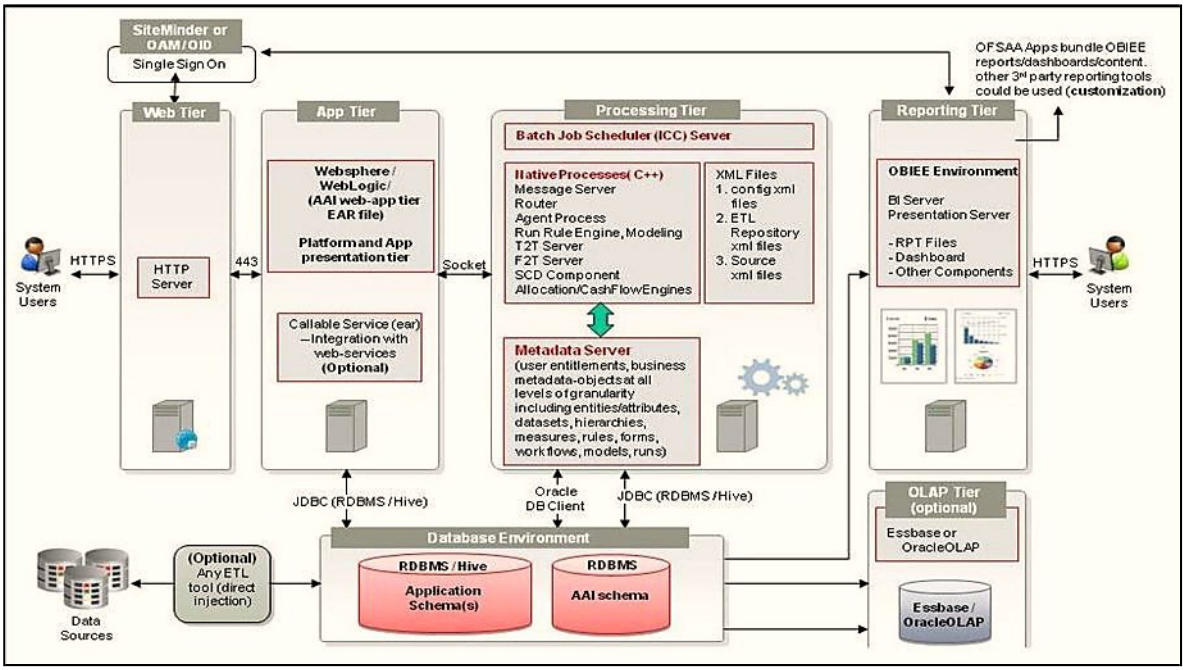
2.1.1 Components of OFSAAI

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

The OFSAA Infrastructure components or frameworks are installed as two layers; primarily, the metadata server and Infrastructure services run on one layer, while the UI and presentation logic runs on the other. The UI and presentation layer is 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

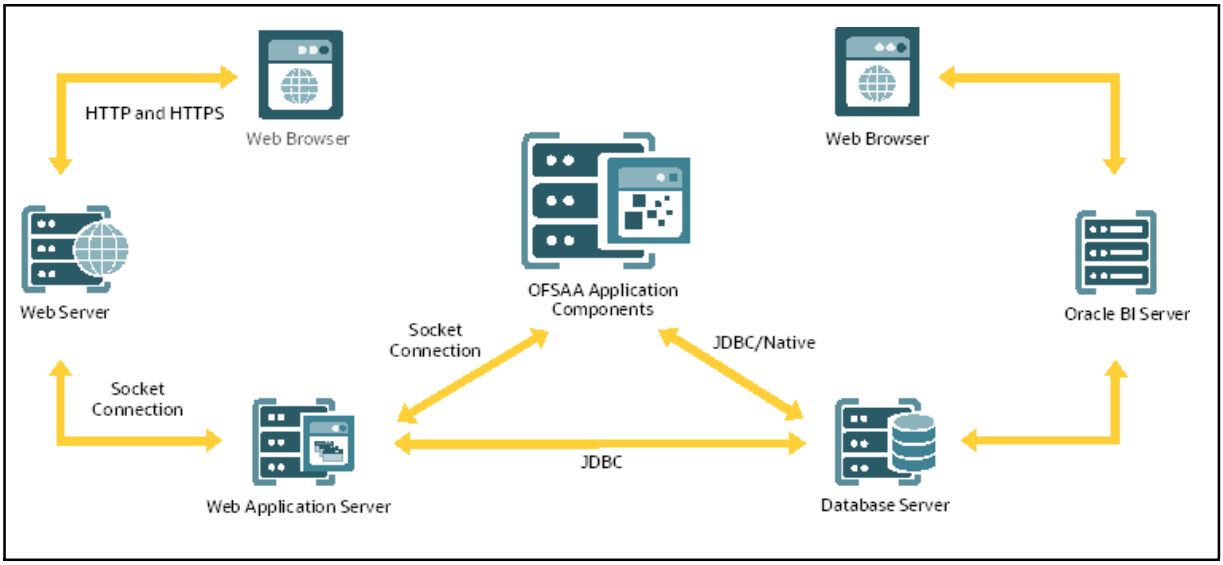
The current release of the OFSAA Infrastructure supports only the *Single Instance* installation for the Infrastructure components. However, the High Availability (HA) for the Database Server and/ or the Web application server clustering and deployment is supported in this release.

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

2.1.3 Deployment Topology

The following figure illustrates the deployment topology of OFSAAapplication packs.

Figure 3: The Logical Architecture Implemented for OFSAAAI Application Pack



2.2 About the Oracle Financial Services Capital Adequacy Pack

OFS CAP ADQ 8.1.0.0.0 Pack includes the following applications:

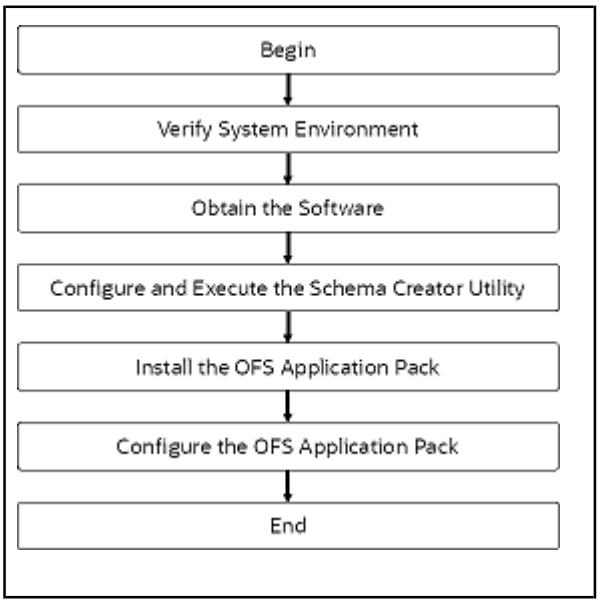
- **Oracle Financial Services Basel Regulatory Capital Basic**: The application encompasses Credit, Market, and Operational Risks and provides a detailed breakup of the Capital Requirements across Tier 1, 2, and 3. The application supports the computation of Capital Adequacy Ratio (CAR) as per the guidelines laid out in the BIS (Basel III) India Jurisdiction.
- **Oracle Financial Services Basel Regulatory Capital Internal Ratings Based Approach**: This application is based on the approaches supported by the OFS Basel Regulatory Capital Basic Application as well as the advanced approaches for BIS Jurisdiction.
- **Oracle Financial Services Basel Regulatory Capital Analytics**: This application allows institutions to capitalize on their Basel III compliance investments by providing extensive dashboards that enable efficient and timely Pillar I analysis and Pillar 3 disclosures, regulatory reporting and provide a complete platform for strategic decision-making across the institution.

2.3 Installation Overview

To install an OFS CAP ADQ application pack 8.1.0.0.0 instance, users and administrators must download this installer. The following figure displays the order of procedures you will need to follow to install a new OFS CAP ADQ Pack 8.1.0.0.0 instance.

NOTE This installer supports both upgrade and fresh installation of OFS CAP ADQ 8.1.0.0.0.

Figure 4: Installation Flow



2.4 OFS AAI Extension Pack

The Oracle Financial Services Analytical Applications Infrastructure Extension (OFS AAIE) Pack adds a set of new advanced features for 8.1.0.0.0 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.

2.5 Installation and Upgrade Scenarios

Release 8.1.0.0.0 of OFS CAP ADQ supports various installation and upgrade scenarios. A high-level overview of the possible scenarios is provided in the following table. Detailed procedural steps are provided in the succeeding sections of this document.

Table 3: OFS CAP ADQ Release 8.1.0.0.0 Installation and Upgrade Scenarios

Scenario	Installation and Upgrade Instructions
New Installation	
Installing Release 8.1.0.0.0 application pack for the first time (new installation).	1. Prepare for the Installation. 2. Execute the Schema Creator Utility. 3. Install the CAP Application Pack. 4. Perform Post Installation Activities
Install a new application on an existing OFSAA Instance from the same pack You have installed some applications from the Release 8.1.0.0.0 pack and in the future, you decide to include other applications from the same pack. **Example**: You have installed Basel Basic application using the CAP Pack installer 8.1.x. Later, you decide to license the Basel IRB application and want to install them using the same CAP Pack installer 8.1.x.	**If the schema creator output file (OFS_CAP__ADQ_SCHEMA_OUTPUT.xml) EXISTS**: 1 Configure the `OFS_CAP_ADQ_PACK.xml` file to disable the existing applications and enable the newly licensed applications. 2 Configure the `Silent.props` file present in the Release 8.1.x pack ONLY for the newly licensed applications. 3 Trigger the Release 8.1.0.0.0 installation. **If the schema creator output file (OFS_CAP__ADQ_SCHEMA_OUTPUT.xml) DOES NOT EXIST**: 1. Run the schema creator utility. IMPORTANT NOTE: While defining the schema details for the applications, provide the same schema details given in the previous installation. The output file (`OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`) is generated as a result of the schema creation process. 2. Configure the `OFS_CAP_ADQ_PACK.xml` file to disable the existing applications and enable the newly licensed applications. 3. Configure the `Silent.props` file present in the Release 8.1.x pack ONLY for the newly licensed applications. 4. Trigger the Release 8.1.0.0.0 installation. **NOTE**: Configuring the OFSAAI_InstallConfig.xml file is not required.

Scenario	Installation and Upgrade Instructions
Install a new application pack on an existing OFSAA Instance You have already installed an application pack from release 8.1.x.0.0 and now you want to install another application pack from Release 8.1.0.0.0. **Example**: You have already installed an application pack from release 8.1.x.0.0 and now you want to install another application pack from Release 8.1.0.0.0. For example, OFS ALM Pack is already installed and now you want to install OFS CAP ADQ Pack.	1. Run the schema creator utility ONLY for the new pack. 2. Configure the `OFS_CAP_ADQ_PACK.xml` file for the newly licensed pack. 3. Configure the `Silent.props` file of the newly licensed pack. 4. Trigger the Release 8.1.0.0.0 installation. **NOTE**: Configuring the OFSAAI_InstallConfig.xml file is not required.
Upgrade Installation	
Upgrade from Release v8.0.x of OFS CAP or OFS CAP on AIX or Solaris x86 Operating System	Release v8.1.0.0.0 of OFS CAP 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 v8.1.0.0.0, then you must migrate from AIX or Solaris x86 to Linux or Solaris SPARC. See the MOS Doc ID 2700084.1 for details.
Upgrade an already installed application pack from a release before 8.0.6.1.0 You are upgrading the application pack from a release before 8.0.6.1.0 to release 8.1.0.0.0. **Example**: You are using release 8.0.5.0.0 and now want to upgrade to Release 8.1.0.0.0.	1. If upgrading from a release before 8.0.6.1.0, then first upgrade to 8.0.6.1.0 or later. See Upgrade from a Release Before 8.0.6.1.0 for details. 2. Run the Environment Check Utility tool and ensure that the hardware and software requirements are installed as per the OFS Analytical Applications Technology Matrix . See the OFSAA Environment Check Utility Guide for detailed steps. 3. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix . 4. Configure the `Silent.props` file present in the Release 8.1.0.0.0. 5. Configure the `OFS_CAP_ADQ_PACK.xml` file to enable the existing installed. 6. Trigger the Release 8.1.0.0.0 installation.
Upgrade an already installed application pack from 8.0.6.1.0 or later You are upgrading the application pack from Release 8.0.6.1 or later to Release 8.1.0.0.0. **Example**: You are using release 8.0.7.0.0 and now want to upgrade to Release 8.1.0.0.0.	1. Run the Environment Check Utility tool and ensure that the hardware and software requirements are installed as per the OFS Analytical Applications Technology Matrix . 2. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix . 3. Configure the `Silent.props` file present in the Release 8.1.0.0.0. 4. Configure the `OFS_CAP_ADQ_PACK.xml` file to enable the existing installed applications. you want to upgrade. 5. Trigger the Release 8.1.0.0.0 installation.
Upgrade an already installed application from 8.0.6.1.0 or later release version and add new applications from the same pack	1. Run the Environment Check Utility tool and ensure that the hardware and software requirements are installed as per the OFS Analytical Applications Technology Matrix . See the OFSAA Environment Check Utility Guide for detailed steps.

