Oracle Financial Services Data Foundation Applications Pack – Java 7 and Java 8

Installation and Configuration Guide

Release 8.0.6.0.0

ORACLE
Financial Services

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Preface

This Preface provides supporting information for the Oracle Financial Services Data Foundation Applications Pack Installation Guide and includes the following topics:

- Summary
- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Summary

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

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

Audience

The Oracle Financial Services Data Foundation (OFSDF) Application Pack Installation and Configuration Guide is intended for Administrators, Business User, Strategists, and Data Analyst, who are responsible for installing and maintaining the application pack components.

Prerequisites for the Audience

These are the expected preparations for administrators before starting the installation:

The document assumes you have experience in installing Enterprise components. Basic knowledge about the Oracle Financial Services Advanced Analytical Applications Infrastructure Applications Pack components, OFSAA Architecture, UNIX commands, Database concepts and Web Server/ Web Application Server is recommended.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

This section identifies additional documents related to OFSDF. You can access Oracle documentation online from Documentation Library for OFSDF.

- Oracle Financial Services Data Foundation User Guide (OHC)
- Oracle Financial Services Analytical Applications Infrastructure User Guide (OHC)
- OFS Analytical Applications Environment Check Utility Guide (OHC)

Conventions and Acronyms

Conventions	Description
AIX	Advanced Interactive executive
DEFQ	Data Entry Forms and Queries
DML	Data Manipulation Language
EAR	Enterprise Archive
EJB	Enterprise JavaBean
ERM	Enterprise Resource Management
FTP	File Transfer Protocol
GUI	Graphical User Interface
HDFS	Hadoop Distributed File System
HTTPS	Hypertext Transfer Protocol Secure
J2C	J2EE Connector
J2EE	Java 2 Enterprise Edition
JDBC	Java Database Connectivity
JDK	Java Development Kit
JNDI	Java Naming and Directory Interface
JRE	Java Runtime Environment
JVM	Java Virtual Machine

Conventions	Description
LDAP	Lightweight Directory Access Protocol
LHS	Left Hand Side
MFA	Multi-Factor Authentication
MFA	Multi-Factor Authentication
MOS	My Oracle Support
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OHC	Oracle Help Center
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
TDE	Transparent Data Encryption
TNS	Transparent Network Substrate
URL	Uniform Resource Locator
VM	Virtual Machine
Web Archive	WAR
XML	Extensible Markup Language

1 About OFSAA and OFSAA Application Packs

This chapter includes the following topics:

- About OFSAA
- About OFSAA Application Packs 8.0.6.0.0
- About OFSDF Applications Pack
- About Oracle Financial Services Analytical Applications Infrastructure (OFS AAI)

1.1 About Oracle Financial Services Analytical Applications (OFSAA)

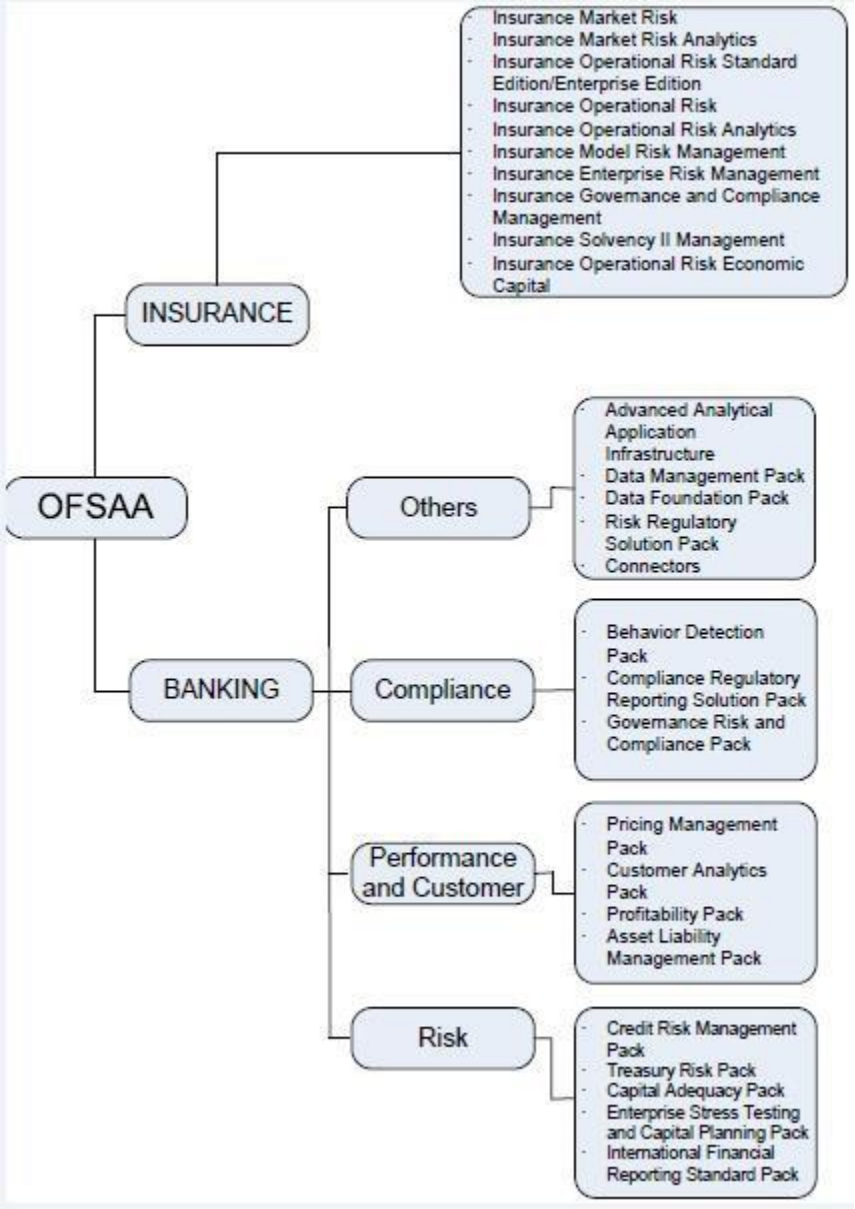
In today's turbulent markets, financial institutions require a better understanding of their risk- return, while strengthening competitive advantage and enhancing long-term customer value. Oracle Financial Services Analytical Applications enable financial institutions to measure and meet risk adjusted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

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

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

1.2 About OFSAA Applications Pack

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



1.3 About OFSDF Applications Pack

Oracle Financial Services Data Foundation (OFSDF) Application Pack provides integrated stress testing and modeling capabilities that you can readily apply across multiple risk areas enabling institutions to devise appropriate enterprise-wide and holistic risk and economic capital strategies.

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

OFSDF Application Pack includes the following applications:

- **Financial Services Big Data Processing**: This option includes, into OFSDF, the capability to process data stored in Hadoop Distributed File System (HDFS). With the Big Data Processing (BDP) add-on option, all core data management frameworks within OFSAA such as Data Management Framework (T2T/ F2T), Data Quality Framework and Rules framework are enhanced to operate on both Oracle RDBMS data sources as well as Apache Hive data sources. An OFSAA Run definition can contain tasks that transform data held in Hive. OFSAA applications that use these frameworks for expressing application logic automatically gain the ability to manage data held in Hive. The OFSAA platform leverages HiveQL and Map Reduce in order to process data directly in the Hadoop cluster without having to stage data in a relational database.

The application pack includes a logical data model, physical data model and supporting scripts.

NOTE: The schema/ domain for FSDF are referred to as BFND.

1.4 About Oracle Financial Services Analytical Applications Infrastructure (OFS AAI)

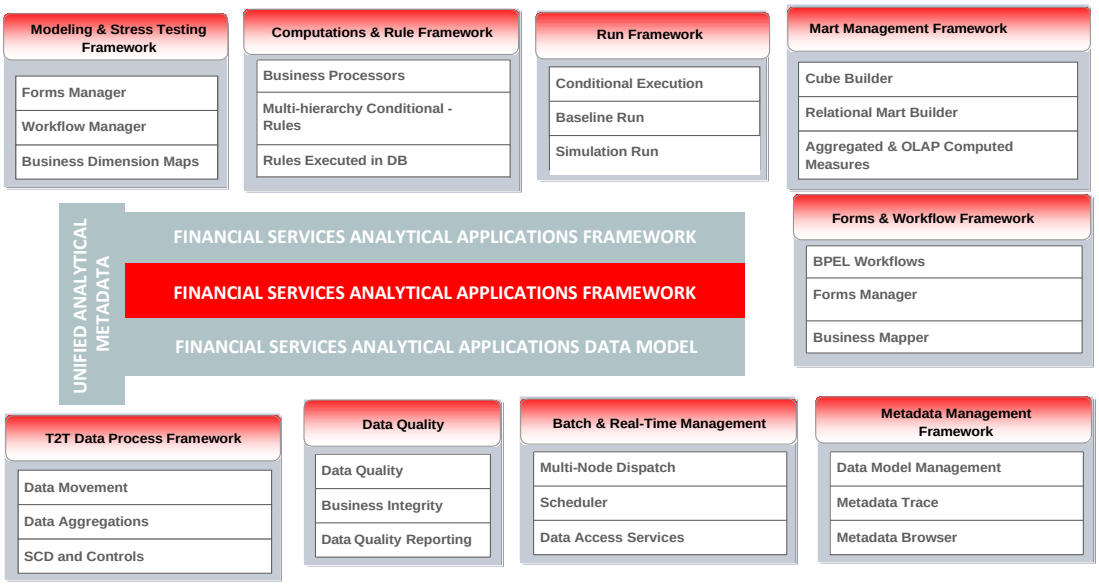
Oracle Financial Services Analytical Applications Infrastructure (OFS AAI) powers the Oracle Financial Services Analytical Applications family of products to perform the processing, categorizing, selection and manipulation of data and information needed to analyze, understand and report on specific performance,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

1.4.1 Components of OFSAAI

The OFSAA Infrastructure is comprised of a set of frameworks that operates on and with the Oracle Financial Services Analytical Applications Data Model and form the array of components within the Infrastructure.

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

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



1.5 OFSAA Infrastructure High Availability

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

This release supports Active-Passive model of implementation for OFSAAI components. For more information, refer Configuration for High Availability- Best Practices Guide.

1.6 About Data Security Configurations

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

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

For more details on the features in the previous list, see the relevant topics in this guide and the *Data Security and Data Privacy* section in the OFS Analytical Applications Infrastructure Administration Guide 8.0.6.0.0.