Scenario	Installation and Upgrade Instructions
You have two applications from a pack on 8.0.6.1.0 or later. You want two new applications from the same pack on 8.1.0.0.0. **Example**: You have installed Basel Basic, Basel IRB, or Basel Analytics from Release 8.0.6.1.0. Now you want to install CAP of Release 8.1.0.0.0.	2. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix . 3. Update `OFS_CAP_ADQ_PACK.xml` file to enable the applications you wish to upgrade and the newly licensed applications. 4. Update the `Silent.props` file for the sections related to the existing as well as newly licensed applications. 5. Trigger the Release 8.1.0.0.0 installation. 6. This process upgrades the existing applications and installs the newly licensed applications.

NOTE If you are upgrading the OFSAA Application Pack to release v8.1.0.0.0, you must upgrade the other packs installed in the same environment to release v8.1.0.0.0, to ensure successful deployment.

3 Complete Installation Checklist

For a successful installation, perform the steps listed in the Complete Installation Checklist. You can use this checklist to have a quick glance at everything that you will be doing to install this application. The link provided in each step takes you to a section either within this document or to another referenced document.

Table 4: Complete Installation Checklist

Sl. No.	Pre-installation Activity
1	• Install all the prerequisite hardware and software as per the OFS Analytical Applications Technology Matrix . • Configure the Database Instance settings. • Install and configure the web application server. • Configure the HTTP settings on the webserver. • Configure the Operating System and File System settings.
2	Verify the System Environment using the Environment Check Utility.
3	Create the Installation, Download, and Metadata Repository Directories.
4	Update the following Environment Settings as required for the installation in the `.profile` file: • Java settings • Oracle Database Server and Client settings • Oracle Essbase settings • Time Zone settings • Ensure you execute `.profile` file with all the above updates before installation.
5	Add TNS entries in the `tnsnames.ora` file.
6	Download and Extract the OFS CAP ADQ Application Pack installer kit.

Sl. No.	Installation Activity
1	Configure the `OFS_CAP_ADQ_SCHEMA_IN.xml` file.
2	Execute the Schema Creator Utility in Offline, Online, or TCPS modes and verify the log file.
3	Configure the `OFS_CAP_ADQ_PACK.xml` file.
4	Configure the `OFSAAI_InstallConfig.xml` file.
5	Configure the `Silent.props` file.
6	Trigger the application installation.

Sl. No.	Post-installation Activity
1	Verify the installation logs.
2	Patch OFSAA Infrastructure Installation.
3	Back up the `OFS_CAP_ADQ_SCHEMA_IN.xml` and `OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`, and `Silent.props` files.
4	Stop the OFSAA Infrastructure services.
5	Create and deploy EAR or WAR files.
6	EAR or WAR File - Build Once and Deploy Across Multiple OFSAA Instances.
7	Start the OFSAA Infrastructure services.
8	Access the OFSAA Application.
9	OFSAA Landing Page.
10	Configure the `excludeURLList.cfg` file.
11	Create Application Users.
12	Map the Application User (or Users) to User Groups.
13	Change the ICC Batch Ownership.
14	Update OBIEE URL.
15	Configure the webserver.
16	Configure the Resource Reference in web application servers.
17	Post-deployment Configuration.

Sl. No.	Additional Configuration Steps Activity
1	Configure the Work Manager in the web application servers.
2	Add FTP/SFTP Configuration for File Transfer.
3	Configure the Infrastructure Server Memory.
4	Change IP or Hostname, Ports, Deployed Paths of the OFSAA Instance.
5	Execute the OFSAAI Setup Information Fetching Tool.
6	Execute the Encryption Changer.
7	Configure the Infrastructure LDAP Configuration.
8	Configure and deploy the OFSAAI web services.
9	Enable the Parallel Execution of DML statements.
10	Configure the Message Details in the Forms Designer.
11	Clear the application cache.
12	Configure password changes.

Sl. No.	Additional Configuration Steps Activity
13	Configure Java Virtual Machine.
14	Configure Internal Service (Document Upload or Download).
15	Migrate Excel Upload Functionality.
16	Remove the OFSAA Infrastructure.

4 Pre-installation

This section contains the pre-installation requirements for a successful installation and functioning of the OFS Capital Adequacy Application Pack.

To complete the pre-installation process, you must perform the following steps listed in the Pre-installation Checklist table. Use this checklist to verify whether these steps are completed or not.

Topics:

- Pre-installation Checklist
- Hardware and Software Requirements
- Create the Installation, Download and Metadata Repository Directories
- Preparing for Installation

4.1 Pre-installation Checklist

You can use this checklist to have a quick glance at everything that you will be doing before installing this application. The link provided in each step takes you to a section either within this document or to another referenced document.

Table 5: Pre-installation Checklist

Installation Stage	Sl. No.	Activity
Pre-installation Steps	1	Install all the prerequisite hardware and software as per the OFS Analytical Applications Technology Matrix . • Configure the Database Instance settings. • Install and configure the web application server. • Configure the HTTP settings on the webserver. • Configure the Operating System and File System settings.
	2	Verify the System Environment using the Environment Check Utility.
	3	Create the Installation, Download, and Metadata Repository Directories.
	4	Update the following Environment Settings as required for the installation in the `.profile` file: • Java settings • Oracle Database Server and Client settings • Oracle Essbase settings • Time Zone settings Ensure you execute `.profile` file with all the above updates before installation.
	5	Add TNS entries in the `tnsnames.ora` file.
	6	Download and Extract the OFS CAP ADQ Application Pack installer kit.

4.2 Hardware and Software Requirements

For a list of all the hardware and software requirements including operating systems, database, web servers, and web application server versions for which this release of the OFS Capital Adequacy Application Pack is qualified see the OFS Analytical Applications Technology Matrix.

Topics:

- Third-party Licensing Information
- Verify System Environment

OFS Capital Adequacy application pack recommends the following software combinations for deployment.

Table 6: Recommended Software Combination

Operating System	Database	Web Application Server	Web Server
Oracle Linux	Oracle Database	Oracle WebLogic Server or Apache Tomcat Server	Oracle HTTP Server or Apache HTTP Server
Oracle Solaris	Oracle Database	Oracle WebLogic Server or Apache Tomcat Server	Oracle HTTP Server or Apache HTTP Server

4.2.1 Third-party License Information

For more information about the third-party software tools used, see the OFSAA Licensing Information User Manual Release 8.1.0.0.0.

4.2.2 Verify System Environment

To verify your system environment meets the minimum requirements for the installation, a pre-install check utility is available within the Install Kit archive file. This utility can also be obtained separately by contacting My 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 about downloading and using this utility, see the OFS Analytical Applications Infrastructure Environment Check Utility Guide.

4.3 Create the Installation, Download and Metadata Repository Directories

To install the OFSCAP Application Pack, create the following directories:

- **OFSCAP Download Directory (Optional)**: Create a download directory and copy the OFSCAP Application Pack Installer File (archive). This is the directory where the downloaded installer or patches can be copied. Assign 755 permission to this directory.
- **OFSAA Installation Directory (Mandatory)**: Create an installation directory where the product binaries are installed. Assign 755 user permission to the installation directory. FIC_HOME variable to be set in the `.profile` file pointing to this directory as follows:

  ```
  FIC_HOME=<OFSCAP Installation Directory>
  export FIC_HOME
  ```

- **OFSAA Staging or Metadata Repository 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 *FTPSHARE*. Create a Staging or 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 775 user permissions to this directory.

  > **NOTE** Ensure the OFSAA staging directory is not set to the same path as the OFSAA installation directory and is not a subdirectory inside the OFSAA installation directory.

- **OFSCAP Hive Directory (Mandatory for Big Data Installation)**: Create a directory for the file system stage area of the Hive server. This is commonly referred to as “FTPSHAREH” or “HIVE_SERVER_FTPDRIVE”. Ensure the user permission is set to 775 on the Installation Directory.

4.4 Preparing for Installation

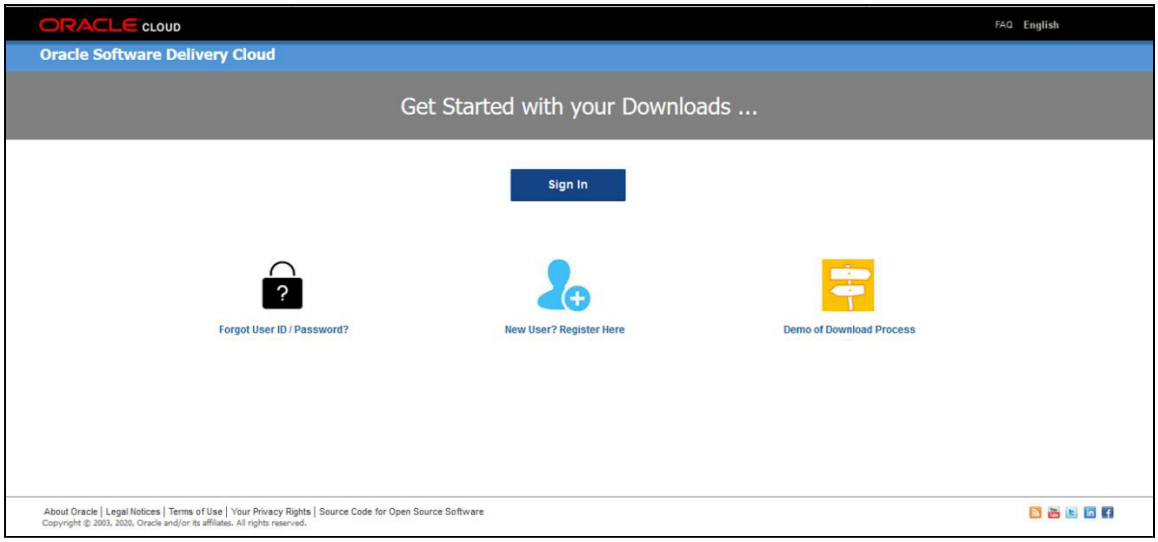
This section details the preparatory procedures that must be followed before triggering the installation.

4.4.1 Download the OFS CAP ADQ Application Installer and Mandatory Patches

To download the OFS CAP ADQ Applications Pack Installer Release 8.1.0.0.0, follow these steps:

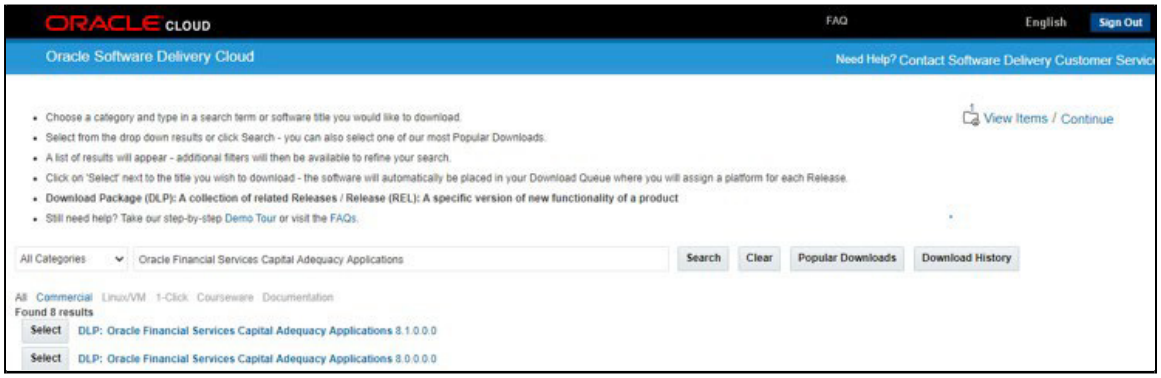
1. Log in to the Oracle Software Delivery Cloud (OSDC) with a valid Oracle account.

Figure 5: OSDC Login Window



2. Enter **Oracle Financial Services Capital Adequacy Pack** in the search box.

Figure 6: Oracle Software Delivery Cloud - Search Page



3. Download the installer archive and copy (in Binary mode) to the download directory that exists in the OFS CAP ADQ installation setup.

4. Download the following mandatory one-off patches from My Oracle Support into the download directory that exists in the OFSAAAI installation setup:

Patch ID	Description
31605076	Access to features owing to the additional license functionality that gets installed through the OFS AAI Extension Pack.
31545589	For pack-on-pack installation on new atomic schema.

NOTE In an environment consisting of multiple OFSAA applications, if the October 2020 Critical Patch Update is applied for any one application, it is mandatory to apply the respective October 2020 Critical Patch Updates for all other applications on that OFSAA instance, regardless of the application's version. See the My Oracle Support Doc ID 2724021.1 for details.

5. 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.

Ensure that you reapply the 33663417 Mandatory Patch whenever you install or upgrade the application, or apply an incremental patch.

4.4.2 Extract the Software

You must be logged in to the UNIX operating system as a non-root user to perform the following software extraction steps:

1. Download the unzip utility (OS-specific) `unzip_<os>.Z` and copy it in Binary mode to the directory that is included in your PATH variable.

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

2. Uncompress the unzip installer file with the following command:

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

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

3. Assign 751 permission to the file with the following command:

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

   For example: `chmod 751 unzip_sparc`

4. Extract the contents of the OFS CAP ADQ Application Release 8.1.0.0.0 installer archive file in the download directory with the following command:

   ```
   unzip OFS_CAP_ADQ_8.1.0.0.0_<OS>.zip
   ```

5. Extract the following one-off patches in the download directory:

   a. **31545589**

   b. **31605076**

6. Navigate to the download directory and assign 750 permission to the installer directory with the following command:

```
chmod -R 750 OFS_CAP_ADQ_PACK
```

5 Installation

This section provides detailed steps to install the OFS CAP ADQ Application Pack.

Topics:

- Installation Checklist
- Configure Schema Creator Utility
- Configure the OFSAAI_InstallConfig.xml File
- Configure the OFS_CAP_ADQ_PACK.xml File
- Configure the Silent.props file
- Install the OFS CAP ADQ Application

5.1 Installation Checklist

You can use this checklist to have a quick glance at everything that you will be doing to install this application. The link provided in each step takes you to a section either within this document or to another referenced document.

Table 7: Installation Checklist

Sl. No.	Installation Activity
1	Configure the `OFS_CAP_ADQ_SCHEMA_IN.xml` file.
2	Execute the Schema Creator Utility in Offline, Online, or TCPS modes and verify the log file.
3	Configure the `OFS_CAP_ADQ_PACK.xml` file.
4	Configure the `OFSAAI_InstallConfig.xml` file.
5	Configure the `Silent.props` file.
6	Trigger the application installation.

5.2 Configure the Schema Creator Utility

The Schema Creator utility enables you to quickly get started with the installation by creating Database User(s) or Schema(s) (in RDBMS), assigning the necessary GRANT(s), creating the required entities in the schemas and so on.

The schema creator utility must be configured and executed before the installation of any OFS CAP ADQ Application.

Topics:

- Prerequisites
- Configure Schema Creator Utility for RDBMS Installation
- Execute the Schema Creator Utility
- Verify the Schema Creator Log Files

5.2.1 Prerequisites

To configure the Schema Creator Utility, ensure that you obtain the following details:

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

5.2.2 Configure the Schema Creator Utility for RDBMS Installation

If the installation is performed for RDBMS, provide the application-specific schema details in the `OFS_CAP_ADQ_SCHEMA_IN.xml` file.

You can configure the following schema types:

- **CONFIG**: This schema holds the entities and other objects required for OFSAA setup configuration information. There can be only one CONFIG schema per OFSAA instance is permitted.
- **ATOMIC**: This schema holds the data model entities. One ATOMIC schema is attached to one Information Domain. There can be multiple ATOMIC schemas for a single OFSAA instance.

5.2.2.1 Configure the OFS_CAP_ADQ_SCHEMA_IN.xml File

Creating database schemas, objects within schemas, and assigning appropriate grants are the primary steps in the installation process of OFSAA Applications.

The `OFS_CAP_ADQ_SCHEMA_IN.xml` file allows to specify database schemas required for the installation. Update the required values in this file before executing the schema creator utility.

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

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

Figure 7: Sample OFS_CAP_ADQ_SCHEMA_IN.xml File

```
<APPPACKSCHEMA>
  <APP_PACK_ID>OFS_CAP_ADQ_PACK</APP_PACK_ID>
  <IS_TCPS>FALSE</IS_TCPS>
  <JDBC_URL></JDBC_URL>
  <JDBC_DRIVER>oracle.jdbc.driver.OracleDriver</JDBC_DRIVER>
  <HOST></HOST>
  <SETUPINFO NAME="DEV" PREFIX_SCHEMA_NAME="N" />
  <PASSWORD APPLYSAMEFORALL="Y" DEFAULT="" />
  <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_BASEL_BASIC" APP_GRP="1" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>

  <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_BASELA" APP_GRP="1" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>
 </SCHEMAS>

</APPPACKSCHEMA>
```

Figure 8: APPPACKSCHEMA Block

Table 8: OFS_CAP_ADQ_SCHEMA_IN.xml File (APPPACKSCHEMA Parameters)

Tag Name / Attribute Name	Description	Mandatory (Y / N)	Default Value / Permissible Value	Comments
<APP_PACK_ID>	Seeded unique ID for the OFS Application Pack.	Y	OFS_CAP_ADQ_PACK	Do not modify this value.
<IS_TCPS>	Enter if the TCPS configuration is required.	Y	Seeded, with FALSE as the default value.	Modify this to TRUE if you require the installer to uptake the configuration.

Tag Name / Attribute Name	Description	Mandatory (Y / N)	Default Value / Permissible Value	Comments
<JDBC_URL>	Enter the JDBC URL. You can enter RAC or NON-RAC enabled database connectivity URL.	Y	Example: jdbc:oracle:thin:@< DBSERVER IP/ 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]))) For example: 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)))	Ensure to add an entry (with SID or SERVICE NAME) in the `tnsnames.ora` file on the OFSAA server. The entry must 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>	The name of the driver is seeded by default.	Y	Example: oracle.jdbc.driver.OracleDriver	Only JDBC Thin Driver is supported. Do not modify this value.
<HOST>	Enter the Hostname or IP Address of the system on which you are installing the OFSAA components.	Y	Host Name or IP Address	
<SETUPINFO>/PREFIX_SCHEMA_NAME	Identifies whether the value specified in <SETUPINFO>/NAME attribute must be prefixed to the schema name.	N	Y or N	Default value is N.
<SETUPINFO>/NAME	Enter the acronym for the type of implementation. This information is displayed in the OFSAA Home Page. On executing the schema creator utility, this value is prefixed with each schema name if PREFIX_SCHEMA_NAME is chosen to be Y.	Y	Accepts strings with a minimum length of two and a maximum of four. Example: DEV, SIT, PROD	This name appears in the OFSAA Landing Page as "Connected To: DEV". The schemas being created get this prefix if the PREFIX_SCHEMA_NAME is chosen to be Y. For example, dev_nameconf, uat_nameconf, and so on.

Tag Name / Attribute Name	Description	Mandatory (Y / N)	Default Value / Permissible Value	Comments
<PASSWORD>/ DEFAULT	Enter the password if you want to set a default password for all schemas. You also must set the APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	On successful execution of the utility, the entered password in the `OFS_CAP_ADQ_SCHEMA_IN.xml` file is nullified.
<PASSWORD>/ APPLYSAMEFORALL	If you have entered Y in APPLYSAMEFORALL attribute and also have specified individual passwords for all the schemas, then the specified individual passwords will take precedence.	Y	Default value: Y Permissible value: Y or N Enter Y if you want to apply the password specified in the DEFAULT attribute for all the schemas. If you enter as N, you must provide individual passwords for all schemas.	Setting this attribute value is mandatory if the DEFAULT attribute is set.

Figure 9: SCHEMAS Block

```
<SCHEMAS>
 <SCHEMA TYPE="CONFIG" NAME="ofsaaconf" PASSWORD="" APP_ID="OFS_AAI" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>
 <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_AAAI" APP_GRP="1" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>
 <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_BASEL_IRB" APP_GRP="1" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>
 <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_BASEL_BASIC" APP_GRP="1" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>

 <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD="" APP_ID="OFS_BASELA" APP_GRP="1" DEFAULTTABLESPACE="USERS" TEMPTABLESPACE="TEMP" QUOTA="" INFODOM=""/>
</SCHEMAS>
```

Table 9: OFS_CAP_ADQ_SCHEMA_IN.xml File (SCHEMAS Parameters)

Tag Name / Attribute Name	Description	Mandatory (Y / N)	Default Value / Permissible Value	Comments
<SCHEMA>/TYPE	The different types of schemas that are supported in this release are ATOMIC, CONFIG, SANDBOX, and ADDON. By default, the schemas types are seeded based on the Application Pack.	Y	ATOMIC, CONFIG, SANDBOX, or ADDON SANDBOX and ADDON schemas are not applicable to OFS_CAP_ADQ_PACK.	Only One CONFIG schema can exist in the file. Do not edit this attribute value. This schema identifies as the CONFIGURATION schema that holds the OFSAA setup detains and other Metadata information. Multiple ATOMIC, SANDBOX, or ADDON schemas can exist in the file.
<SCHEMA>/NAME	The schemas' names are seeded based on the Application Pack by default. You can edit the schema names if required. The Schema Name will have a prefix of the SETUPINFO/ NAME attribute. SCHEMA NAME must be the same for all the ATOMIC Schemas of the 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 (_). In the TNS entry that will be made for schemas, omit the underscore if any in the schema names.	The SETUPINFO/NAME attribute value is prefixed to the schema name being created. For example, if a name is set as **ofsaatm** and setupinfo as **uat**, then schema being created is **uat_ofsaatm**. NAME must be the same where APP_GRP=1 for all SCHEMA tags.

Tag Name / Attribute Name	Description	Mandatory (Y / N)	Default Value / Permissible Value	Comments
<SCHEMA>/PASSWORD	Enter the password of the schema to be created. 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.	It is mandatory to enter the password if you have set the <PASSWORD>/APPLYSAMEFORALL attribute as N.
<SCHEMA>/APP_ID	The Application ID is seeded based on the Application by default.	Y	Unique Seeded Value.	Identifies the Application or Product for which the schema is being created. Do not edit this attribute value. Do not modify this value.
<SCHEMA>/DEFAULTTABLESPACE	Enter the available default tablespace for DB User. If this attribute is left blank, then USERS is set as the default tablespace.	N	Default value: USERS Permissible value: Any existing valid tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/TEMPTABLESPACE	Enter the available temporary tablespace for DB User. If this attribute is left bank, TEMP is set as the default tablespace.	N	Default value: TEMP Permissible value: Any existing valid temporary tablespace name.	Modify this value to associate any valid tablespace with the schema.

Tag Name / Attribute Name	Description	Mandatory (Y / N)	Default Value / Permissible Value	Comments
<SCHEMA>/QUOTA	Enter the quota to be set on DEFAULTTABLESPACE attribute for the schema or user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace.	N	Example: 600M or 600m 20G or 20g UNLIMITED or unlimited	Modify this value to grant the specified quota on the mentioned tablespace to the user.
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute.	N	Permissible length is 16 characters and only alphanumeric characters are allowed. No special characters are allowed.	

4. Save and close the file.

5.2.3 Execute the Schema Creator Utility

Depending on your requirement to run the CAP installer, you must select the appropriate schema creator utility execution option.

Topics:

- Execute the Schema Creator Utility in Offline Mode
- Execute the Schema Creator Utility in Online Mode
- Executing the Schema Creator Utility in TCPS Mode
- Execute the Schema Creator Utility while Installing Subsequent Applications Pack

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

5.2.3.1 Execute the Schema Creator Utility in Offline Mode

Choose the Offline Mode option, if you do not have login credentials to the database with SYSDBA privileges. In this mode, the utility generates an SQL script with all the required DDLs for Users, Objects, and Grants. That script must be executed by the DBA on the appropriate database identified for OFSAA usage.

To execute the schema creator utility in the offline mode, you must have the following 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_CAP_ADQ_PACK/schema_creator/bin` directory.
3. Execute the `osc.sh` file using the following command:

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

4. Then 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).

   Enter **Y** or **y** to proceed.
5. Enter the DB Username with SELECT privileges.

6. Enter the User Password.

Figure 10: Schema Creation Offline Mode – Enter User Password

```
osc.sh
$ ./osc.sh -o
==========================================================
You have chosen OFFLINE mode
==========================================================
Triggering the utility in OFFLINE mode will generate the script. Do you wish to proceed? (Y/y or N/n):
y
==========================================================
Java Validation Started ...
Java found in : /scratch/ofsaa/jdk1.6.0_25/bin
JAVA Version found : 1.6.0_25
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
==========================================================
DB specific Validation Started ...
Enter the DB User Name with the following privileges:
1. CREATE SESSION
2. SELECT on DBA_ROLES
3. SELECT on DBA_USERS
4. SELECT on DBA_DIRECTORIES
5. SELECT on DBA_TABLESPACES
Enter the User Name:
sys as sysdba
Enter the User Password:
Oracle Client version : 11.2.0.3.0. Status : SUCCESS
Oracle Server version Current value : 11.2.0.3.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
==========================================================
```

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

9. Enter **Y** or **y** to proceed.

Figure 11: Script Generation

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

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

    Schema Creator executed successfully. Execute the file `scratch/ofsaaapp/OFS_CAP_ADQ_PACK/schema_creator/sysdba_output_scripts.sql` *before proceeding with the installation.*

Figure 12: Message to execute the sysdba_output_scripts.sql file

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

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

11. Navigate to the `OFS_CAP_ADQ_PACK/schema_creator` directory.
12. Log in to the database using credentials with SYSDBA privileges.

Figure 13: Schema Creator Offline Mode

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

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

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


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

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

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

    `SQL>@sysdba_output_scripts.sql`

    Alternatively, you can copy the `sysdba_output_scripts.sql` file and SQLScripts folder to a remote server, and execute the `sysdba_output_scripts.sql` file after providing appropriate execute permissions.

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

5.2.3.2 Executing the Schema Creator Utility in Online Mode

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

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

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

   `./osc.sh -s`

   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** or **y** to proceed.

Figure 14: Schema Creator Online Mode

```
$ cd /scratch/ofsaaapp/kit/OFS_CAP_ADQ_PACK/schema_creator/bin
$ ./osc.sh -s
YOU ARE IN BASEL DEVELOPMENT AREA. Executing profile for ofsaaapp....
==========================================================
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/N):
```

5. Enter the DB Username with SYSDBA Privileges when prompted for it. For example: SYS as SYSDBA.
6. Enter the User Password.

Figure 15: Schema Creation Online Mode – Enter User Password

```
$ ./osc.sh -s
YOU ARE IN BASEL DEVELOPMENT AREA. Executing profile for ofsaaapp....
==========================================================
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/N):
Y
==========================================================
Java Validation Started ...
Java found in :
JAVA Version found : 1.8.0_172
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
==========================================================
DATABASENAME =
DB specific Validation Started ...
Enter the DB User Name With SYSDBA Privileges:
sys as SYSDBA
Enter the User Password:
```

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

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

   Enter **Y** or **y** to proceed with the schema creation.
8. The following message is displayed:

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

   Enter **Y** or **y** to start the schema creation.