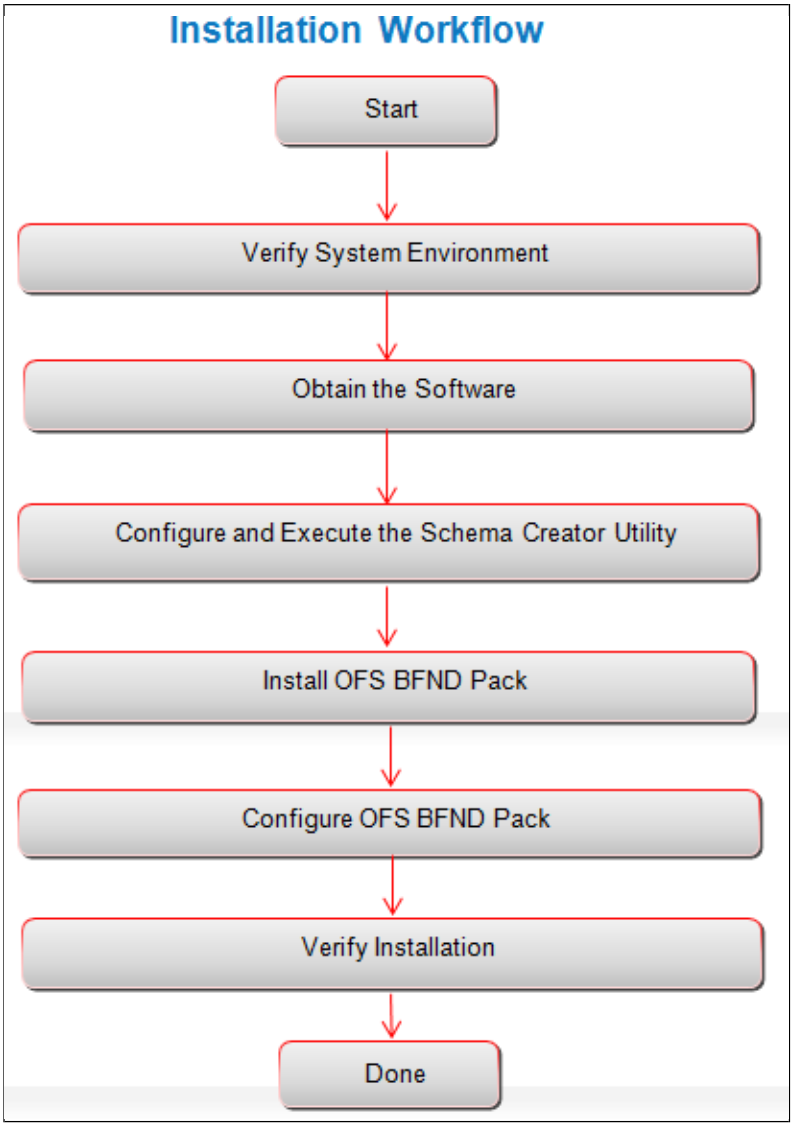
2 Understanding OFSDF Applications Pack Installation

This chapter includes the following topics:

- Installation Overview
- Logical Deployment Architecture
- Hardware and Software Requirements
- Verifying the System Environment
- Understanding Installation Modes

2.1 Installation Overview

This release (8.0.6.0.0) of the OFSDF Application Pack bundles the upgrade patch set along with the base installer. Users/Administrators who wish to install a new OFSDF Application Pack 8.0.6.0.0 instance or upgrade an existing OFSDF Application Pack 8.0.x instance to 8.0.6.0.0 must download this installer. The following figure depicts the order of procedures required to follow to install a new OFSDF Pack 8.0.6.0.0 instance. To upgrade an existing OFSDF Application Pack 8.0.x.x.x instance to 8.0.6.0.0 release, refer to Upgrading the OFSDF Application Pack chapter. The following figure shows the order of procedures to install.



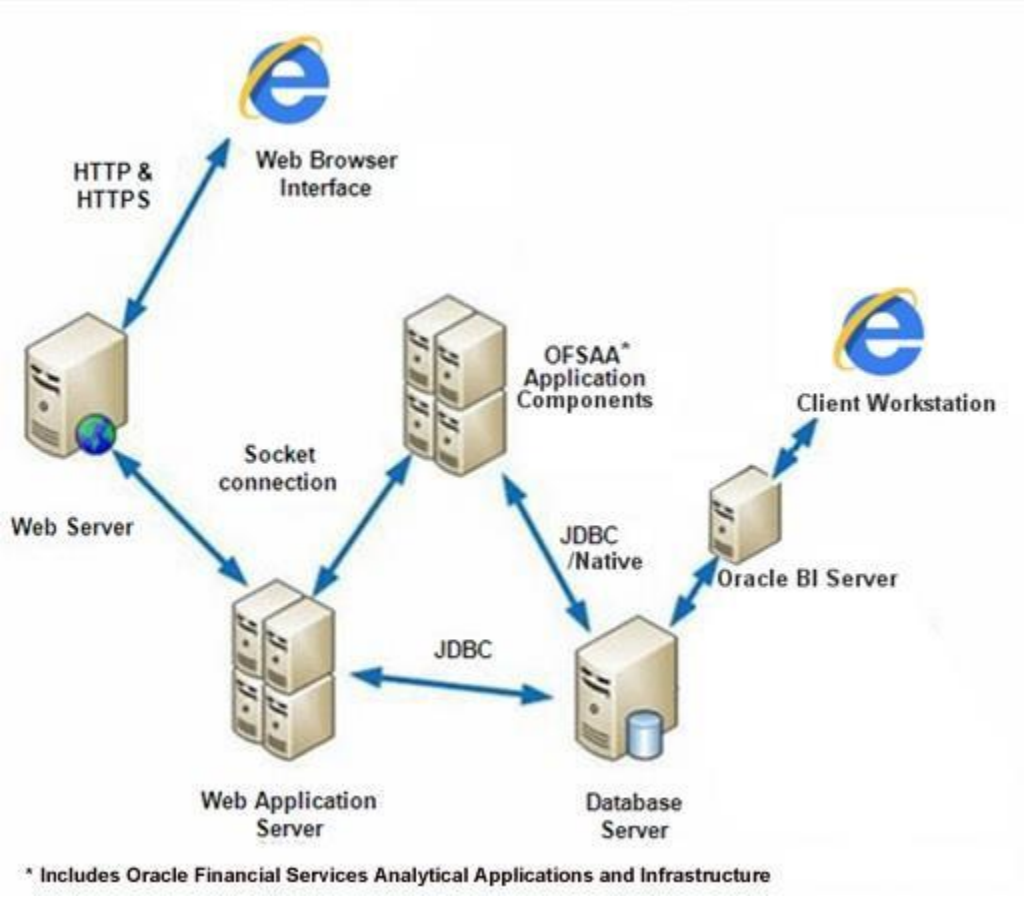
The below table provides additional information and links to specific documentation for each task in the flowchart

Tasks	Details and Documentation
Verify Systems Environment	To verify that your system meets the minimum necessary requirements for installing and hosting the OFSDF Applications Pack, see "Hardware and Software Requirements Specifications" and "Verifying the System Environment"
Obtain the software	See "Obtaining the software".

Configure and Execute the Schema Creator Utility	See “Configuring and Executing the Schema Creator Utility".
Install OFSDF Pack	See “Installing the OFSDF Pack Installer".
Configure OFSDF Pack	See “Post Installation Configuration".
Verify Installation	See "Verifying the Installation".
Upgrade Installation	See “Upgrading the OFSDF Application Pack”

2.2 Deployment Topology

The deployment architecture depicts the mapping of a logical architecture to a physical environment. The physical environment includes the computing nodes in an intranet or Internet environment, CPUs, memory, storage devices, and other hardware and network devices.



2.3 Hardware and Software Requirements

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

NOTE: OFSDF Applications Pack installation can be performed on both Virtual and Physical servers.

2.3.1 Configurations Supported for Java 7

The following table shows the minimum hardware and software requirements for installing Oracle Financial Services Data Foundation Application Pack (Java 7) on each machine.

Requirement	Sub-Category	Value
Operating System	Oracle Linux / Red Hat Enterprise Linux (x86-64 bit)	Red Hat Enterprise Linux or Oracle Linux Server release 6 Update 6 and above Red Hat Enterprise Linux or Oracle Linux Server release 7 Update 1 and above
	Oracle Solaris (SPARC) / Solaris x86-64 bit	Solaris 10 – Install the required OS patches. For more information, see Installing the Required Oracle Solaris 10 Patches. Additionally, install the required runtime libraries. For more information, see Installing Only the Runtime Libraries on Oracle Solaris 10. Solaris 11 – Upgrade to Oracle Solaris 11.3 with SRU09 or higher. See https://docs.oracle.com/cd/E60778_01/html/E60743/gouaw.html#scrolltoc to upgrade to SRU09 if you have a lower SRU version. Additionally, install the required runtime libraries. For more information, see Installing Only the Runtime Libraries on Oracle Solaris 11.
	IBM AIX (PowerPC)	AIX 6.1 (TL 09 and above) - 64 bit AIX 7.1 (TL 03 and above) - 64 bit
	Shell	KORN Shell (KSH)
Note: • If the OS is IBM AIX 6.1 and the file size limit for the AIX user on the target server is too small, configure the size parameter setting for "Large File Support". Follow these steps:		

<table>
<tr><th>Requirement</th><th>Sub-Category</th><th>Value</th></tr>
<tr><td colspan="3">Change the file size limit for the user that initiates the transfer on the AIX system. To change the file size limit for a particular user, add or edit the fsize attribute for the user in the /etc/security/limits file on the AIX system.

Change the file size limit to unlimited (fsize = -1) or to a size equal to the size of the file being transferred. This may require a restart of the AIX server to pick up the new configuration. For more information refer IBM Support.

• If the operating system is RHEL, install the package <code>lsb_release</code> using one of the following commands by logging in as <code>root</code> user:
o yum install redhat-lsb-core
o yum install redhat-lsb</td></tr>
<tr><td rowspan="2">Java Runtime Environment</td><td>Oracle Linux / Red Hat Enterprise Linux Oracle Solaris</td><td>Oracle Java Runtime Environment (JRE) 1.7.x - 64 bit
Oracle Java Runtime Environment (JRE) 1.8.x - 64 bit</td></tr>
<tr><td>IBM AIX</td><td>IBM AIX Runtime, Java Technology JRE 1.7.x - 64 bit IBM AIX Runtime, Java Technology JRE 1.8.x - 64 bit</td></tr>
<tr><td>Oracle Database Server and Client</td><td colspan="2">• Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.3.0 +) - 64 bit RAC/ Non-RAC with/ without partitioning option
• Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.4.0 +) - 64 bit RAC/Non-RAC with/ without partitioning option, Advanced Security Option**.
• Oracle Database Server Enterprise Edition 12c Release 1 (12.1.0.1.0 +)- 64 bit RAC/ Non-RAC with/ without partitioning option, Advanced Security Option**.
** Note: See the “Additional Notes” section in the 806 Tech Matrix for details.
• Oracle Database Server 12c Release 2 (12.2.0.1+) Enterprise Edition
• Oracle Client 11g Release 2 (11.2.0.3.0+) - 64 bit
• Oracle Client 12c Release 1 (12.1.0.1.0+) - 64 bit
• Oracle 11g Release 2 (11.2.0.3+) JDBC driver (Oracle thin driver)
• Oracle 12C Release 1 (12.1.0.1+) JDBC driver (Oracle thin driver)
• Oracle R Distribution (ORD) version 3.2.0/3.3.0 (Optional)
• Oracle R Enterprise (Server) version 1.5 with ORD 3.2.0 and version 1.5.1 with ORD 3.3.0(Optional).
Note:
Ensure that the following patches are applied:
• For Oracle DB Server 12.1.0.1 and 12.1.0.2, download the patches 27010930 and</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">
22205607 from My Oracle Support and apply them.
• For Oracle DB Server 11.2.0.4, download the patch 22205607 from My Oracle Support and apply.
ORD and ORE versions compatible along with Oracle DB version
<table>
<tr><th>No.</th><th>Oracle R Enterprise</th><th>Oracle R Advanced Analytics for Hadoop</th><th>Open source R or Oracle R Distribution</th><th>Oracle Database Enterprise Edition</th></tr>
<tr><td>1</td><td>1.5.1</td><td>2.7.1</td><td>3.3.0</td><td>11.2.0.4, 12.1.0.1, 12.1.0.2, 12.2.0.1</td></tr>
<tr><td>2</td><td>1.5.0</td><td>2.5.1, 2.6.0, 2.7.0</td><td>3.2.0</td><td>11.2.0.4, 12.1.0.1, 12.1.0.2</td></tr>
</table>
</td></tr>
<tr><td rowspan="2">OLAP</td><td>Oracle Hyperion Essbase</td><td>V 11.1.2.1+ (Server and Client) with Oracle 11g Database V 11.1.2.3+ (Server and Client) with Oracle 12c Database</td></tr>
<tr><td colspan="2">Note:
Oracle Hyperion Essbase & Oracle OLAP is required only if you are using the OLAP feature of OFSAAI.</td></tr>
<tr><td rowspan="2">Web Server/ Web Application Server</td><td>Oracle Linux / Red Hat Enterprise Linux/ IBM AIX

Oracle Solaris</td><td>Oracle HTTP Server 11.1.1.7.1 or 11.1.1.9+ /
Apache HTTP Server 2.2.x/ IBM HTTP Server 8.5.5
▪ IBM WebSphere Application Server WebSphere 8.5.5.9+ (64 bit)
▪ Oracle WebLogic Server 12.1.3+ with jersey 1.18 (64 bit) / Oracle WebLogic Server 12.2.x with jersey 2.25 (64 bit)
The OFSDF Application Pack Release v8.0.6.0.0 is compatible with the WebLogic v12.2.x and does not support the WebLogic v12.1.3. If the WebLogic version is 12.1.3, upgrade to the WebLogic 12.2.x version.
▪ Apache Tomcat 8.0.x (64 bit)
Note:
IBM WebSphere 8.5.x (Full Profile) on Java 8 is not available.</td></tr>
<tr><td colspan="2">Note:
OFSAA Infrastructure web component deployment on Oracle WebLogic Server with Oracle JRockit is not supported.</td></tr>
<tr><td rowspan="3">Big Data</td><td>Cloudera Distribution Hadoop 5.3.3</td><td>▪ CDH Version 5.3.3
▪ Hadoop-2.5.0+cdh5.3.3+844
▪ Hive-0.13.1+cdh5.3.3+350
▪ Sqoop1 V 1.4.5+cdh5.3.3+67
▪ Sqoop2 V 1.99.4+cdh5.3.3+23
▪ Oracle Loader For Hadoop (OLH) V 3.2</td></tr>
<tr><td>Cloudera Distribution Hadoop 5.4.4</td><td>▪ CDH Version –5.4
▪ Hadoop-2.6.0+cdh5.4.4+597
▪ Hive V 1.1.0+cdh5.4.4+152
▪ Sqoop1 V 1.4.5+cdh5.4.4+101
▪ Sqoop2 V 1.99.5+cdh5.4.4+36</td></tr>
<tr><td>Cloudera Distribution Hadoop 5.8.4</td><td>▪ CDH Version –5.8.4
▪ Hadoop-2.6.0+cdh5.8.4+1801</td></tr>
</table>

		▪ Hive-1.1.0+cdh5.8.4+723 ▪ Sqoop-1.4.6+cdh5.8.4+100 ▪ Sqoop2-1.99.5+cdh5.8.4+42
		Note: Ensure livy-0.4.0-incubating is installed and configured for spark 2. For more details, see the section Configuring Apache Livy Interface in the chapter *Post Installation Configuration*.
	Cloudera Distribution Hadoop 5.13.0	▪ CDH Version: 5.13.0 (9) ▪ Hive 1.1.0+
	Cloudera Hive Connector	Hive JDBC Connectors V 2.5.19 and Hive-on-Spark
	Oracle R Advanced Analytics for Hadoop	Oracle R Advanced Analytics for Hadoop (ORAAH) 2.6.0
	Hadoop Security Protocol	▪ Kerberos R release 1.6.1 ▪ Sentry 1.4.0
	Oracle Big Data SQL	Oracle Big Data SQL 3.1+. For more information, see Big Data.
Desktop Requirements	Operating System	Windows 10
	Browser	• MS Internet Explorer 11.x (Compatibility Mode) Turn off Pop-up blocker settings. For more information, refer Internet Explorer Settings. • Google Chrome 57.x • Mozilla Firefox 52.x • For Chrome and Firefox, turn off Pop-up blocker settings by choosing "Always allow pop-ups for <URL>"
	Office Tools	• MS Office 2007/ 2010/ 2013/ 2016 • Adobe Acrobat Reader 10 or above
	Screen Resolution	1024*768 or 1280*1024
Other Software	Directory Services	OFSAAI is qualified on both OPEN LDAP 2.2.29+ and Oracle Internet Directory v 11.1.1.3.0. However, it can be integrated with other directory services software like MS Active Directory.
	Note: • Configuration of Directory services software for OFSAAI installation is optional. For more information on configuration, see Infrastructure LDAP Configuration. • Open LDAP must be installed on MS Windows Server machine.	

* This indicates the latest version available at the time of the release. Any latest updates may be applied.

2.3.2 Configurations Supported for Java 8

The following table shows the minimum hardware and software requirements for installing Oracle Financial Services Data Foundation Application Pack (Java 8) on each machine.

Requirement	Sub-Category	Value
Operating System	Oracle Linux / Red Hat Enterprise Linux (x86-64 bit)	Red Hat Enterprise Linux or Oracle Linux Server release 6 Update 6 and above Red Hat Enterprise Linux or Oracle Linux Server release 7 Update 1 and above
	Oracle Solaris (SPARC) / Solaris x86-64 bit	Solaris 10 – Install the required OS patches. For more information, see Installing the Required Oracle Solaris 10 Patches. Additionally, install the required runtime libraries. For more information, see Installing Only the Runtime Libraries on Oracle Solaris 10. Solaris 11 – Upgrade to Oracle Solaris 11.3 with SRU09 or higher. See https://docs.oracle.com/cd/E60778_01/html/E60743/gouaw.html#scrolltoc to upgrade to SRU09 if you have a lower SRU version. Additionally, install the required runtime libraries. For more information, see Installing Only the Runtime Libraries on Oracle Solaris 11.
	IBM AIX (POWERPC)	AIX 6.1 (TL 09 and above) - 64 bit AIX 7.1 (TL 03 and above) - 64 bit
	Shell	KORN Shell (KSH)

Note:

- If the OS is IBM AIX 6.1 and the file size limit for the AIX user on the target server is too small, configure the size parameter setting for "Large File Support". Follow these steps:
  Change the file size limit for the user that initiates the transfer on the AIX system. To change the file size limit for a particular user, add or edit the fsize attribute for the user in the /etc/security/limits file on the AIX system.
  Change the file size limit to unlimited (fsize = -1) or to a size equal to the size of the file being transferred. This may require a restart of the AIX server to pick up the new configuration. For more information refer IBM Support.
- If the operating system is RHEL, install the package `lsb_release` using one of the following commands by logging in as `root` user:
  - yum install redhat-lsb-core
  - yum install redhat-lsb

Java Runtime Environment	Oracle Linux / Red Hat Enterprise Linux Oracle Solaris	Oracle Java Runtime Environment (JRE) 1.8.x - 64 bit
	IBM AIX	IBM AIX Runtime, Java Technology JRE 1.8.x - 64 bit
Oracle Database Server and Client	• Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.3.0 +) - 64 bit RAC/ Non- RAC with/ without partitioning option • Oracle Database Server Enterprise Edition 11g Release 2 (11.2.0.4.0 +) - 64 bit RAC/Non-RAC with/ without partitioning option, Advanced Security Option** • Oracle Database Server Enterprise Edition 12c Release 1 (12.1.0.1.0 +)- 64 bit RAC/ Non- RAC with/ without partitioning option, Advanced Security Option** ** **Note**: See the “Additional Notes” section in the 806 Tech Matrix for details. • Oracle Client 11g Release 2 (11.2.0.3.0+) - 64 bit • Oracle Client 12c Release 1 (12.1.0.1.0+) - 64 bit • Oracle 11g Release 2 (11.2.0.3+) JDBC driver (Oracle thin driver) • Oracle 12C Release 1 (12.1.0.1+) JDBC driver (Oracle thin driver) • Oracle R Distribution (ORD) version 3.2.0/3.3.0 (Optional) • Oracle R Enterprise (Server) version 1.5 with ORD 3.2.0 and version 1.5.1 with ORD 3.3.0(Optional). • Oracle Database Server 12c Release 2 (12.2.0.1+) Enterprise Edition Oracle Client 12c Release 1 (12.1.0.1.0+) - 64 bit • Oracle 11g Release 2 (11.2.0.3+) JDBC driver (Oracle thin driver) Oracle 12C Release 1 (12.1.0.1+) JDBC driver (Oracle thin driver) Oracle Distribution of R version 3.1.1 (Optional)	
	Note: Ensure that the following patches are applied: Oracle Server 12c, v12.1.0.1 – 17082699 Oracle Server 12c, v12.1.0.2 – 20698050	

<table>
<tr><td></td><td colspan="2">

For Oracle DB Server 12.1.0.1 and 12.1.0.2, download the patches 27010930 and 22205607 from My Oracle Support and apply them.
For Oracle DB Server 11.2.0.4, download the patch 22205607 from My Oracle Support and apply.