Figure 16: Schema Creation Online Mode – Enter User Password

```
==========================================================================
                        Schema Creation Started
==========================================================================
Checking OFSAA installation...
OFSAA installation not found.
Validating the dat file OFS_CAP_ADQ_CFG.dat started...
The path is:
Successfully validated OFS_CAP_ADQ_CFG.dat file
Validating the input XML file...
Input XML file validated successfully.
==========================================================================
Validating Connection URL ...jdbc:
Connection jdbc:
Successfully connected to User - sys as SYSDBA URL - jdbc:
Connection URL successfully validated...
localhost name -
INT_LB_HOST not there in schema
IS_HYBRID not there in schema
ADV_SEC_TAG not there in schema
Parsing file:
Checking: app: OFS_AAI schema_name: ___CONF1 schema_type: CONFIG
Checking: app: OFS_AAAI schema_name: ___ATM1 schema_type: ATOMIC
Checking: app: OFS_BASEL_IRB schema_name: ___ATM1 schema_type: ATOMIC
Checking: app: OFS_BASEL_BASIC schema_name: ___ATM1 schema_type: ATOMIC
Checking: app: OFS_BASELA schema_name: ___ATM1 schema_type: ATOMIC
You have chosen to install this Application Pack on            ATOMIC schema. Do you want to proceed? (Y/N)
Y
You have chosen to install this Application Pack on INFODOM              Do you want to proceed? (Y/N)
```

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

   Schema Creator executed successfully. Proceed with the installation.

Figure 17: Schema Creation Schema Creator Completed

```
==========================================================================
Roles creation scripts execution started ...
Executing ...
Roles creation scripts execution completed ...
the value of redaction flag in atomic schema isfalse
==========================================================================
Grants creation scripts execution started...
Grants creation scripts execution completed...
==========================================================================
                        Schemas Creation Completed
==========================================================================
Schema Creator executed Successfully.Please proceed with the installation.
$
```

After the schema creation is complete, the OFS_CAP_ADQ_SCHEMA_OUTPUT.xml file is generated. Do not modify this file.

5.2.4 Execute the Schema Creator Utility in TCPS Mode

If you intend to run the OFSAAAI Application Pack Installer in TCPS mode, it is mandatory to execute the schema creator utility with -s option and in online mode.

5.2.4.1 Prerequisites

The following are the prerequisites for this configuration:

1. UNIX user credentials with which OFSAA was installed.
2. UNIX user credentials with which Web Application Server (Oracle WebLogic (WLS)/Apache Tomcat/ IBM WebSphere) was installed.
3. OFSAAI version should be 8.1.0.0.0 and later.
4. Ensure OFSAA installed and deployed is having JAVA 8 (Java version must support Java unlimited cryptographic policy. Java version 1.8.0_161+ supports unlimited cryptographic policy.)
5. Create Oracle Wallet on the OFSAA processing tier.

   For information on Creating and Managing Oracle Wallet, see https://blogs.oracle.com/dev2dev/ssl-connection-to-oracle-db-using-jdbc,-tlsv12,-jks-or-oracle-wallets and https://blogs.oracle.com/weblogicserver/weblogic-jdbc-use-of-oracle-wallet-for-ssl.
6. Configure the Oracle Wallet with trusted certificates between the database server with TCPS configured and the database client to enable communication through the SSL protocol.For example, all the database utils such as sqlplus, tnsping, and sqlldr must work between the Client and the Server.
7. Configure OFSAA to Store Config Schema, Atomic Schema, and SysDBA Credentials with Oracle Wallet. For details, see the Configure OFSAA to Store Config Schema, Atomic Schema, and SysDBA Credentials with Oracle Wallet section.

5.2.4.1.1 Configure OFSAA to Store Config Schema, Atomic Schema, and SysDBA Credentials with Oracle Wallet

To configure the OFSAA to store the Config and Atomic schema credentials with Oracle Wallet, follow these steps:

1. Log in as a UNIX user with the permission to modify the Oracle Wallet.
2. Execute the following command to configure Config Schema credentials. Enter the password to store the credentials in the Wallet when prompted.

   ```
   $ORACLE_HOME/bin/mkstore -wrl <WALLET_HOME> -createCredential  -nologo
   CONFIG  <CONFIG_DATABASE_USERNAME>  <CONFIG_DATABASE_PASSWORD>
   ```
3. Execute the following command to configure the Atomic Schema credentials, Enter the password to store the credentials in the Wallet when prompted.
4. ```
   $ORACLE_HOME/bin/mkstore -wrl <WALLET_HOME> -createCredential  -nologo
   <ATOMICALIASNAME>  <ATOMIC_DATABASE_USERNAME>  <ATOMIC_DATABASE_PASSWORD>
   ```
5. Configure SysDBA credentials. Execute the following command to configure SysDBA Schema credentials. Enter the password to store the credentials in the Wallet when prompted.

   ```
   $ORACLE_HOME/bin/mkstore -wrl <WALLET_HOME> -createCredential  -nologo SYS
   <SYS_DATABASE_USERNAME>  <SYS_DATABASE_PASSWORD>
   ```

NOTE ATOMICALIASNAME value is a TNS alias for Atomic Schema and must not contain underscores.

For example, if the Atomic Schema Name is PROD_OFSAAATM, then the value for ATOMICALIASNAME must be entered as PRODOFSAAATM.
   ```

5.2.4.2 Execute the Utility

To execute the utility, follow these steps:

1. Edit the file `OFS_CAP_ADQ_PACK/schema_creator/conf/OFS_CAP_ADQ_SCHEMA_IN.xml` in the text editor. See the tables in Configure the OFS_CAP_ADQ_SCHEMA_IN.xml File for values to modify in the XML file.
2. Execute the utility with -s option.

   ```
   ./osc.sh -s    TCPS  <WALLET_HOME>
   ```

   For example: `$ ./osc.sh -s TCPS /scratch/oraofss/wallet`

   Figure 18: Schema Creation in the TCPS Mode

   ```
   /scratch/aai81ssl>cd /scratch/aai81ssl/OFS_AAAI_PACK/schema_creator/bin
   /scratch/aai81ssl/OFS_AAAI_PACK/schema_creator/bin>./osc.sh TCPS /scratch/aai81ssl/wallet
   Error: - Please provide proper arguments
   /scratch/aai81ssl/OFS_AAAI_PACK/schema_creator/bin>./osc.sh -s TCPS /scratch/aai81ssl/wallet
   -S
   TCPS
   /scratch/aai81ssl/wallet
   -Doracle.net.tns_admin=/scratch/aai81ssl -Doracle.net.wallet_location=(SOURCE=(METHOD=file)(METHOD_DATA=(DIRECTORY=/scratc
   h/aai81ssl/wallet))) -Doracle.net.ssl_server_dn_match=true -Djavax.net.ssl.trustStoreType=SSO -Djavax.net.ssl.trustStore=c
   wallet.sso -Doracle.net.ssl_version=1.2
   exporting wallet FALSE
   ##Entries created by schema creator ##
   ============================================================
   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/N):
   Y
   ```

3. The following message is displayed:

   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.
5. The following message is displayed:

   You have chosen to install this application pack on “<ATOMIC_SCHEMA_NAME>” ATOMIC schema. Do you wish to proceed? (Y/y or N/n).

   Figure 19: Schema Creation in the TCPS Mode – Install on Atomic Schema

   ```
   0430: 58 8D 05 B2 02 0F 2D 01   0C 00 00 00 00 00 00 04  X.....-.........
   0440: 01 01 02 23 E4 00 02 05   7B 00 00 01 0C 01 0E 03  ...#............
   0450: 00 00 00 00 00 00 00 00   00 00 00 00 10 00 01 01  ................
   0460: 00 00 00 00 02 05 7B 00   19 4F 52 41 2D 30 31 34  .........ORA-014
   0470: 30 33 3A 20 6E 6F 20 64   61 74 61 20 66 6F 75 6E  03: no data foun
   0480: 64 0A 61 1D D5 6D 51 10   60 C1 A6 85 B4 88 52 0F  d.a..mQ.`.....R.
   0490: A4 F8 CA 1B 2C F2 09 09   09 09 09 09 09 09 09 09  ....,...........
   You have chosen to install this Application Pack on "t81s_ofsaaatm" ATOMIC schema. Do you want to proceed? (Y/N)
   Y
   ```

6. Enter `Y` to proceed.
7. After Schema creation is successful, proceed to Configure the OFSAAI_InstallConfig.xml File.

   Figure 20: Schema Creation in the TCPS Mode

```
0030: 05 02 24 2C 00 00 00 00   01 10 00 2B 00 00 00 00  ..$,.......+....
0040: 00 00 00 00 00 00 00 00   58 00 01 01 00 00 00 00  ........X.......
0050: 00 00 EE 63 D9 C7 F0 3C   A2 23 E1 34 68 01 68 96  ...c...<.#.4h.h.
0060: 4F 69 FD 59 9F 23 09 09   09 09 09 09 09 09 09 09  Oi.Y.#..........
Grants creation scripts execution completed...
==========================================================================
                         Schemas Creation Completed
==========================================================================
Schema Creator executed Successfully.Please proceed with the installation.
/scratch/aai81ssl/OFS_AAAI_PACK/schema_creator/bin>
```

As a result of this procedure, the `OFS_CAP_ADQ_SCHEMA_OUTPUT` file is generated. Do not modify this file.

5.2.4.3 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 or Atomic Schema of the existing application pack or on a new Information Domain or Atomic Schema. You can execute the schema creator utility either in Online or Offline mode.

> **NOTE** You must use the same config schema user name as the previous Application Pack.

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

1. Execute the utility with -s option.

   For Example: `./osc.sh -s -o`

   Figure 21: Execute the Schema Creator Utility to Install Subsequent Applications Pack

```
/scratch/test81/OFS_AAAI_PACK/schema_creator/bin>./osc.sh -s -o
hello1
============================================================
You have chosen OFFLINE mode
============================================================
Triggering the utility in OFFLINE mode will generate the script. Do you wish to proceed? (Y/N):
Y
============================================================
Java Validation Started ...
Java found in : /scratch/oraofss/jdk1.8.0_202/bin
JAVA Version found : 1.8.0_202
JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
============================================================
DB specific Validation Started ...
Enter the DB User Name with the following privileges:
1. CREATE SESSION
2. SELECT on DBA_ROLES
3. SELECT on DBA_USERS
4. SELECT on DBA_DIRECTORIES
5. SELECT on DBA_TABLESPACES
Enter the User Name:
sys as sysdba
Enter the User Password:
Oracle Client version : 18.0.0.0.0. Status : SUCCESS
Oracle Server version Current value : 18.0.0.0.0. Status : SUCCESS
DB specific Validation Completed. Status : SUCCESS
============================================================
FALSE -O
================================================================================
                          Generating Schema Creation Scripts Started
================================================================================
Checking OFSAA installation...
OFSAA installation not found.
Validating the dat file OFS_AAAI_CFG.dat started...
The path is:/scratch/test81/OFS_AAAI_PACK/schema_creator/conf
Sucessfully validated OFS_AAAI_CFG.dat file
Validating the input XML file.../scratch/test81/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
================================================================================
Validating Connection URL ...jdbc:[redacted]:1521/[redacted]
Connection trial jdbc:oracle:thin:@[redacted]:1521/[redacted] (user=sys as sysdba, password=[redacted])
Successfully connected to User - sys as sysdba URL - jdbc:oracle:thin:@[redacted]:1521/[redacted]
Connection URL successfully validated...
```

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

Figure 22: Install Subsequent Applications Pack– Select Atomic Schema and Infodom

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

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

Figure 23: Install Subsequent Applications Pack – Select Atomic Schema and Infodom

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


dev_atm1-          INFOTR-          "OFS_TR_PACK"


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


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


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

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

Success. Please proceed with the installation.

> **NOTE** If there are any errors, contact My Oracle Support.

5.2.5 Verify the Schema Creator Log Files

See the following directory for execution logs and to verify if there are any errors:

- `OFS_CAP_ADQ_PACK/schema_creator/logs/`
- The log file `sysdba_output_scripts.log` in the `OFS_CAP_ADQ_PACK/schema_creator/logs/` directory for execution status if executed in offline mode. This log will be empty if there are no errors in the execution.

5.3 Configure the OFSAAI_InstallConfig.xml File

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

1. Navigate to the `OFS_CAP_ADQ_PACK/OFS_AAI/conf` folder.
2. Open the `OFSAAI_InstallConfig.xml` file in a text editor.
3. Configure the `OFSAAI_InstallConfig.xml` file as mentioned in the following table.

You must manually set the `InteractionVariable` parameter values as mentioned in the table. If a value is not applicable, enter NA.

> **NOTE** Ensure that the value is not entered as NULL.