Also for latest information, refer My Oracle Support, 12.1.0.2 Bundle Patches for Engineered Systems and DB In-Memory - List of Fixes in each Bundle (Doc ID 1937782.1)

Oracle R Enterprise 1.5 and 1.5.1 requires Oracle Database Enterprise Edition / 11.2.0.4/ 12.1.0.1/12.1.0.2/12.2.0.1.

ORD and ORE versions compatible along with Oracle DB version
<table>
<tr><th>No.</th><th>Oracle R Enterprise</th><th>Oracle R Advanced Analytics for Hadoop</th><th>Open source R or Oracle R Distribution</th><th>Oracle Database Enterprise Edition</th></tr>
<tr><td>1</td><td>1.5.1</td><td>2.7.1</td><td>3.3.0</td><td>11.2.0.4, 12.1.0.1, 12.1.0.2, 12.2.0.1</td></tr>
<tr><td>2</td><td>1.5.0</td><td>2.5.1, 2.6.0, 2.7.0</td><td>3.2.0</td><td>11.2.0.4, 12.1.0.1, 12.1.0.2</td></tr>
</table>
</td></tr>
<tr><td>OLAP</td><td colspan="2">Note:
Oracle Hyperion Essbase is required only if you are using the OLAP feature of OFSAAI.</td></tr>
<tr><td rowspan="2">Web Server/ Web Application Server</td><td>Oracle Linux / Red Hat Enterprise Linux/ IBM AIX Oracle Solaris</td><td>Oracle HTTP Server 11.1.1.7.1 or 11.1.1.9+ /
Apache HTTP Server 2.2.x/ IBM HTTP Server 8.5.5

IBM WebSphere Application Server WebSphere 8.5.5.9+
Oracle Weblogic Server 12.1.3+ with jersey 1.18 (64 bit)/Oracle Weblogic Server 12.2.x with jersey 2.25 (64 bit)
The OFSDF Application Pack Release v8.0.6.0.0 is compatible with the WebLogic v12.2.x and does not support the WebLogic v12.1.3. If the WebLogic version is 12.1.3, upgrade to the WebLogic 12.2.x version.
Apache Tomcat 8.0.x (64 bit)

Note:
IBM WebSphere 8.5.x (Full Profile) on Java 8 is not available.</td></tr>
<tr><td colspan="2">Note:
OFSAA Infrastructure web component deployment on Oracle WebLogic Server with Oracle JRockit is not supported.
For deployment on Oracle WebLogic Server 12.1.3+ (64 bit) with Java 8, download and install patch 18729264 from My Oracle Support.</td></tr>
<tr><td rowspan="2">Big Data</td><td>Cloudera Distribution Hadoop 5.3.3</td><td>

CDH Version 5.3.3
Hadoop-2.5.0+cdh5.3.3+844
Hive-0.13.1+cdh5.3.3+350
Sqoop1 V 1.4.5+cdh5.3.3+67
Sqoop2 V 1.99.4+cdh5.3.3+23
Oracle Loader For Hadoop (OLH) V 3.2

</td></tr>
<tr><td>Cloudera Distribution Hadoop 5.4.4</td><td>

CDH Version –5.4
Hadoop-2.6.0+cdh5.4.4+597

</td></tr>
</table>

		▪ Hive V 1.1.0+cdh5.4.4+152 ▪ Sqoop1 V 1.4.5+cdh5.4.4+101 ▪ Sqoop2 V 1.99.5+cdh5.4.4+36
	Cloudera Distribution Hadoop 5.8.4	▪ CDH Version –5.8.4 ▪ Hadoop-2.6.0+cdh5.8.4+1801 ▪ Hive-1.1.0+cdh5.8.4+723 ▪ Sqoop-1.4.6+cdh5.8.4+100 ▪ Sqoop2-1.99.5+cdh5.8.4+42
		Note: Ensure livy-0.4.0-incubating is installed and configured for spark 2. For more details, see the section Configuring Apache Livy Interface in the chapter *Post Installation Configuration*.
	Cloudera Distribution Hadoop 5.13.0	▪ CDH Version: 5.13.0 (9) ▪ Hive-1.1.0+
	Cloudera Hive Connector	Hive JDBC Connectors V 2.5.19 and Hive-on-Spark
	Oracle R Advanced Analytics for Hadoop	Oracle R Advanced Analytics for Hadoop (ORAAH) 2.6.0
	Hadoop Security Protocol	▪ Kerberos R release 1.6.1 ▪ Sentry-1.4.0
	Oracle Big Data SQL	Oracle Big Data SQL 3.1+. For more information, see Big Data.
Desktop Requirements	Operating System	MS Windows 7/Windows 8/Windows 10
	Browser	• MS Internet Explorer 11.x (Compatibility Mode)
		• Turn off Pop-up blocker settings. For more information, refer Internet Explorer Settings. • Google Chrome 57.x • Mozilla Firefox 52.x For Chrome and Firefox, Turn off Pop-up blocker settings by choosing "Always allow pop-ups for <URL>"
	Office Tools	MS Office 2007/ 2010/ 2013/ 2016 Adobe Acrobat Reader 10 or above
	Screen Resolution	1024*768 or 1280*1024
Other Software	Directory Services	OFSAAI is qualified on both OPEN LDAP 2.2.29+ and Oracle Internet Directory v 11.1.1.3.0. However, it can be integrated with other directory services software like MS Active Directory.

	Note: • Configuration of Directory services software for OFSAAI installation is optional. For more information on configuration, see Infrastructure LDAP Configuration. • Open LDAP must be installed on MS Windows Server machine.

NOTE: To upgrade an existing OFSAA 8.0.x Java 7 instance to Java 8, see Appendix Q.
To configure the Oracle Database 19c Server and Client on a new installation, see MOS Doc ID: 2691006.1.

The following table shows the minimum software requirements for running OFSDF Applications Pack on each machine.

Table 1: Recommended software Combinations

Operating System	Database	Web Application Server	Web Server
Oracle Linux 6.6 / 7.1	Oracle Database	Oracle WebLogic Server /Apache Tomcat Server	Oracle HTTP Server/ Apache HTTP Server
Oracle Solaris 5.10 / 5.11	Oracle Database	Oracle WebLogic Server /Apache Tomcat Server	Oracle HTTP Server/ Apache HTTP Server
IBM AIX 6.1 / 7.1	Oracle Database	IBM WebSphere Application Server /Apache Tomcat Server	IBM HTTP Server/ Apache HTTP Server

2.4 Verifying the System Environment

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

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

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

2.5 Understanding Installation Modes

You can install OFSDF Applications Pack in Graphical User Interface (GUI) Mode. This mode launches the product installation in a GUI mode. Users need to enter the required

information on various panels within the UI. For more information on configuration required for GUI mode installation, see Configuration for GUI Mode Installation.

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

3 Preparing for Installation

This chapter provides necessary information to review before installing the OFSDF Applications Pack v8.0.6.0.0. This chapter includes the following topics:

- Installer and Installation Prerequisites
- Obtaining the Software
- Common Installation Activities

NOTE: If you are installing an application pack on an environment, where another application pack is already installed, you may sometimes get a warning message such as "*Object Already Exists*". This message can be ignored.

3.1 Installer and Installation Prerequisites

NOTE: The user profile executing the installation must have the permission on `/tmp` prior to installation.

NOTE: Sufficient space must be available in `/tmp`, else the installation will terminate, and logs are not generated.

Table 2: Installer and Installation Prerequisites

Requirement	Sub-Category	Expected Value

Environment Settings	Java Settings	PATH variable in `.profile` file must be set to include the Java Runtime Environment absolute path. The path should include java version (Java 7, or Java 8) based on the configuration.
		Note:
		▪ Ensure that the absolute path to JRE/bin is set at the beginning of PATH variable.
		For example,
		`PATH=/usr/java/jre1.7/bin:$ORACLE_HOME/bin:$PATH`
		▪ JAVA_HOME variable must be set in .profile file, pointing to the appropriate Java Runtime Environment Path.
		For example, export
		`JAVA_HOME=/usr/jdk/instances/jdk1.8.0`
		▪ Ensure that SYMBOLIC links to JAVA installation are not set in the PATH variable.

Requirement	Sub-Category	Expected Value
	Oracle Database Settings	**Oracle Database Server** ▪ TNS_ADMIN variable must be set in `.profile` file pointing to appropriate `tnsnames.ora` file. ▪ Enable Transparent Data Encryption (TDE) and/ or Data Redaction** ** **Note**: For more information, see Appendix S: Enabling Transparent Data Encryption in OFSAA. **OFSAA Processing Server** ▪ ORACLE_HOME variable must be set in `.profile` file pointing to appropriate Oracle Client installation. ▪ PATH variable in .profile file must be set to include appropriate `$ORACLE_HOME/bin path` ▪ Ensure that an entry (with SID/ SERVICE NAME) is added in the `tnsnames.ora` file on the OFSAA server.
	Oracle Essbase Settings	ARBORPATH, ESSBASEPATH, HYPERION_HOME to be set in the `.profile` file pointing to an appropriate Oracle Essbase Client installation. **Note**: These settings are required only if you want to use Oracle Hyperion Essbase OLAP features.
OS/ File System Settings	File Descriptor Settings	Greater than 15000 **Note**: The value specified here is the minimum value to be set for the Installation process to go forward. For other modules, this value may depend on the available resources and the number of processes executed in parallel.
	Total Number of Process Settings	Greater than 4096 **Note**: The value specified here is the minimum value to be set for the Installation process to go forward. For other modules, this value may depend on the available resources and the number of processes executed in parallel.
	Port Settings	Default port numbers to be enabled on the system are 6500, 6501, 6505, 6507, 6509, 6510, 6666, 9999, and 10101.
	`.profile` permissions	User to have 755 permission on the `.profile` file.
	Installation Directory	▪ A directory where the installation files will be installed. ▪ Assign 755 permission on this directory. For Big Data installation, assign 775 permission on this directory. ▪ This directory needs to be set as FIC_HOME.

	Staging Area/ Metadata Repository Directory	▪ A directory to hold the application metadata artifacts and additionally act as staging area for flat files. ▪ The directory should exist on the same system as the OFSAA Installation. This directory can be configured on different mount or under a different user profile. ▪ Assign 777 permission on this directory.
	Download Directory	▪ A directory where the product installer files will be downloaded/ copied. ▪ Assign 755 permission on this directory.
	OS Locale	▪ Linux: `en_US.utf8` ▪ AIX: `EN_US.UTF-8` ▪ Solaris: `en_US.UTF-8` To check the locale installed, execute the following command: `locale -a | grep -i 'en_US.utf'`
Database Settings	Database Instance Settings	▪ NLS_CHARACTERSET to be AL32UTF8 ▪ NLS_LENGTH_SEMANTICS to be BYTE ▪ OPEN CURSORS limit to be greater than 1000
Web Application Server	WebSphere/ WebLogic/ Tomcat	▪ Web Application Server should be installed and profile / domain created. ▪ You will be prompted to enter the WebSphere Profile path or WebLogic Domain path or Tomcat Deployment path during OFSAAI installation. **Note**: ▪ Refer Appendix A for WebSphere Profile Creation and WebLogic Domain Creation. ▪ For deployment on Oracle WebLogic Server 12.1.3+ (64 bit) with Java 8, download and install patch **18729264** from http://support.oracle.com/
Web Server	Apache HTTP Server/ Oracle HTTP Server/ IBM HTTP Server	This is an optional requirement. HTTP Server Installation to be present. You will be required to enter the Web Server IP/ Hostname and Port details during installation. **Note**: See Appendix A for Web Server installation.
Others	Oracle R/ Oracle R Enterprise	This is an optional requirement. See section Installing Oracle R distribution and Oracle R Enterprise (ORE) for more details.
	OFSAAI	1. Download the OFSAAI 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 OFSAAI Mandatory Patch **33663417** whenever you Install or Upgrade the Application, or whenever you apply an Incremental Patch. 2. Download the mandatory consolidated one-off patches **27938294** and **28079607** from My Oracle Support. 3. Download the compatibility patch **28033582** from My Oracle Support, which needs to be mandatorily applied. This patch enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. **NOTE**: Execute the DMT Migration Utility to manually migrate the DMT metadata of the Applications which are not upgraded to 8.0.6.0.0.
	OFSDF	1. Download the mandatory one-off patch **28214459** from My Oracle Support. 2. Since OFSAA 8.0.6.0.0 releases are not fully backward compatible with applications on earlier versions, you should apply the mandatory compatibility patch **28311975** on the applications that are dependent on OFSDF 8.0.6.0.0, and plan for one of the following: ▪ Perform entire OFSAA instance upgrade to 8.0.6.0.0 version after confirming that all of the application packs in your instance are available for upgrade to 8.0.6.0.0 version. ▪ Upgrade only selective packs in your instance to 8.0.6.0.0, while retaining the remaining applications at their current versions. **Note**: The compatibility patch **28311975** is mandatory for both the options described in the preceding list. The instructions to download and apply the patch is described in further steps and sections in this document. 3. Download the mandatory compatibility patch **28311975** from My Oracle Support. This patch enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 that are dependent on OFSDF 8.0.6.0.0, and makes the existing packs from earlier versions compatible with 8.0.6.0.0.

	For Big Data: OFSDF Stage and Results on Hive	Download the mandatory patches **28146898**, and **28432036** from My Oracle Support.
	For Big Data: OFSDF Stage on Hive and Results on RDBMS	To install OFSDF Stage on Hive and Results on RDBMS, OFSDF must be installed first.
	OFSDF DM/erwin files	Download the OFSDF Data Model patch **28079957** from My Oracle Support.

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

Login to Configuration Schema and execute the following SQL statements:

```
alter table AAI_AOM_APP_COMP_ATTR_MAPPING drop constraint
AOM_APP_COMP_ATTR_PK drop index
/

alter table AAI_AOM_APP_COMP_ATTR_MAPPING add constraint
AOM_APP_COMP_ATTR_PK primary key (APP_COMP_ATTR_MAP_ID)
/
```

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

3.2 Obtaining the Software

This release of OFSDF Applications Pack 8.0.6.0.0 can be downloaded My Oracle Support.

See the following instructions to download this release of OFS BFND Application Pack. You need to have a valid Oracle account in order to download the software:

- Login to My Oracle Support and search for **27569871** under the Patches & Updates tab.
- Download the OFSDF Application Pack v8.0.6.0.0 archive file and copy it to your OFSAA server in Binary mode.

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

3.3 Common Installation Tasks

The following are the common pre-installation activities that you need to carry out before installing the OFSDF application.

This section includes the following topics:

- Identifying the Installation, Download and Metadata Repository Directories
- Configuration for GUI Mode Installation

- Downloading and Copying the Software
- Extracting the Software
- Setting up the Web Application Server

3.3.1 Identifying the Installation, Download and Metadata Directories

To install OFSDF Application Pack, create the following directories:

- **OFSDF Download Directory** (Optional): Create a download directory and copy the OFSDF Application Pack Installer File (Archive). This is the directory where the downloaded installer/ patches can be copied.
- **OFSAA Installation Directory** (Mandatory): Create an installation directory. This is the directory where the installer would install/ copy the product files. FIC_HOME variable to be set in the `.profile` pointing to this OFSAA Installation Directory.
- **OFSAA Staging/ Metadata Repository Directory** (Mandatory): Create a Staging/ Metadata Repository Directory. This is the directory where you would be required to copy data loading files, save data extracts etc. Additionally, this folder also maintains the OFSAA metadata artifacts. This is commonly referred as “FTPSHARE”.
- **OFSDF Hive Directory** (Mandatory for Big Data Installation): Create a directory for file system stage area of Hive server. This is commonly referred to as “FTPSHAREH” or “HIVE_SERVER_FTPDRIVE”.

NOTE: Ensure the user permission is set to 755 on the Installation directory.

Ensure the user permission is set to 777 on the Staging directory.

For Big Data installation, ensure the user permission is set to 775 on the Installation Directory.

Ensure the OFSAA Staging directory is not set to the same path as the OFSAA Installation directory and is not a sub-folder inside the OFSAA Installation directory.

3.3.2 Configuration for GUI Mode Installation

To install this product in GUI mode, you need to ensure the below software and configurations are available:

- Install and configure any PC X Server software such as Open Text Exceed (formerly Hummingbird Exceed) on the user desktop system from which the installation is triggered.
- Configure DISPLAY variable.

  Ensure to set the DISPLAY variable (in user .profile) on the system on which the OFSAA Infrastructure will be installed, to point to the user desktop system where the PC X Server software has been installed.

  Syntax:

  ```
  export DISPLAY = hostname:n
  ```

where hostname is the IP Address/ Host Name of the user desktop system and n is the sequence number (usually 0).

For example, `10.11.12.13:0` or `myhostname:0`

3.3.3 Downloading and Copying the Software

To download and copy the OFSDF Application Pack Installer, follow these steps:

- To download the OFSDF Application Pack, login to My Oracle Support (https://support.oracle.com/) and search for **27569871** under the Patches & Updates tab.
- Enter Oracle Financial Services Data Foundation in the search box to search.
- Download or copy the installer archive into the Download directory (in Binary mode) in the setup identified for OFSDF installation.
- Download the OFSAAI 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 OFSAAI Mandatory Patch **33663417** whenever you Install or Upgrade the Application, or whenever you apply an Incremental Patch.
- Download the mandatory installer one-off patch **28398331** from My Oracle Support (https://support.oracle.com/).

3.3.4 Extracting the Software

After obtaining the installer, copy the installer (in BINARY mode) to the system on which the OFSAA Infrastructure components will be installed.

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

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

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

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

3. Assign 751 permission to the file using the command:

   ```
   chmod 751 unzip_<os>
   ```

   For example, `chmod 751 unzip_sparc`

4. Extract the contents of the OFSDF Application Pack 8.0.6.0.0 to Download Directory with the following command:

   ```
   unzip OFS_BFND_PACK.zip
   ```

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

NOTE: Do not rename the Application Pack installer folder name on extraction from the archive.

5. Navigate to the Download Directory and Assign 755 permission to the installer folder with the following command:

   ```
   chmod –R 755 OFS_BFND_PACK
   ```

3.3.5 Setting up the Web Application Server

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

4 Installing Oracle Financial Services Data Foundation Applications Pack

Follow the instructions in this chapter to install the OFSDF Applications Pack depending on the mode of installation.

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

This chapter includes the following topics:

- Schema Creator Utility
- Configuring and Executing the Schema Creator Utility
- Running the OFSDF Applications Pack Installer
- Verifying the Installation

4.1 About Schema Creator Utility

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

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

4.2 Configuring Schema Creator Utility

4.2.1 Configuring Schema Creator Utility for RDBMS Installation

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

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

- **CONFIG** – Denotes the unique OFSAA setup configuration schema. It contains entities and other objects required for OFSAA setup information.

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

- **ATOMIC** – Denotes the schema that contains the data model entities. One ATOMIC schema is attached to one Information Domain.

NOTE: There can be multiple ATOMIC schemas per OFSAA Instance, and an Information Domain can have only one ATOMIC schema.

4.2.2 Configuring Schema Creator Utility for HDFS Schema

In case the installation is being performed for Big Data, the pack specific schema details need to be filled in the OFS_BFND_SCHEMA_BIGDATA_IN.xml file, before executing the utility. For more information on the xml file, see Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml file.

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

- **CONFIG**:This schema holds the entities and other objects required for OFSAA setup configuration information.
  Note: There can be only one CONFIG schema per OFSAA instance. This schema is created only in RDBMS.

- **METADOM**: This schema holds the data model entities. One METADOM schema is attached to one Information Domain.
  Note: There can be multiple DATADOM schemas per OFSAA Instance. This schema is created only in RDBMS. It has only platform entities that hold the metadata details. However, it does not hold the data model entities.

- **DATADOM**: This schema holds data model entities. One DATADOM schema is attached to one Information Domain.
  Note: There can be multiple DATADOM schemas per OFSAA Instance.

4.3 Selecting Execution Modes in Schema Creator Utility

4.3.1Execution Modes in Schema Creator Utility

The Schema Configuration Utility supports the following modes of execution:

- **Online Mode**: In the Online mode, the utility connects to the database and executes the DDLs for Users, Objects and Grants. If you have the SYSDBA privileges you can execute the Schema Creator Utility in Online mode and thereby create the Users, Objects, and Grants during the execution process.