Table 10: OFSAA Infrastructure Installation Tasks and Descriptions

InteractionVariable Name	Significance and Expected Value	Mandatory
<Layer name="GENERAL">		
InteractionGroup name="WebServerType"		
WEBAPPSERVERTYPE	Identifies the web application server on which the OFSAA Infrastructure web components are deployed. Set the following numeric value depending on the type of web application server: • Apache Tomcat = 1 • IBM WebSphere Application Server = 2 • Oracle WebLogic Server = 3 For example, `<InteractionVariable name="WEBAPPSERVERTYPE">3</InteractionVari able>`	Yes

InteractionVariable Name	Significance and Expected Value	Mandatory
InteractionGroup name="OFSAA Infrastructure Server Details"		
DBSERVER_IP	Identifies the hostname or IP address of the system on which the Database Engine is hosted. **NOTE:** For RAC Database, the value must be NA. For example, `<InteractionVariable name="DBSERVER_IP">14.15.16.17</InteractionVariable>` or `<InteractionVariable name="DBSERVER_IP">dbhost.server.com</InteractionVariable>`	Yes
InteractionGroup name="Database Details"		
ORACLE_SID/SERVICE_NAME	Identifies the Oracle DB Instance SID or SERVICE_NAME **NOTE:** The `Oracle_SID` value must be the same as mentioned in `JDBC_URL`. For example, `<InteractionVariable name="ORACLE_SID/SERVICE_NAME">ofsaser</InteractionVariable>`	Yes
ABS_DRIVER_PATH	Identifies the directory where the JDBC driver (`ojdbc<version>.jar`) exists. This would typically be the `$ORACLE_HOME/jdbc/lib` directory. For example, `<InteractionVariable name="ABS_DRIVER_PATH">">/oradata6/revwb7/ oracle </InteractionVariable>` **NOTE:** See the JDBC Jar files to identify the correct `ojdbc<version>.jar` version to be copied.	Yes
InteractionGroup name="OLAP Detail		
OLAP_SERVER_ IMPLEMENTATION	Identifies whether the OFSAA Infrastructure OLAP component needs to be configured. It depends on whether you intend to use the OLAP feature. The following numeric value must be set depending on the choice: • YES: 1 • NO: 0 **NOTE:** If the value for `OLAP_SERVER_IMPLEMENTATION` is set to 1, the installer checks if the following environment variables are set in the .profile file: • ARBORPATH • HYPERION_HOME • ESSBASEPATH	No

InteractionVariable Name	Significance and Expected Value	Mandatory
InteractionGroup name="SFTP Details"		
SFTP_ENABLE	Identifies if the SFTP (Secure File Transfer Protocol) feature is to be enabled. The following numeric value must be set depending on the choice: • SFTP: 1 • FTP: 0	Yes
NOTE: The default value for `SFTP_ENABLE` is **1**, which signifies that SFTP is used. Oracle recommends using SFTP instead of FTP because SFTP is more secure. However, you can ignore this recommendation and use FPT by setting `SFTP_ENABLE` to **0**. You can change this selection later from the OFSAAI administration interface. Set `SFTP_ENABLE` to **-1** to configure FTPshare and web local path as local path mounted for OFSAAI server.		
FILE_TRANSFER_PORT	Identifies the port used for the file transfer service. The default value specified is **22** (SFTP). Specify the value as **21** or any other PORT value if the value for `SFTP_ENABLE` is **0**. For example, `<InteractionVariable name="FILE_TRANSFER_PORT">21</InteractionVariable>`	Yes
InteractionGroup name="Locale Detail"		
LOCALE	Identifies the locale information to be used during the installation. This release of the OFSAA Infrastructure supports only US English. For example, `<InteractionVariable name="LOCALE">en_US</InteractionVariable>`	Yes
InteractionGroup name="OFSAA Infrastructure Communicating ports" **NOTE:** The following ports are used internally by the various OFSAA Infrastructure services. The default values mentioned are set in the installation. If you intend to specify a different value, update the parameter value accordingly, ensure that the port value is in the range 1025 to 65535, and the respective port is enabled.		
JAVAPORT	9999	Yes
NATIVEPORT	6666	Yes
AGENTPORT	6510	Yes
ICCPORT	6507	Yes
ICCNATIVEPORT	6509	Yes
OLAPPORT	10101	Yes

InteractionVariable Name	Significance and Expected Value	Mandatory
MSGPORT	6501	Yes
ROUTERPORT	6500	Yes
AMPORT	6505	Yes
InteractionGroup name="Web Details" **NOTE:** If the value for `HTTPS_ENABLE` is set to **1**, ensure that you have a valid certificate available from a trusted CA and it is configured on your web application server. For more details on configuring your setup for HTTPS.		
HTTPS_ENABLE	Identifies whether the UI must be accessed using HTTP or HTTPS scheme. The default value is set to **0**. The numeric value must be set depending on the following options: • YES: 1 • NO: 0 For example, `<InteractionVariable name="HTTPS_ENABLE">0</InteractionVariable>`	Yes
WEB_SERVER_IP	Identifies the HTTP Server IP/ Hostname or Web Application Server IP or Hostname, to be used to access the UI. This IP is typically the HTTP Server IP. If a separate HTTP Server is not available, then the value must be Web Application Server IP or Hostname. For example, `<InteractionVariable name="WEB_SERVER_IP">10.11.12.13</InteractionVariable>` or `<InteractionVariable name="WEB_SERVER_IP">myweb.server.com</InteractionVariable>`	No
WEB_SERVER_PORT	Identifies the Web Server Port, which is typically 80 for non-SSL and 443 for SSL. If a separate HTTP Server exists, the port value must be the value configured for the Web Server. **Warning:** The installer will not accept the port value as: • 80, if the `HTTPS_ENABLE` variable is 1 • 443, if the `HTTPS_ENABLE` variable is 0 For example, `<InteractionVariable name="WEB_SERVER_PORT">80</InteractionVariable>`	No

InteractionVariable Name	Significance and Expected Value	Mandatory

CONTEXT_NAME	Identifies the web application context name which is used to build the URL to access the OFSAA application. You can identify the context name from the following URL format:
	`<scheme>://<host>:<port>/<context-name>/login.jsp`
	The following is an example:
	`https://myweb:443/ofsaadev/login.jsp`
	For example, `<InteractionVariable name="CONTEXT_NAME">ofsaadev</InteractionVariable>`
		Yes

WEBAPP_CONTEXT_PATH	Identifies the absolute path of the exploded EAR file on the web application server. • For Tomcat, specify the Tomcat directory path till `/webapps`. For example, `/oradata6/ revwb7/tomcat/webapps/`. • For WebSphere, specify the WebSphere path as `<WebSphere profile directory>/installedApps/<NodeCellName>`. For example, `/data2/test//WebSphere/AppServer/profiles/<Profile_Name>/installedApps/aiximfNode01Cell`, where aix-imf is the Host name. • For WebLogic, specify the WebLogic home directory path. For example, `/<WebLogic home directory path>/bea/wlserver_10.3` **NOTE:** For WebLogic, the value specified for this attribute is ignored and the value provided against the attribute WEBLOGIC_DOMAIN_HOME is considered.	Yes
WEB_LOCAL_PATH	Identifies the absolute path to any directory on the web application server that can hold temporary files, which are uploaded as part of the applications usage. Set this in the FTPSHARE location. **NOTE:** During a clustered deployment, ensure that this path and the directory are the same on all the nodes.	Yes
InteractionGroup name="Weblogic Setup Details"		
WEBLOGIC_DOMAIN_HOME	Identifies the WebLogic Domain Home. For example, `<InteractionVariable name="WEBLOGIC_DOMAIN_HOME">/home/weblogic/bea/user_ projects/ domains/mydomain</InteractionVariable>`	Yes. Specify the value only if WEBAPPSERVERTYPE is set as 3 (WebLogic)

InteractionVariable Name	Significance and Expected Value	Mandatory
InteractionGroup name="OFSAAI FTP Details"		
OFSAAI_FTPSHARE_PATH	Identifies the absolute path of the directory that is identified as the file system stage area. **NOTE:** The directory must exist on the same system on which the OFSAA Infrastructure is being installed (can be on a separate mount). The user mentioned in the APP_SFTP_USER_ID parameter in the following example must have RWX permission on the directory. For example, `<InteractionVariable name="APP_FTPSHARE_PATH">">/oradata6/revwb7/FTPshare</InteractionVariable>`	Yes
OFSAAI_SFTP_USER_ID	Identifies the user who has RWX permissions on the directory identified for the parameter APP_FTPSHARE_PATH.	Yes
OFSAAI_SFTP_PRIVATE_KEY	Identifies the SFTP private key for OFSAAI. For example, `<InteractionVariable name="OFSAAI_SFTP_PRIVATE_KEY">/home/ofsaapp/.ssh/id_rsa</InteractionVariable>` By default, the value is **NA**, which indicates that, for authentication, you are prompted to enter the password for the user <OFSAAI_SFTP_USER_ ID>. For more information on how to generate an SFTP Private key, see the Setting Up SFTP Private Key section.	No
OFSAAI_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for OFSAAI. For example, `InteractionVariable name="OFSAAI_SFTP_PASSPHRASE">enter a passphrase here</InteractionVariable>` By default, the value is **NA**. If the `OFSAAI_SFTP_PRIVATE_KEY` value is given and the `OFSAAI_SFTP_PASSPHRASE` value is **NA**, then the passphrase is identified as empty.	No

InteractionVariable Name	Significance and Expected Value	Mandatory
The default value set for the interaction variables under this group is set as NA. These are required only for Hive Configuration.		
HIVE_SERVER_PORT	Identifies the port used for the file transfer service. The default value set is 22 (SFTP). Set this value as 21 for FTP. For example, `InteractionVariable name="HIVE_SERVER_PORT">22</InteractionVariable>`	Yes, only for HIVE Configuration
HIVE_SERVER_ FTPDRIVE	Identifies the absolute path to the directory identified as file system stage area of HIVE server. For example, `InteractionVariable name="HIVE_SERVER_ FTPDRIVE">/scratch/ofsaa/ftpshare</InteractionVari able>`	Yes, only for HIVE Configuration
HIVE_SERVER_FTP_ USERID	Identifies the user who has RWX permissions on the directory identified under the preceding parameter HIVE_SERVER_FTPDRIVE. For example, `InteractionVariable name="HIVE_SERVER_FTP_USERID">ofsaa</InteractionVariable>`	Yes, only for HIVE Configuration
HIVE_SERVER_FTP_ PROTOCOL	If the HIVE_SERVER_PORT is 21, then set value as FTP, else set it as SFTP. For example, `InteractionVariable name="HIVE_SERVER_FTP_PROTOCOL">SFTP</InteractionVariable>`	Yes, only for HIVE Configuration
HIVE_SFTP_PRIVATE_ KEY	Identifies the SFTP private key for the HIVE server. For example, `<InteractionVariable.name="HIVE_SFTP_PRIVATE_KEY">/scratch/tes tuser/.ssh/id_rsa</InteractionVariable>` By default, the value is NA, which indicates password will be prompted for the user <HIVE_SERVER_ FTP_USERID> for authentication. For more information on generating SFTP Private key, see the Setting Up SFTP Private Key section.	Yes, only for HIVE Configuration

InteractionVariable Name	Significance and Expected Value	Mandatory
HIVE_SFTP_ PASSPHRASE	Identifies the passphrase for the SFTP private key for HIVE. For example, `<InteractionVariable name="HIVE_SFTP_PASSPHRASE">NA</InteractionVariable>` By default, the value is NA. If HIVE_SFTP_ PRIVATE_KEY value is given and this is kept as NA, then it is assumed as the empty passphrase.	Yes, only for HIVE Configuration

5.3.1 Set Up the SFTP Private Key

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

5.4 Configure the OFS_CAP_ADQ_PACK.xml File

The `OFS_CAP_ADQ_PACK.xml` file holds details on the various products that are packaged together in OFS Capital Adequacy Pack.

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

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

Figure 24: Sample OFS_CAP_ADQ_PACK.xml File

```xml
<APP_PACK_CONFIG>
    <APP_PACK_ID>OFS_CAP_ADQ_PACK</APP_PACK_ID>
    <APP_PACK_NAME>Financial Services Capital Adequacy Applications Pack</APP_PACK_NAME>
    <APP_PACK_DESCRIPTION>Applications for Capital Adequacy</APP_PACK_DESCRIPTION>
    <VERSION>8.1.0.0.0</VERSION>
    <APP>
        <APP_ID ENABLE="YES" PREREQ="" DEF_SEL_FLG="YES">OFS_AAI</APP_ID>
        <APP_NAME>Financial Services Analytical Applications Infrastructure</APP_NAME>
        <APP_DESCRIPTION>Base Infrastructure for Analytical Applications</APP_DESCRIPTION>
        <VERSION>8.1.0.0.0</VERSION>
    </APP>
    <APP>
        <APP_ID ENABLE="YES" PREREQ="" >OFS_AAAI</APP_ID>
        <APP_NAME>Financial Services Enterprise Modeling</APP_NAME>
        <APP_DESCRIPTION>Base Infrastructure for Advanced Analytical Applications</APP_DESCRIPTION>
        <VERSION>8.1.0.0.0</VERSION>
    </APP>
    <APP>
        <APP_ID ENABLE="YES" PREREQ="OFS_AAI">OFS_BASEL_IRB</APP_ID>
        <APP_NAME>Financial Services Basel Regulatory Capital Internal Ratings Based Approach</APP_NAME>
        <APP_DESCRIPTION>Application for Basel Regulatory Capital Internal Ratings Based Approach</APP_DESCRIPTION>
        <VERSION>8.1.0.0.0</VERSION>
    </APP>
    <APP>
        <APP_ID ENABLE="YES" PREREQ="OFS_AAI">OFS_BASEL_BASIC</APP_ID>
        <APP_NAME>Financial Services Basel Regulatory Capital Basic</APP_NAME>
        <APP_DESCRIPTION>Application for Basel Regulatory Capital Basic</APP_DESCRIPTION>
        <VERSION>8.1.0.0.0</VERSION>
    </APP>
    <APP>
        <APP_ID ENABLE="YES" PREREQ="OFS_AAI">OFS_BASELA</APP_ID>
        <APP_NAME>Financial Services Basel Regulatory Capital Analytics</APP_NAME>
        <APP_DESCRIPTION>Application for Basel Regulatory Capital Analytics</APP_DESCRIPTION>
        <VERSION>8.1.0.0.0</VERSION>
    </APP>
</APP_PACK_CONFIG>
```

Table 11: OFS_CAP_ADQ_PACK.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.
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 or Product	Y	Unique Seeded Value	For most applications Infrastructure would be the prerequisite set. For certain other applications, an appropriate Application ID would be set. DO NOT modify this value.
APP_ID/ DEF_SEL_FLAG	Default Selected Flag	Y	Default value - YES	In all Application Packs, Infrastructure would have this value set to "YES". DO NOT modify this value.
APP_ID/ ENABLE	Enable Application or Product	YES, if installing in SILENT mode.	Default value - Blank YES. for Infrastructure NO, for Others Permissible value - YES or NO	Set this attribute-value to YES against every APP_ID which is licensed and must be enabled for use. **NOTE**: Application or Product once enabled cannot be disabled. However, Application or Product not enabled during installation can be enabled later through the Administration UI.
APP_NAME	Unique Application or Product Name	Y	Unique Seeded Value	DO NOT modify this value.
APP_DESCRIPTION	Unique Application or Product Name	Y	Unique Seeded Value	DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory (Y/ N)	Default Value/ Permissible Value	Comments
VERSION	Unique release version	Y	Unique Seeded Value	DO NOT modify this value.