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

- **Offline Mode**: In the Offline mode, the utility generates SQL script with all the required DDLs for User, Objects and Grants. This script needs to be executed by the DBA on the appropriate database identified for OFSAA usage. If you do not have the SYSDBA privileges, you can execute the Schema Creator Utility in Offline mode and generate the script file that contains the Schemas, Objects, and Grants information. Subsequently, a SYSDBA user can execute the script file manually.
  NOTES:
  1. Connect as any database user.
  2. Reconfigure the file `OFS_BFND_SCHEMA_IN.xml` / `OFS_BFND_SCHEMA_BIGDATA_IN.xml` (as the case may be) and execute the

utility. For more information on reconfiguring these files, see Configuring OFS_BFND_SCHEMA_IN.xml File for RDBMS, and for Big Data, Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml file for Stage and Results on Hive and Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml.HYBRID file for Stage on Hive and Results on RDBMS. To execute the utility in Offline mode, you need to connect as any user with below grants:
(Alternatively, you can also connect as a user with SYSDBA privileges):

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

3. If there are any errors during the script execution, reconfigure the `OFS_BFND_SCHEMA_IN.xml / OFS_BFND_SCHEMA_BIGDATA_IN.xml` file and execute the utility. This regenerates the scripts with corrected information. For more information, see Configuring OFS_BFND_SCHEMA_IN.xml File for RDBMS, and for Big Data, Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml file for Stage and Results on Hive and Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml.HYBRID file for Stage on Hive and Results on RDBMS.
4. Do not modify the `<PACK>_SCHEMA_OUT.XML` file generated after the execution of this utility.

4.3.2 Selecting Execution Options in Schema Creator Utility

Depending on the option selected to run the OFSDF Applications Pack Installer, you need to select the schema creator utility execution option. If you try to run the OFSDF Applications Pack installer in SILENT mode, it is mandatory to execute the schema creator utility with `-s` option.

NOTE: If the schema creator utility is executed without the option `-s`, it is mandatory to run the OFSDF Applications Pack Installer in GUI mode.

4.4 Configuring and Executing the Schema Creator Utility

Schema Creator Utility is used to create the schema in the database.

This section includes the following topics:

- Prerequisites
- Configuring the Schema Creator Utility
- Executing the Schema Creator Utility
- Verifying the Log File

4.4.1 Prerequisites

The following prerequisites must be satisfied before configuring the Schema Creator Utility:

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

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

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

4.4.2 Configuring to Run the Schema Creator Utility

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

To configure the Schema Creator Utility, follow these steps:

1. Log in to the system as non-root user.
2. Navigate to the following path: `OFS_BFND_PACK/schema_creator/conf`
3. Under the above directory you will find the following files:
   - `OFS_BFND_SCHEMA_BIGDATA_IN.xml.template`
   - `OFS_BFND_SCHEMA_IN.xml`
   - `OFS_BFND_SCHEMA_BIGDATA_IN.xml.HYBRID.template`
   - `OFS_BFND_CFG.dat.template`
   - `OFS_BFND_APP_CFG.dat`
   - `App_Pack_Bigdata_Schema_Creator.xsd`
   - `App_Pack_Schema_Creator.xsd`
4. If FSDF is being installed in Big Data infodom, below file is renamed:
   - `OFS_BFND_SCHEMA_IN.xml`
5. Edit the `OFS_BFND_SCHEMA_IN.xml/OFS_BFND_SCHEMA_BIGDATA_IN.xml` file in a text editor.
6. Configure the elements as described in the section Configuring OFS_BFND_SCHEMA_IN.xml File for RDBMS, and for Big Data, Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml file for Stage and Results on Hive and Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml.HYBRID file for Stage on Hive and Results on RDBMS. For example, to create schemas only in RDBMS, populate the `OFS_BFND_SCHEMA_IN.xml` file.
7. Save the `OFS_BFND_SCHEMA_IN.xml/OFS_BFND_SCHEMA_BIGDATA_IN.xml` file.

8. Navigate to BIN folder, provide execute permissions to file `osc.sh` and run the schema creator utility.

NOTE: On successful execution of the utility, the entered passwords in the `OFS_BFND_SCHEMA_IN.xml/OFS_BFND_SCHEMA_BIGDATA_IN.xml` file are nullified.

4.4.3 Executing the Schema Creator Utility

This section includes the following topics:

- Executing the Schema Creator Utility in Online Mode
- Executing the Schema Creator Utility in Offline Mode
- Executing the Schema Creator Utility with –s option
- Executing the Schema Creator Utility while Installing Subsequent Application Pack
- Verifying the Log File

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

4.4.3.1 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:

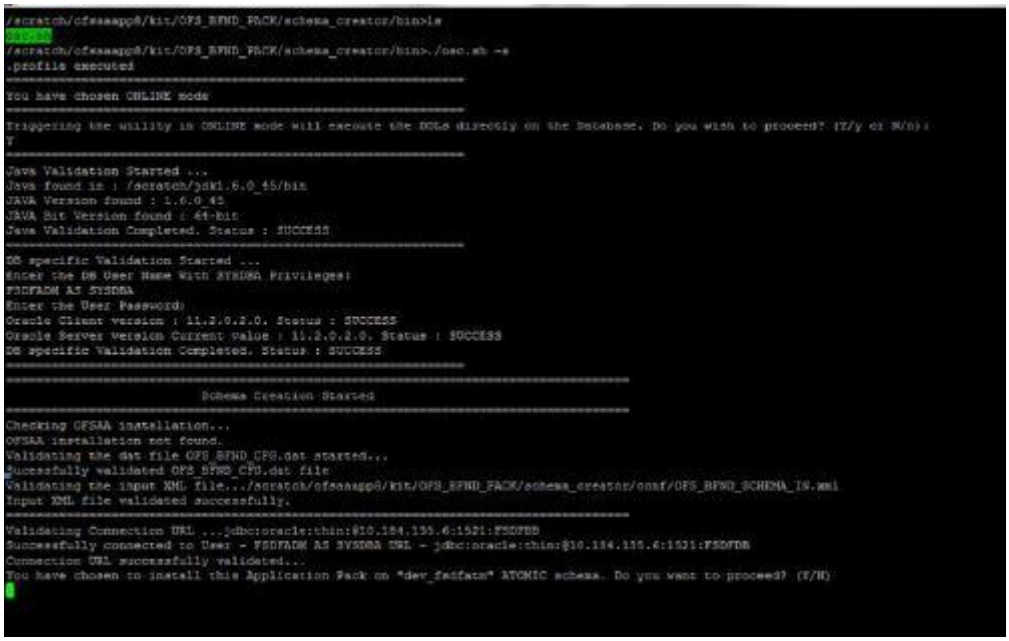
1. Log in to the system as non-root user.
2. Navigate to the following folder path: `OFS_BFND_PACK/schema_creator/bin/`
3. Execute the following command.
   ./osc.sh

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

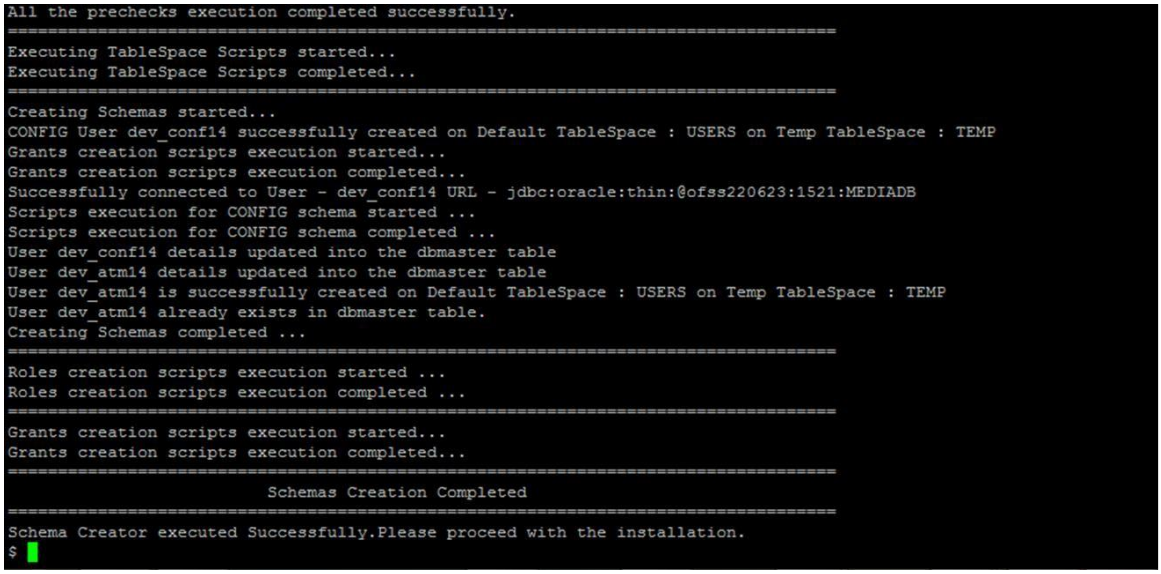
```
$ ./osc.sh
============================================================
You have chosen ONLINE mode
============================================================
Triggering the utility in ONLINE mode will execute the DDLs directly on the Database. Do you wish to proceed? (Y/y or N/n):
y
============================================================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

Or

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



8. Enter Y/y to start the schema creation or enter N/n if you want to quit executing the schema creation.



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

Schema Creator executed successfully. Please proceed with the installation.

NOTE: If schema creation is successful, the console displays the following status message: *Schema Creator executed successfully. Please proceed with the installation*. Subsequently, an `OFS_BFND_SCHEMA_OUTPUT.xml` is generated under `<OFS_BFND_Pack>/schema_creator/`

Refer log file in `OFS_BFND_PACK/schema_creator/logs` directory for execution status. In case of any errors, contact Oracle Support.

4.4.3.2 Executing the Schema Creator Utility in Offline Mode

In Offline Mode, the Schema Creator Utility will create an output in SQL file format. This script has to be executed manually by logging into the database as any user with SYSDBA privileges. The SQL file will contain the scripts for creation of Schemas, Schema Objects, Tablespaces, Grants, and Roles.

Prerequisites

To execute the utility in Offline mode, you need to connect as any user with below grants (alternatively, you can also connect as a user with SYSDBA privileges):

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

NOTE: Explicit Grants to the user are required. Grants assigned through Roles are not supported.

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

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

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

4. The following message is displayed:
   You have chosen OFFLINE mode. Triggering the utility in OFFLINE mode will generate the script. Do you wish to proceed? (Y/y or N/n).
5. Enter Y/y to proceed.
6. Enter the DB Username with `SELECT` privileges.

7. Enter the User Password.

```
$ ls
osc.sh
$ ./osc.sh -o
============================================================
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
============================================================
You have chosen OFFLINE mode.
Enter the DB User Name with SELECT privileges on following tables
1. DBA_ROLES
2. DBA_USERS
3. DBA_DIRECTORIES
4. DBA_TABLESPACES
sample
Enter the User Password:
================================================================================
                        Schemas Creation Started
================================================================================
OFSAAI installation status...
OFSAAI is not installed
validating the dat file OFS_AAAI_CFG.dat started...
Sucessfully validated OFS_AAAI_CFG.dat file
Validating the input XML file.../scratch/ofsaaapp/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
XSD validation completed successfully.
================================================================================
Prechecks Execution started on ...OFS_AAAI_SCHEMA_IN.xml
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "dev_anurag_atm" ATOMIC schema. Do you want to proceed? (Y/N)
```

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

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

9. Enter Y/y to start the script generation. The following message is displayed:
   You have chosen to install this Application Pack on <Name of the Infodom>. Do you want to proceed? (Y/N).

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

    Enter N/n if you want to quit the 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:oracle:thin:@ofss220623:1521:MEDIADB
Validating the input XML file.../scratch/ofsaadb/OFS_AAAI_PACK/schema_creator/conf/OFS_AAAI_SCHEMA_IN.xml
Input XML file validated successfully.
================================================================================
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sample URL - jdbc:oracle:thin:@ofss220623:1521:
MEDIADB
Connection URL successfully validated...
You have chosen to install this Application Pack on "uat_atm_anurag" ATOMIC sche
ma. Do you want to proceed? (Y/N)
y
You have chosen to install this Application Pack on INFODOM "ofsaaaiinfo1". Do y
ou want to proceed? (Y/N)
y
================================================================================
```

```
================================================================================
===
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: On successful execution of schema creator utility, the console displays the following status message:
Schema Creator executed successfully. Please execute `OFS_BFND_Pack/schema_creator/sysdba_output_scripts.sql` file before proceeding with the installation.

11. Navigate to the directory: `OFS_BFND_Pack/schema_creator`
12. Login to SQLPLUS with a user having SYSDBA Privileges.
13. Connect to the Oracle DB Server on which the OFSAA Application Pack installation is to be performed and execute the `sysdba_output_scripts.sql` file under `OFS_BFND_Pack/schema_creator` 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 `sysdba_output_scripts.sql` file, after providing appropriate execute permissions.

    The schema creator utility is executed successfully.

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

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

NOTE: Refer log `sysdba_output_scripts.log` file for execution status. In case of any errors, contact Oracle Support. If there are no errors in the execution, the log file is empty.

4.4.3.3 Executing the Schema Creator Utility with –s Option

If you want to run the OFSDF Applications Pack Installer in SILENT mode, it is mandatory to execute the schema creator utility with `-s` option.

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

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

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

NOTE: If the utility is executed **without** the `-s` option, it is mandatory to launch the OFSDF Applications Pack Installer in GUI mode.
To execute the utility in OFFLINE mode with SILENT option, type /`osc.sh -o -s`

3. Make a TNS entry for the new users created. For details, see Adding TNS Entries in the TNSNAMES.ORA File section.

4.4.3.4 Executing the Schema Creator Utility for Subsequent Application Pack

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

To execute the schema creator utility while creating the schemas for subsequent application pack, follow these steps:

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

1. Navigate to the following folder path: `OFS_BFND_Pack/schema_creator/bin/`
2. Execute the `./osc.sh` file using the command:
   `./osc.sh -s`
3. Enter the DB Username with SYSDBA Privileges. Run this command:
   `sys as sysdba`
4. Enter the User Password.
5. The console identifies the Application Packs that are already installed on the current OFSAA setup and then displays the following:
   a. You have selected to install this Application Pack on <> ATOMIC schema.

b. To proceed enter (Y/y). To change the selection, enter (N/n). Do you want to proceed? (Y/N)

6. Enter Y/y to start the schema creation.
   - For Big Data installation, Stage and Results on Hive:
     a. You have chosen to install this Application Pack on INFODOM “fsdfinfo”.
     b. Do you want to proceed? (Y/N)
     c. Enter Y/y to begin.
7. If you enter N/n, the list of Atomic Users is displayed.
8. You can select the Atomic User, on which you want to install the Application Pack.

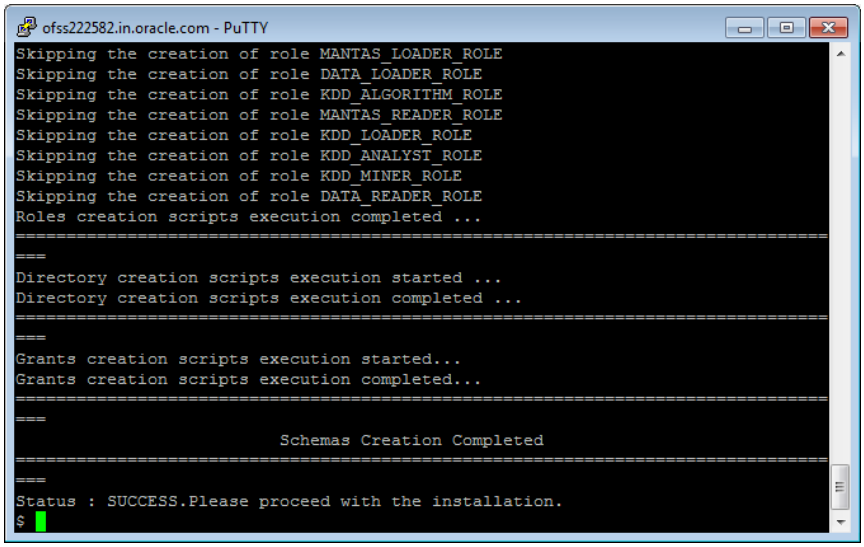
```
Validating Connection URL ...jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Successfully connected to User - sys as sysdba URL - jdbc:oracle:thin:@ofss220623:1521:MEDIADB
Connection URL successfully validated...
The following Application Packs are already installed in this OFSAA setup:


dev_atm1-           INFOTR-             "OFS_TR_PACK"


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


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


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

9. Make a TNS entry for the new users created. For details, see Adding TNS Entries in the TNSNAMES.ORA File section.
10. If schema creation is successful, the console displays the following status message: `Success. Please proceed with the installation.`

NOTE: Refer log file in folder `OFS_BFND_PACK/schema_creator/logs` for execution status.

Refer log `sysdba_output_scripts.log` file for execution status, if executed in offline mode. This log would be empty if there are no errors in the execution. In case of any errors, contact Oracle Support.

4.4.3.5 Verifying the Log File



If schema creation is successful, the console would display an appropriate message. If the schema creation runs into errors, do refer the log file:

`<<OFSBFND Installer folder>>/<<OFS_BFND_PACK>>/schema_creator/logs/`

`<<OFS_BFND>>_OSC_<timestamp>.log` for further details.

You may contact Oracle Support anytime for assistance.

4.5 Installing the OFSDF Applications Pack

OFSDF Applications Pack installation supports two modes of installation:

- Installing in GUI Mode
- Installing in SILENT Mode

4.5.1 Installing in GUI Mode

NOTES:

1. GUI mode of installation is supported only on RDBMS database server. For HDFS support of installation, see section Installing in SILENT Mode
2. Ensure you have followed the steps as mentioned in the Configuration for GUI Mode Installation section prior to proceeding with the next steps.

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

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

3. Execute the user `.profile` file.

4. Navigate to `OFS_BFND_PACK` directory.
5. Edit the `OFS_BFND_PACK/schema_creator/conf/OFS_BFND_SCHEMA_IN.xml` file to set the appropriate attribute values.

   NOTE: See Configuring OFS_BFND_SCHEMA_IN.XML File for details on configuring this XML file.

6. Execute the schema creator utility.

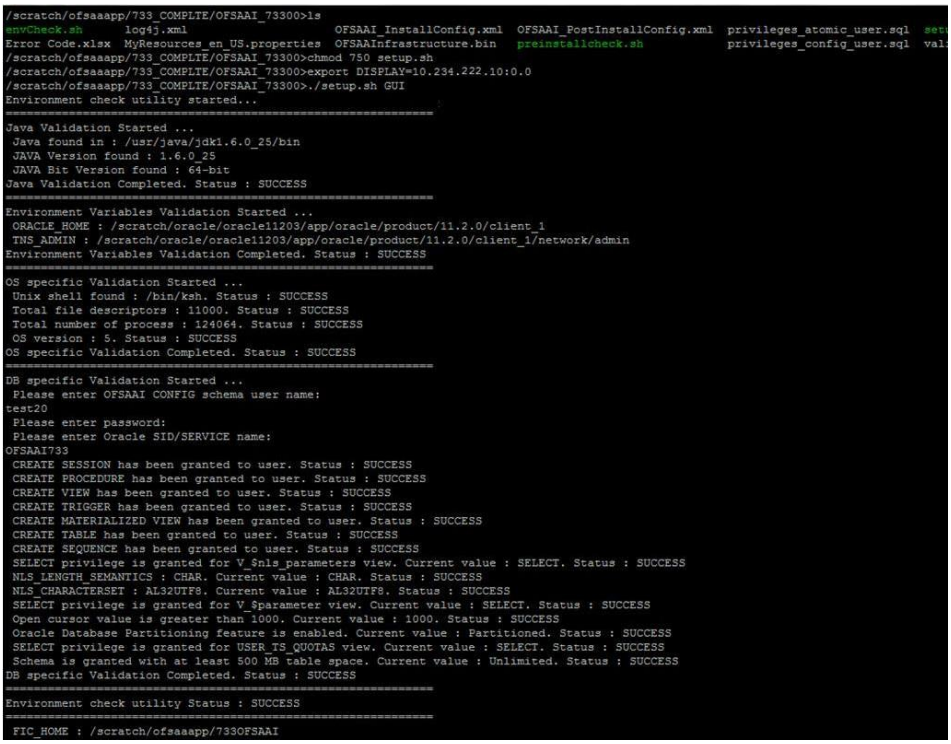
   NOTE: This step is mandatory and should be executed before every OFSAA Application Pack installation. See Executing the Schema Creator Utility for more details.

7. Navigate to the: `OFS_BFND_PACK/bin` directory.
8. Execute the following command in the console:

   ```
   ./setup.sh GUI
   ```

   NOTE: Refer the console for any errors during Pre-install checks.