4. Save and close the file.

5.5 Configure the Silent.props File

To Configure the `Silent.props` file, follow these steps:

1. Navigate to the `OFS_CAP_ADQ_PACK/appsLibConfig/conf` directory.
2. Create a copy of the `Silent.template` file and rename it as `Silent.props`.
3. Edit the `Silent.props` file and configure the parameters as mentioned in the following table.

Table 12: Parameters for the Silent.props File

Property Name	Description of Property	Permissible Values
PACK LEVEL INPUTS		
APPFTP_LOG_ PATH and DBFTP_LOG_PATH	Specify the Infodom Maintenance log path (to be created) for the new Infodom. Ignore if you are doing the installation on an existing information domain.	User Input
UPLOAD_MODEL	Specify whether you want to perform Model Upload.	0 = If you have already performed Model Upload and want to skip the Model upload process. 1 = If you want to perform Model Upload.
MODEL_TYPE	Specify whether you want to use the released data model or customized data model for the Model Upload process.	0 = If you want to upload the released data model. 1 = If you want to upload the customized data model.
DATAMODEL and DM_DIRECTORY	Specify the path (DM_ DIRECTORY) and file (DATAMODEL) name for the customized data model. Mandatory only if you want to upload the customized data model, that is you have specified MODEL_TYPE=1.	User Input

Property Name	Description of Property	Permissible Values
APPLICATION LEVEL INPUTS		
<APP>_SEGMENT_1_CODE	Specify the Jurisdiction Segment Code for BIS.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_2_CODE	Specify the Jurisdiction Segment Code for BOT jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_3_CODE	Specify the Jurisdiction Segment Code for BRAZIL jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_4_CODE	Specify the Jurisdiction Segment Code for CBRC jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_5_CODE	Specify the Jurisdiction Segment Code for COMMON segment.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_6_CODE	Specify the Jurisdiction Segment Code for EU jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_7_CODE	Specify the Jurisdiction Segment Code for IFSB jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_8_CODE	Specify the Jurisdiction Segment Code for INDIA jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.
<APP>_SEGMENT_9_CODE	Specify the Jurisdiction Segment Code for USA jurisdiction.	User Input (not exceeding 10 characters). Same value must be provided for this parameter across all the apps.

Property Name	Description of Property	Permissible Values
<APP>_ETL_APPSRC_TYPE	Specify if you want to create a new ETL app or src pair or use an existing one.	0 = If you want to create a new ETL app or src pair. 1 = If you want to use an existing pair Same value must be provided for this parameter across all the apps.
<APP>_ETL_APP_1_DESC	ETL FSAPPS Application description. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_1_DESC	ETL Staging source description. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_2_DESC	ETL Processing source description. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_3_DESC	ETL OREC source description. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_4_DESC	ETL Reporting source description. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_APP_1_NAME	Specify the ETL Application into which ETL Area Definitions will be deployed. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_1_NAME	Specify the ETL Source Name into which ETL Staging Area Definitions will be deployed. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_2_NAME	Specify the ETL Source Name into which ETL Processing Area Definitions will be deployed. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.

Property Name	Description of Property	Permissible Values
<APP>_ETL_SRC_3_NAME	Specify the ETL Source Name into which ETL OREC Definitions will be deployed. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.
<APP>_ETL_SRC_4_NAME	Specify the ETL Source Name into which ETL Reporting Area Definitions will be deployed. Mandatory if you want to create a new ETL app or src pair. That is, you have specified ETL_APPSRC_TYPE=0.	User Input. Same value must be provided for this parameter across all the apps.

5.6 Install the OFS CAP ADQ Application

ATTENTION Before you begin the installation, ensure you have completed the following steps:

1. Configure the OS File System Settings and Environment Settings in .profile File.
2. Configure the OFS_CAP_ADQ_PACK.xml File.
3. Configure the OFS_CAP_ADQ_SCHEMA_IN.xml File.
4. Configure the OFSAAI_InstallConfig.xml File (Do not configure this file if an installation of OFSAAI already exists.)
5. Configure the Silent.props File
6. Execute the Schema Creator Utility.
7. Add TNS entries in the tnsnames.ora file.
8. Execute the user .profile file.

To install the OFS CAP ADQ Application, follow these steps:

1. Navigate to the `OFS_CAP_ADQ_PACK/bin` directory.
2. Enter the following command in the console to execute the application pack installer with the Silent option.

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

3. The installer proceeds with the Pre-installation Checks.

   Figure 25: Silent Mode Installation

```
$ ./setup.sh SILENT
YOU ARE IN BASEL DEVELOPMENT AREA. Executing profile for ofsaaapp....
Current OS Type ----  Linux
 FIC_HOME :
Environment check utility started...
============================================================
Java Validation Started ...
 Java found in :
JCE IS true
 JAVA Version found : 1.8.0_172
 JAVA Bit Version found : 64-bit
Java Validation Completed. Status : SUCCESS
============================================================
Environment Variables Validation Started ...
 ORACLE_HOME :
 TNS_ADMIN :
Environment Variables Validation Completed. Status : SUCCESS
============================================================
OS specific Validation Started ...
 Checking en_US.utf8 locale. Status : SUCCESS
 Unix shell found : /bin/ksh. Status : SUCCESS
 Total file descriptors : 65536. Status : SUCCESS
 Total number of process : 4096. Status : SUCCESS
 OS version : 7. Status : SUCCESS
OS specific Validation Completed. Status : SUCCESS
============================================================
DB specific Validation Started ...
 Oracle Client version : 18.0.0.0.0. Status : SUCCESS
client version 18.0
 Successfully connected to schema          Status : SUCCESS
 Successfully connected to schema          Status : SUCCESS
 Successfully connected to schema          Status : SUCCESS
 CREATE SESSION has been granted to user. Status : SUCCESS
 CREATE PROCEDURE has been granted to user. Status : SUCCESS
 CREATE VIEW has been granted to user. Status : SUCCESS
 CREATE TRIGGER has been granted to user. Status : SUCCESS
 CREATE MATERIALIZED VIEW has been granted to user. Status : SUCCESS
 CREATE TABLE has been granted to user. Status : SUCCESS
 CREATE SEQUENCE has been granted to user. Status : SUCCESS
 SELECT privilege is granted for NLS_INSTANCE_PARAMETERS view. Current value : READ. Status : SUCCESS
 NLS_LENGTH_SEMANTICS : BYTE. Current value : BYTE. Status : SUCCESS
 NLS_CHARACTERSET : AL32UTF8. Current value : AL32UTF8. Status : SUCCESS
 SELECT privilege is granted for V_$parameter view. Current value : SELECT. Status : SUCCESS
 Open cursor value is greater than 1000. Current value : 6000. Status : SUCCESS
```

4. Enter the OFSAA Processing Tier FTP/SFTP password value when prompted in the command prompt and proceed.

Console Prompts	User Inputs
Enter OFSAA Processing Tier FTP/SFTP password	Enter the password to access the Product Staging or Metadata repository directory in the application server. **NOTE**: In case the prompt reads as below, enter the username or password for accessing the product Staging or Metadata Repository FTPSHARE: • Kerberos username [user] • Kerberos password for user:

Figure 26: OFSAA Processing Tier FTP/SFTP password

```
==============================================================
YOU ARE IN BASEL DEVELOPMENT AREA. Executing profile for ofsaaapp....
Environment check utility Status : SUCCESS
==============================================================
*******************************************************************************
*  Welcome to Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) Installation  *
*******************************************************************************
 Checking Infrastructure installation status ...
 Infrastructure installation does not exist. Proceeding with Infrastructure installation ...
 Triggering Infrastructure installation ...

 Please enter Infrastructure FTP/SFTP password :
```

5. The process displays the OFSAA License Agreement. Enter **Y** to accept the terms and conditions and proceed.

Figure 27: OFSAA License

```
*******************************************************************************
 OFSAA APPLICATION PACK LICENSE AGREEMENT
*******************************************************************************
* Oracle Financial Services Analytical Applications (OFSAA) application packs are groups of OFSAA products packaged together into a single installer. Each application p
ack contains  OFSAA applications that address specific functional domains.*
* Every application pack also includes the following OFSAA infrastructure application options which are automatically installed by every application pack installer:
 1. Oracle Financial Services Analytical Applications Infrastructure
 2. Oracle Financial Services Enterprise Modeling
 3. Oracle Financial Services Big Data Processing
* Oracle Financial Services Analytical Applications Infrastructure (OFS AAI)  is the base  infrastructure for all OFSAA applications and is therefore automatically inst
alled and enabled by the application pack installer.*
* The application pack installer always installs Oracle Financial Services Enterprise Modeling,  Oracle Financial Services In-line Processing Engine and  Oracle Financi
al Services Big Data Processing application options along with the application pack applications, but  enables them only if any  application that requires their functio
nality is enabled.*
* Any OFSAA application that is enabled must be licensed for use. Oracle Financial Services Analytical Applications Infrastructure, Oracle Financial Services Enterprise
 Modeling,  Oracle Financial Services In-line Processing Engine and  Oracle Financial Services Big Data Processing are individually licensable application options.*
* Application products once enabled  cannot be disabled. Application products not enabled on installation, may later be enabled using the  "Manage OFSAA Product License
(s)" feature of the platform.*
*******************************************************************************
Are you accepting the terms and conditions mentioned above? [Y/N]:
```

6. The installer installs the OFS AAI.

Figure 28: AAI Silent Mode Installation

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

Launching installer...

Preparing SILENT Mode Installation...

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




===============================================================================
Installing...
-------------

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

7. After OFS AAAI is installed, it proceeds to the CAP PACK installation. After successfully installing the CAP pack, an EAR or WAR file is generated, and all the servers are verified.

Figure 29: CAP Silent Mode Installation

```
*****************************************************************************
 Welcome to OFS_CAP_ADQ PACK Installation
*****************************************************************************
Starting OFSAA Service...
OFSAA Service - OK
Preparing to install...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...
```

8. The OFSAA Infrastructure installation performs a post-install health check automatically on the successful installation of the product and the following message is displayed on the console:

   Installation completed.

   Figure 30: CAP Silent Mode Installation

```
Shutdown of OFSAAI services started...
nohup: appending output to 'nohup.out'
Shutdown of OFSAAI services done.
OFSAA App Layer Services start-up check started...
Starting startofsaai.sh service...
OFSAA Service - OK
Starting icc service...
ICC service - OK
Shutting down icc service...
Shutting down OFSAA service...
OFSAAI App Layer Services check Status: SUCCESSFUL.
OFSAAI DB Layer Services check started...
YOU ARE IN BASEL DEVELOPMENT AREA. Executing profile for ofsaaapp....
Calling agentshutdown.sh to check and kill, if any of the server is running...
MESSAGE Server service is not running.
AM service is not running.
ROUTER service is not running.
Starting ROUTER Service
ROUTER service started in background mode.
Starting AM Service
AM service started in background mode.
Starting MESSAGE SERVER Service
MESSAGE SERVER service started in background mode.
Stop MESSAGE Server service with Proces ID : 17434
Stop AM service with Proces ID : 17417
Stop ROUTER service with Proces ID : 17405
OFSAAI DB Layer File Services check Status: SUCCESSFUL.
Installation completed...
$
```

9. To verify if the installation is completed successfully, check the log files mentioned in the Verify the Log File Information section.

10. Perform the steps mentioned in the Post-installation section.

5.7 Install a New Application on an Existing OFSAA Instance from the Same Pack

You have installed some applications from the Release 8.1.0.0.0 pack and in the future, you decide to include other applications from the same pack.

Example: You have installed Basel BASIC using the CAP Pack Installer 8.1.x. Later, you decide to license Basel IRB and Basel Analytics applications and want to install them using the same CAP Pack installer 8.1.x.

5.7.1 If the Schema Creator Output File Exists

If the Schema Creator Output File (`OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`) exists in the location OFS_CAP_ADQ_PACK/schema_creator from the previous installation, follow these steps:

1. Configure the `OFS_CAP_ADQ_PACK.xml` file. Enable only the new applications to be installed and disable the existing applications. See the Configure the OFS_CAP_ADQ_PACK.xml File section for steps to configure the file.
2. Configure the `Silent.props` file only for the newly licensed applications. See the Configure the Silent.props section for steps to configure the file.

> **NOTE** It is not required to configure the `OFSAAI_InstallConfig.xml` file.

3. Follow the steps mentioned in the Install the OFS CAP ADQ Application section to trigger the installation.
4. Follow the steps mentioned in the Post-installation Steps section.

5.7.2 If the Schema Creator Output File Does Not Exist

If the Schema Creator Output File (`OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`) does not exist in the `OFS_CAP_ADQ_PACK/schema_creator` directory from the previous installation, follow these steps:

1. Configure the `OFS_CAP_ADQ_SCHEMA_IN.xml` file and execute the schema creator utility.

> **NOTE** While defining the schema details for the applications, provide exactly the same schema details given in the previous installation. The output file (`OFS_CAP_ADQ_SCHEMA_IN.xml`) is generated as a result of the schema creation process.

2. See the Configure the Schema Creator Utility section for more details. The output file (`OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`) is generated as a result of the schema creation process.
3. Follow the steps given in the If the Schema Creator Output File Exists section.

5.8 Install a New Application Pack on an Existing OFSAA Instance

You have already installed an application pack from release 8.1.x.0.0 and now you want to install another application pack from Release 8.1.0.0.0. For example, OFS ALM Pack is already installed and now you want to install OFS CAP ADQ Pack.

5.8.1 Execute the Schema Creator Utility Only for the New Pack

1. Configure the `OFS_CAP_ADQ_SCHEMA_IN.xml` file within the CAP installer and execute the schema creator utility. 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 or Atomic Schema of the existing application pack or on a new Information Domain or Atomic Schema.

   NOTE You must use the same config schema user name as the previous Application Pack.

   See the Configure the Schema Creator Utility section for more details.

2. Configure the `OFS_CAP_ADQ_PACK.xml` file for the newly licensed pack. Enable the applications to be installed. See the Configure the OFS_CAP_ADQ_PACK.xml section for steps to configure the file.
3. Configure the `Silent.props` file of the newly licensed pack present in the Application Pack installer. See the Configure the Silent.props section for steps to configure the file.

   NOTE It is not required to configure the `OFSAAI_InstallConfig.xml` file.

4. Follow the steps mentioned in the Install the OFS CAP ADQ Application section to trigger the installation
5. Follow the steps mentioned in the Post-installation Steps section.

6 Post-installation

On successful installation of the Oracle Financial Services CAP application pack, follow the post-installation procedures mentioned in Post-installation Checklist.

> **NOTE** You must clear the application cache before deploying the Application Pack web archive file. This applies to all web servers (WebSphere, WebLogic, Tomcat). For more information, see the Clear Application Cache section.

6.1 Post-installation Checklist

You can use this checklist to have a quick glance at everything that you will be doing post installing this application. The link provided in each step takes you to a section either within this document or to another referenced document.

> **NOTE** See the *Post-installation* section in the OFS AAI Release 8.1.0.0.0 Installation and Configuration Guide to complete the following checklist procedures.

Table 13: Post-installation Checklist

Sl. No.	Post-installation Activity
1	Patch OFSAA Infrastructure Installation
2	Verify the installation logs.
3	Patch OFSAA Infrastructure Installation.
4	Back up the `OFS_CAP_ADQ_SCHEMA_IN.xml` and `OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`, and `Silent.props` files.
5	Stop the OFSAA Infrastructure services.
6	Create and deploy EAR or WAR files.
7	EAR or WAR File - Build Once and Deploy Across Multiple OFSAA Instances.
8	Start the OFSAA Infrastructure services.
9	Access the OFSAA Application.
10	OFSAA Landing Page.
11	Configure the `excludeURLList.cfg` file.
12	Create Application Users.
13	Map the Application User (or Users) to User Groups.
14	Change the ICC Batch Ownership.

Sl. No.	Post-installation Activity
15	Update OBIEE URL.
16	Configure the webserver.
17	Configure the Resource Reference in web application servers.
18	Post-deployment Configuration.

6.2 Patch OFSAA Infrastructure Installation

Oracle strongly recommends installing the latest available patch set to be up-to-date with the various releases of the OFSAA product.

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.

Ensure that you reapply the 33663417 Mandatory Patch whenever you install or upgrade the application, or apply an incremental patch.

For patch download information, see the **Download the OFSAAAI Applications Pack Installer and Patches** section in Pre-installation for a new installation and in Upgrade for an upgrade installation.

See My Oracle Support for more information on the latest release.

6.3 Verify the Log File Information

See the following logs files for more information:

- The `Pack_Install.log` file in the `OFS_CAP_ADQ_PACK/logs` directory.
- The Infrastructure installation log files in the `OFS_CAP_ADQ_PACK/OFS_AAI/logs` directory.
- The CAP installation log files in the `OFS_CAP_ADQ_PACK/OFS_BASELA/logs`, `OFS_CAP_ADQ_PACK/OFS_BASEL_BASIC/logs`, `OFS_CAP_ADQ_PACK/OFS_BASEL_IRB/logs` directories.
- If it is an upgrade installation, ignore the following errors present in the log file:
  - [ERROR] Object already exists: in application logs
  - Errors in `OFSAAIUpdate.log` file are as follows:

    ORA-02299: cannot validate (<constraint name>) - duplicate keys found

    ORA-02442: Cannot drop nonexistent unique key

- If there are any other errors logged, contact My Oracle Support.

6.4 Backup the OFS_CAP_ADQ_SCHEMA_IN.xml, OFS_CAP_ADQ_SCHEMA_OUTPUT.xml, and Silent.props Files

Back up the `OFS_CAP_ADQ_SCHEMA_IN.xml`, `OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`, and `Silent.props` files for future reuse to upgrade the existing applications or install new applications.

Table 14: Directory of Files to Backup

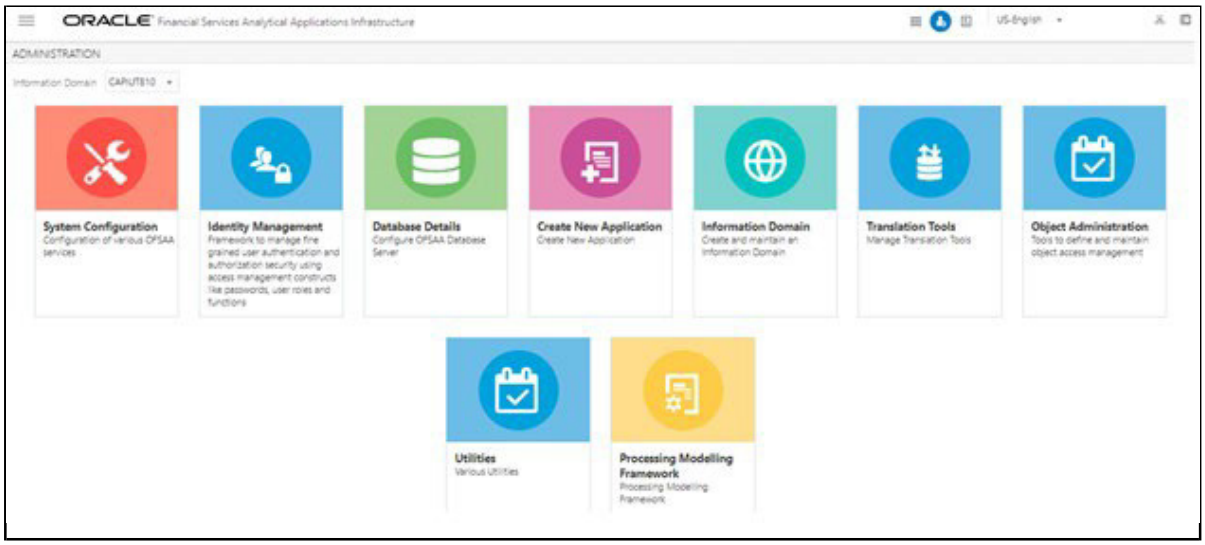
File Name	Directory
`OFS_CAP_ADQ_SCHEMA_IN.xml`	`OFS_CAP_ADQ_PACK/schema_creator/conf`
`OFS_CAP_ADQ_SCHEMA_OUTPUT.xml`	`OFS_CAP_ADQ_PACK/schema_creator/`
`Silent.props`	`OFS_CAP_ADQ_PACK/appsLibConfig/conf`

6.5 Change the ICC Batch Ownership

To change the ICC Batch Ownership, follow these steps:

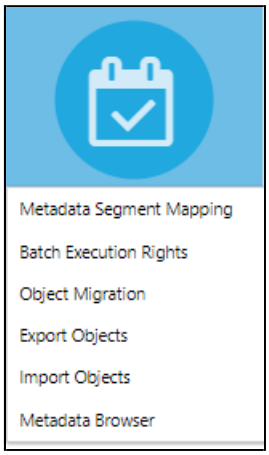
1. From the **OFSAA Landing** page, click **Administration**.

Figure 31: OFSAA Landing Page



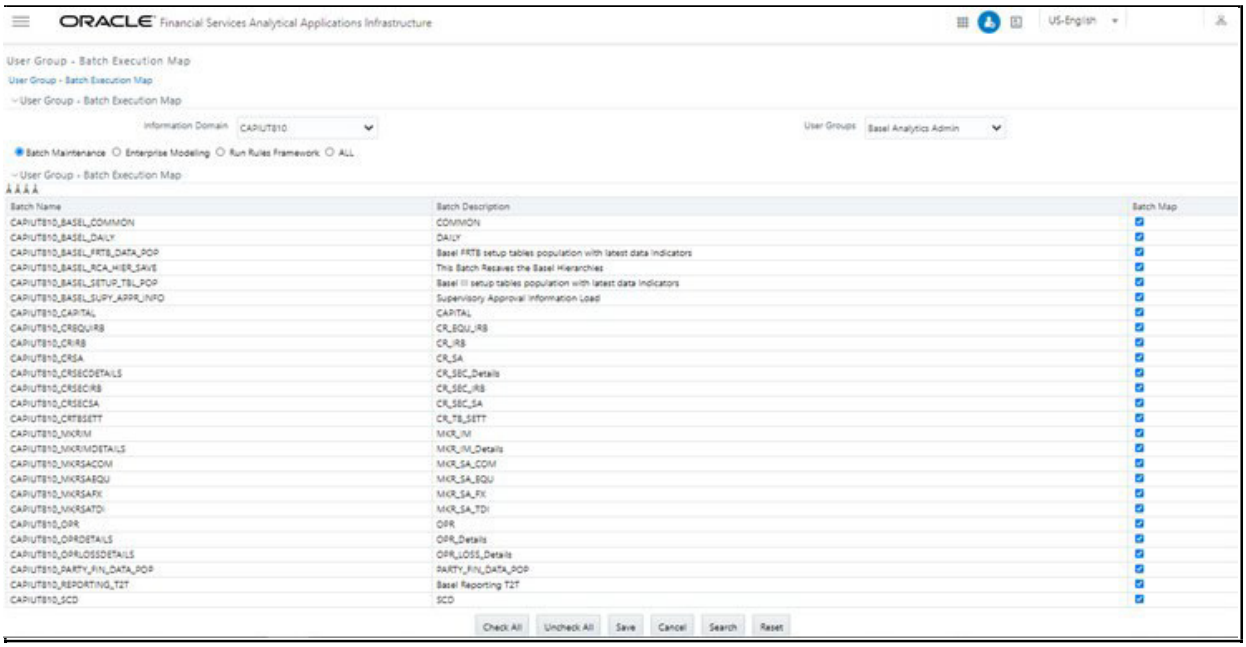
2. Select the **Information Domain** from the drop-down list.
3. Click **Object Administration** tile to display the sub-menu.

Figure 32: Object Administration



4. Click **Batch Execution Rights**. All the ICCbatches are listed in the User Group - Batch Execution Map window.
5. Select the User Group to which you want to provide execution rights.
6. Select the batch map check box for those batches you wish to provide rights to the selected user group.

Figure 33: User Group - Batch Execution Map Window



7. Click **Save**. A confirmation dialog box is displayed.
8. Click **OK**.

6.6 Updating OBIEE URL

To access the respective Business Intelligence Analytics Application, you must update the OBIEE URL in the table 'AAI_MENU_B', after the OBIEE environment is up and running.

To access the Basel Analytics application, you must update the following OBIEE URL in the table 'AAI_MENU_B':

```
UPDATE AAI_MENU_B SET V_MENU_URL = '<<BASEL Analytics Dashboard
URL>>' WHERE V_MENU_ID = 'OFS_CAP_BASANA_DASH';

COMMIT;
```

For more information about OFS Basel Regulatory Capital Analytics Configuration, see the Oracle Financial Services Capital Adequacy Pack Admin Guide.

6.7 Post-deployment Configuration

The post-deployment configuration steps are as follows:

1. Log in to the atomic schema and find out the foreign key constraint names of columns FCT_SUB_EXPOSURES.N_ACCT_SKEY and FCT_SUB_EXPOSURES.N_MITIGANT_SKEY
2. Disable both the constraints using the following syntax:

   ```
   ALTER TABLE FCT_SUB_EXPOSURES DISABLE CONSTRAINT <constraint_name>;
   ```

3. If it is an upgrade installation, execute the script BASEL_UPGRADE_POSTSCRIPT_ATOMIC in the atomic schema. If there are any errors in execution, contact My Oracle Support.

> **NOTE** Post SCD execution, in the atomic schema:
>
> 1. Execute the following query:
>
>  ```
>  SELECT COUNT (*) FROM
>  DIM_INSTRUMENT_CONTRACT WHERE
>  D_RECORD_END_DATE = '31-DEC-2999';
>  ```
>
> 2. If the result is greater than 0, then execute the following statements. If the result is 0, then skip this step:
>
>  ```
>  UPDATE DIM_INSTRUMENT_CONTRACT SET
>  D_RECORD_END_DATE='31-DEC-9999' WHERE
>  D_RECORD_END_DATE='31-DEC-2999';

>  COMMIT;
>  ```

4. In case of an upgrade installation, follow these steps:
   a. Take a backup of the table AAI_MENU_TREE in config schema.
   b. Execute the AAI_MENU_TREE_SCRIPT.sql script and commit the changes.

6.7.1.1 Executing Update Scripts

Replace the following placeholders in the scripts DM_T2T_SFT_NET_POOL_EXP_MITIGANT_MAPPING.sql and DM_T2T_DERIVATIVES_NET_POOL_EXP_MITIGANT_MAPPING.sql execute it in the config schema:

##INFODOM## by production infodom name

##USER## by SYSADMN

##CAP_PROCESSING_SRC## by ETL Processing source name

6.8 Post-deployment ECA Configuration

In case, Financial Services Economic Capital Advanced (ECA) application is enabled during installation then after installing OFS CAP 8.1.0.0.0, install OFS AAI 8.1.0.1.0 and then Data Model specific to ECA `OFS_CAP_ECA_DataModel.xml` must be uploaded manually. For more information, see *Model Upload from UI* section in Oracle Financial Services Analytical Applications Infrastructure 8.1 User Guide.

Part II

Topics:

- Upgrade

7 Upgrade

This section includes the procedures for the various upgrade scenarios supported by OFS CAP ADQ Release 8.1.0.0.0.

Topics:

- Upgrade Scenarios
- Prepare for Upgrade
- Download the OFSAAAI Applications Pack Installer and Mandatory Patches
- Upgrade from a Release Before 8.0.6.1.0
- Upgrade from a Previous Release (8.0.6.1.0 or Later)
- Upgrade an Already Installed 8.0.6.1.0 or Later Application and Add New Applications From the Same Pack

7.1 Upgrade Scenarios

ATTENTION Always ensure you run the upgrade installer only on the cloned environment.

Table 15: Upgrade Scenarios

Scenario	Upgrade Instructions
Upgrade from Release v8.0.x of OFS CAP or OFS CAP on AIX or Solaris x86 Operating System	Release v8.1.0.0.0 of OFS CAP 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 v8.1.0.0.0, then you must migrate from AIX or Solaris x86 to Linux or Solaris SPARC. See the MOS Doc ID 2700084.1 for details.
Upgrade an already installed application pack from a release before 8.0.6.1.0 You are upgrading the application pack from a release before 8.0.6.1.0 to release 8.1.0.0.0. **Example**: You are using release 8.0.5.0.0 and now want to upgrade to Release 8.1.0.0.0.	1. If upgrading from a release before 8.0.6.1.0, then first upgrade to 8.0.6.1.0 or later. See Upgrade from a Release Before 8.0.6.1.0 for details. 2. Run the Environment Check Utility tool and ensure that the hardware and software requirements are installed as per the OFS Analytical Applications Technology Matrix . See the OFSAA Environment Check Utility Guide for detailed steps. 3. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix . 4. Configure the `Silent.props` file present in the Release 8.1.0.0.0 5. Configure the `OFS_CAP_ADQ_PACK.xml` file to enable the existing installed applications. you want to upgrade. 6. Trigger the Release 8.1.0.0.0 installation.
Upgrade an already installed application pack from 8.0.6.1.0 or later You are upgrading the application pack from Release	1. Run the Environment Check Utility tool and ensure that the hardware and software requirements are installed as per the OFS Analytical Applications Technology Matrix . See the OFSAA Environment Check Utility Guide for detailed steps.

Scenario	Upgrade Instructions
8.0.6.1 or later to Release 8.1.0.0.0. **Example**: You are using release 8.0.7.0.0 and now want to upgrade to Release 8.1.0.0.0.	2. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix . 3. Configure the `Silent.props` file present in the Release 8.1.0.0.0 4. Configure the `OFS_CAP_ADQ_PACK.xml` file to enable the existing installed applications. you want to upgrade. 5. Trigger the Release 8.1.0.0.0 installation.
Upgrade an already installed 8.0.6.1.0 or later application and add new applications from the same pack You have two applications from a pack on 8.0.6.1.0 or later. You want two new applications from the same pack on 8.1.0.0.0. **Example**: You have installed CAP from Release 8.0.6.1.0. Now you want to install CAP of Release 8.1.0.0.0.	1. Run the Environment Check Utility tool and ensure that the hardware and software requirements are installed as per the OFS Analytical Applications Technology Matrix . See the OFSAA Environment Check Utility Guide for detailed steps. 2. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix . 3. Run the schema creator utility. **IMPORTANT NOTE**: While defining the schema details for the newly licensed applications, provide the same schema details given in the previous installation. The output file `OFS_CAP_ADQ_SCHEMA_OUTPUT.xml` is generated as a result of the schema creation process. 4. Configure `OFS_CAP_ADQ_PACK.xml` file to enable the existing applications you wish to upgrade and the newly licensed applications. 5. Configure the `Silent.props` file for the sections related to the newly licensed applications. 6. Trigger the Release 8.1.0.0.0 installation. **NOTE**: Configuring the `OFSAAI_InstallConfig.xml` file is not required. This process upgrades the existing applications and installs the newly licensed applications.

NOTE For all the above scenarios, where Financial Services Economic Capital Advanced (ECA) application is enabled during upgrade perform the following:

- Update the `OFS_CAP_ADQ_SCHEMA_IN.xml` with relevant schema and 'infodom' details and ensure that you enable ECA as follows and then execute the Schema utility:

```
<APP_ID ENABLE="YES"
PREREQ="OFS_AAI">OFS_ECA</APP_ID>
```

- After upgrading to OFS CAP 8.1.0.0.0, upgrade to OFS AAI 8.1.0.1.0 and then Data Model specific to ECA `OFS_CAP_ECA_DataModel.xml` must be uploaded manually. For more information, see *Model Upload from UI* section in Oracle Financial Services Analytical Applications Infrastructure 8.1 User Guide.

7.2 Prepare for Upgrade

Before you plan to install or upgrade any of your application packs to Release 8.1.0.0.0, ensure that all the application packs in your current OFSAA instance are available in the Release 8.1.0.0.0 version. Contact My Oracle Support for more information about the release version details.

> **NOTE** The base version for upgrade to 8.1.0.0.0 is 8.0.6.1.0. If upgrading from a release before 8.0.6.1.0, then first upgrade to 8.0.6.1.0 or later. After this step, you can upgrade to 8.1.0.0.0 or later.

Before starting the upgrade ensure to perform the following tasks:

1. Download and Extract the OFSCAP Application Pack installer kit.
2. See the OFS Analytical Applications Technology Matrix for the hardware and software required to upgrade to OFS CAP ADQ Release 8.1.0.0.0.
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 existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix. For more information, see the OFSAA Cloning Reference Guide.

7.3 Download the OFSAAAI Applications Pack Installer and Mandatory Patches

To download the OFSAAAI Applications Pack Installer Release 8.1.0.0.0, follow these steps:

1. Log in to the Oracle Software Delivery Cloud (OSDC) with a valid Oracle account.
2. Download the installer archive and copy (in Binary mode) to the download directory that exists in the OFSAAAI installation setup.

> **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.

> Ensure that you reapply the 33663417 Mandatory Patch whenever you install or upgrade the application, or apply an incremental patch.

7.4 Upgrade from Release v8.0.x of OFS CAP or OFS CAP on AIX or Solaris x86 Operating System

Release v8.1.0.0.0 of OFS CAP 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 v8.1.0.0.0, then you must migrate from AIX or Solaris x86 to Linux or Solaris SPARC. See the MOS Doc ID 2700084.1 for details.

7.5 Upgrade from a Release Before 8.0.6.1.0

You are upgrading from a release before 8.0.6.1.0:

1. Upgrade to 8.0.6.1.0 or later. For more information, see OFS CAP 8.0.6 Installation guide in OHC Documentation Library.
2. Upgrade from 8.0.6.1.0 to 8.1.0.0.0. For more information, see Upgrade from Release 8.0.6.1.0 or Later.

7.6 Upgrade from Release 8.0.6.1.0 or Later

If you are upgrading the application pack from Release 8.0.6.1.0 or later to Release 8.1.0.0.0, follow these steps.

1. Clone your existing environment to the v8.1.0.0.0 of OFS Analytical Applications Technology Matrix . For more information, see the OFSAA Cloning Reference Guide Release 8.1.0.0.0.
2. Execute the script BASEL_UPGRADE_PRESCRIPT_ATOMIC in the atomic schema. If there are any errors in execution, contact My Oracle Support.
3. Log in to OFSAA Infrastructure Config Schema and execute the following SQL query:

   ```
   ALTER TABLE CONFIGURATION MODIFY PARAMNAME VARCHAR2 (100 CHAR);
   ```

4. Configure the `OFS_CAP_ADQ_PACK.xml` file. Enable the existing applications you wish to upgrade. See Configure the OFS_CAP_ADQ_PACK.xml File for steps to configure the file.
5. Configure the `Silent.props` file present in the Release 8.1.0.0.0 pack. See Configure the Silent.props file for steps to configure the file.
6. Follow the steps mentioned in the Install the OFS CAP ADQ Application section to triggerthe installation.
7. Follow the steps mentioned in the Post-installation Steps section.

7.7 Upgrade an Already Installed 8.0.6.1.0 or Later Application and Add New Applications from the Same Pack

Upgrade existing 8.0.6.1.0 or later applications to 8.1.0.0.0, and then install additional applications from the same pack.

You have two applications from a pack on 8.0.6.1.0. Now you want two new applications from the same pack on 8.1.0.0.0.

Example: You have installed Basel IRB from Release 8.0.6.1.0. Now you want to upgrade Basel IRB to Release 8.1.0.0.0 and install Basel Analytics.

1. Clone your existing environment to the 8.1.0.0.0 OFS Analytical Applications Technology Matrix. For more information, see the OFSAA Cloning Reference Guide Release 8.1.0.0.0.
2. Execute the script BASEL_UPGRADE_PRESCRIPT_ATOMIC in the atomic schema. If there are any errors in execution, contact My Oracle Support.
3. Log in to OFSAA Infrastructure Config Schema and execute the following SQL query:

   ```
   ALTER TABLE CONFIGURATION MODIFY PARAMNAME VARCHAR2 (100 CHAR);
   ```

4. Configure the Schema Creator Utility. While defining the schema details for the newly licensed applications, provide the same schema details given in the previous installation. The output file `OFS_CAP_ADQ_SCHEMA_OUTPUT.xml` is generated as a result of the schema creation process.
5. Configure the `OFS_CAP_ADQ_PACK.xml` file. Enable the existing applications you wish to upgrade and newly licensed applications. See Configure the OFS_CAP_ADQ_PACK.xml File for steps to configure the file.
6. Configure the `Silent.props` file for the existing and newly licensed applications. See Configure the Silent.props file for steps to configure the file.
7. Follow the steps mentioned in the Install the OFS CAP ADQ Application section to trigger the installation.
8. Follow the steps mentioned in the Post-installation Steps section.

Part III

Topics:

- Additional Configurations for Application Packs
- FAQs

8 Additional Configurations

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

To complete the configuration process, you must perform the following steps listed in the Additional Configuration Checklist. Use this checklist to verify whether these steps are completed or not. See the Additional Information section in the OFS AAAI Release 8.1.0.0.0 Installation and Configuration Guide to complete these procedures.

Table 16: Additional Configuration Checklist

Sl. No.	Additional Configuration Steps Activity
1	Configure the Work Manager in the web application servers.
2	Add FTP/SFTP Configuration for File Transfer.
3	Configure the Infrastructure Server Memory.
4	Change IP or Hostname, Ports, Deployed Paths of the OFSAA Instance.
5	Execute the OFSAAI Setup Information Fetching Tool.
6	Execute the Encryption Changer.
7	Configure the Infrastructure LDAP Configuration.
8	Configure and deploy the OFSAAI web services.
9	Enable the Parallel Execution of DML statements.
10	Configure the Message Details in the Forms Designer.
11	Clear the application cache.
12	Configure password changes.
13	Configure Java Virtual Machine.
14	Configure Internal Service (Document Upload or Download).
15	Migrate Excel Upload Functionality.
16	Remove the OFSAA Infrastructure.

8.1 Configuring Tomcat for User Group Authorization, Data Mapping, and Disabling WADL for the Web Service

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

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

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

```
</init-param>
```

3. To disable the WADL for the Web Service, navigate to the following snippet in the *web.xml* file.

```
<servlet>
<servlet-name>CommonRESTServlet</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.

9 Frequently Asked Questions (FAQs) and Error Dictionary

For FAQs and installation error-related information, see the Frequently Asked Questions (FAQs) and Error Dictionary section in the OFS AAAI Release 8.1.0.0.0 Installation and Configuration Guide.

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 and page number (if available) and contact the My 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.

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