Validating the Installation



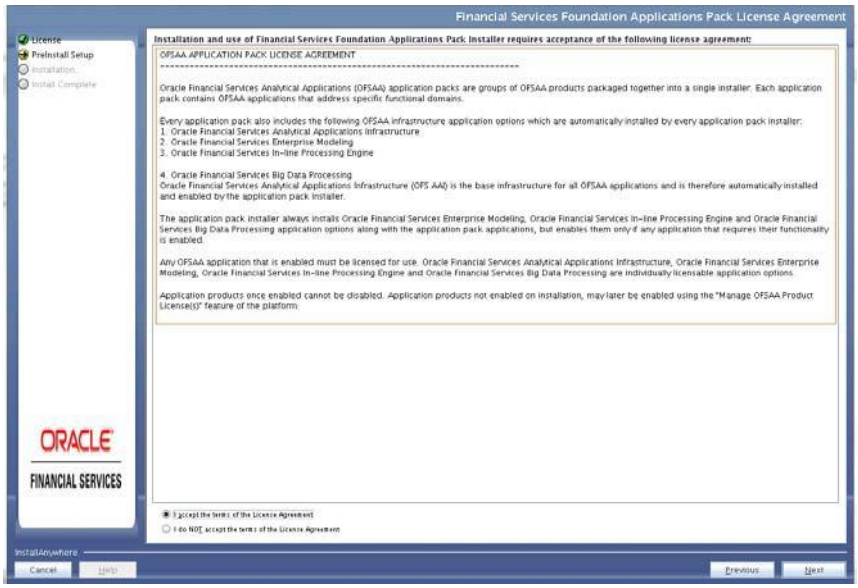
Initialization Window

9. The General License Agreement is displayed.

10. Select **I accept the terms if the License Agreement** option.
11. Click **Next**. The Application Pack details are displayed:

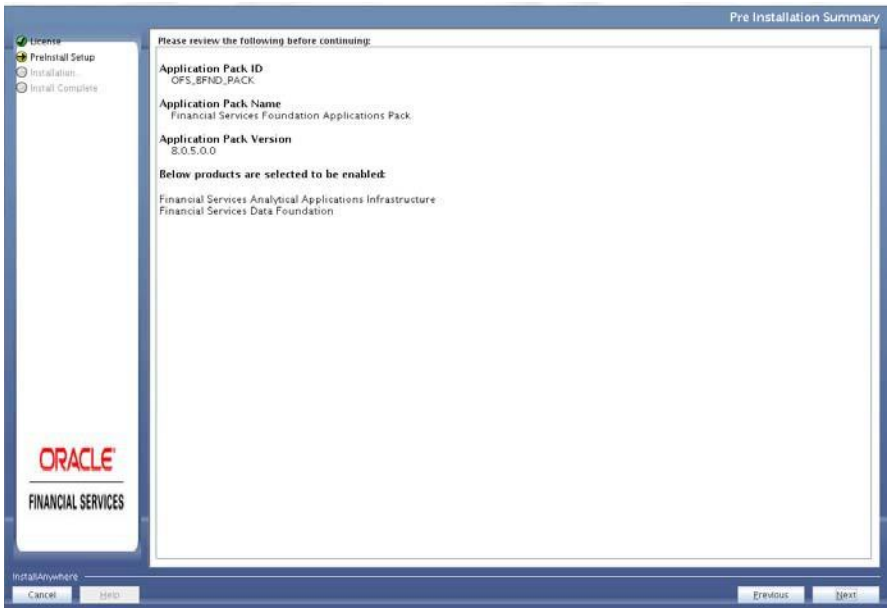
12. Select the product to enable for which you have already obtained license. Refer to Appendix for enabling additional products post the OFSDF App pack installation at a later time.

13. Click **Next**. The Application Pack License Agreement is displayed.



14. Select **I accept the terms if the License Agreement** option.

15. Click **Next**, The Pre-Installation Summary is displayed.

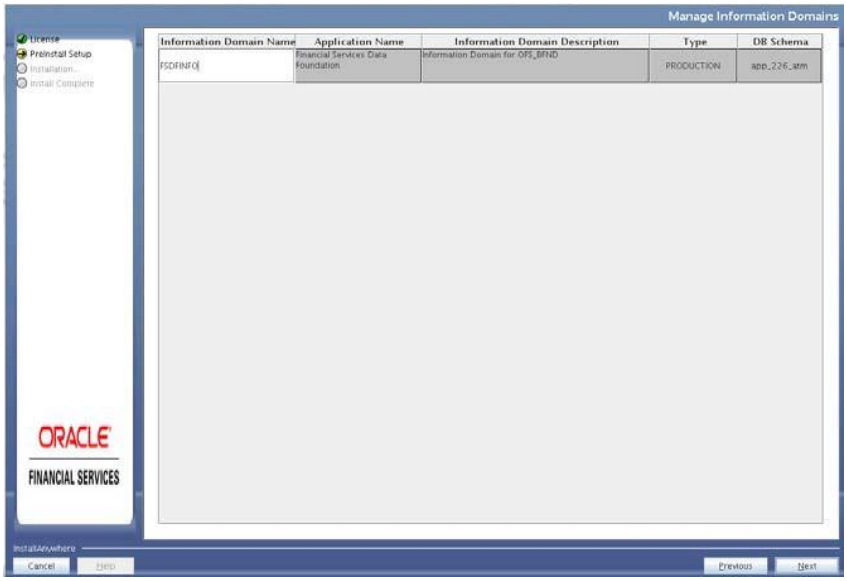


16. Click **Next**. The *Manage Information Domains* window is displayed.

NOTE:

- If you are installing OFSDF on top of any existing application pack, and if you want to use the same Information Domain, Click **Next**.
- If you want to install OFSDF on a new Information Domain, edit the Information Domain field with new name, and Click **Next**.

Domain Name



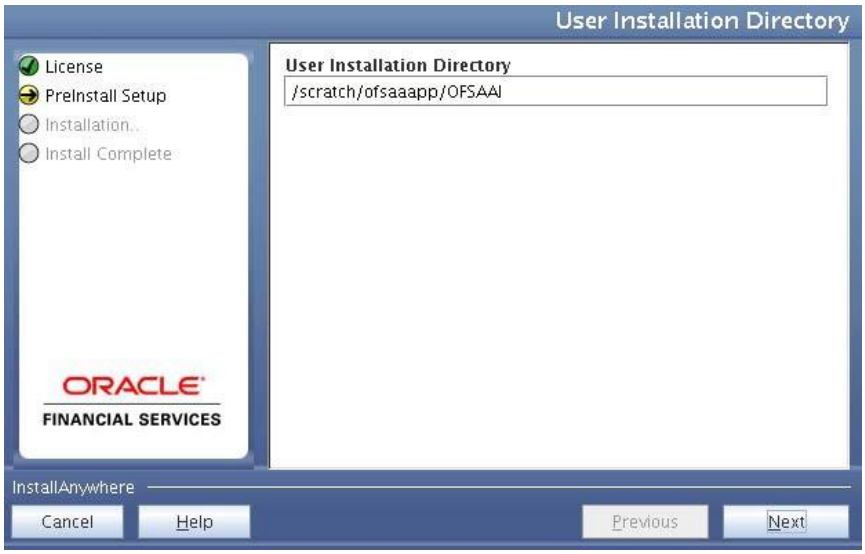
17. The default Information Domain Name for this Application Pack is OFSBFNDINFO. Double-click the Information Domain Name to edit if it is a new Information domain and you wish to change the name of the information domain name.

NOTE: For subsequent Application Pack installation on the same Information Domain, the Information Domain Name is not editable.
Permissible length is 16 characters and only alphanumeric characters are allowed. No special characters are allowed.

18. Change the INFODOM name to FSDFINFO and click **Next**.

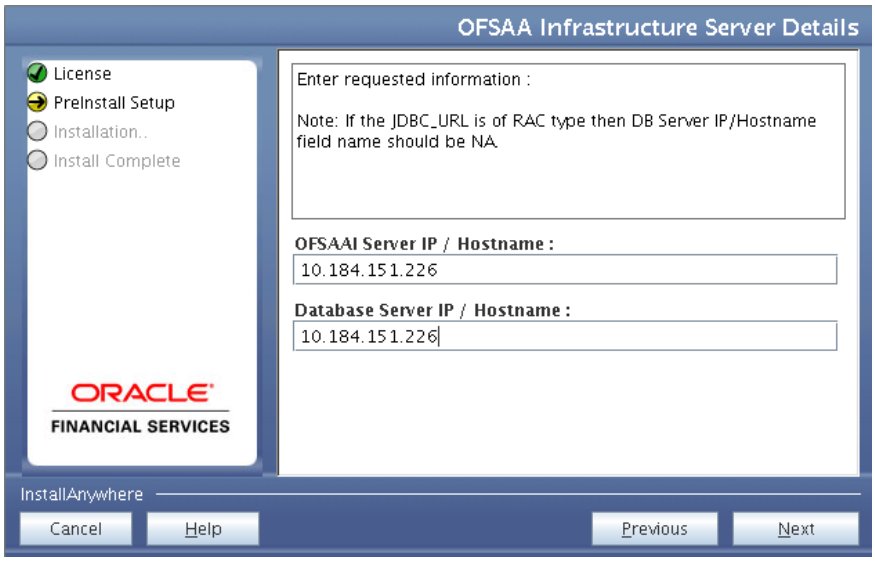
    The *User Installation Directory* window is displayed.

User Installation Directory



19. Enter the installation directory path. This is the directory you have set in the user `.profile` file in Step 2.
20. Click **Next**. The *OFSAA Infrastructure Server Details* window is displayed.

OFSAA Infrastructure Server Details

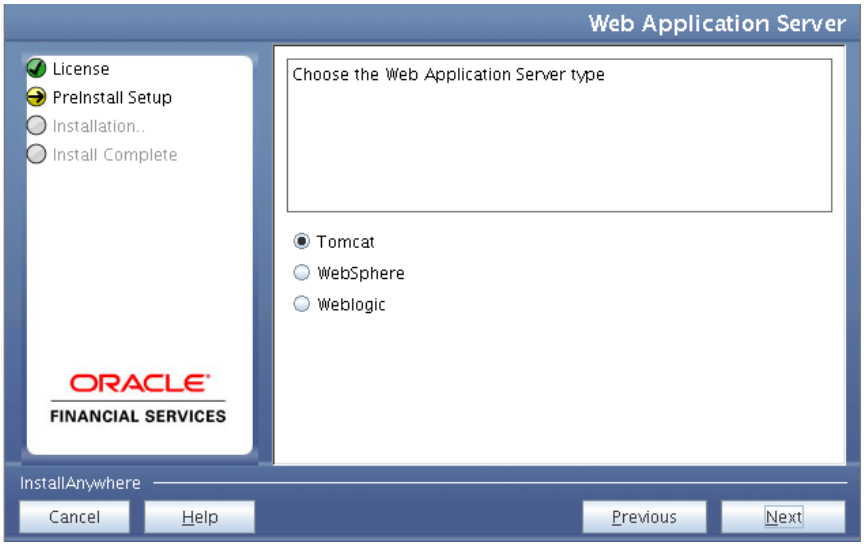


21. Enter the IP address or hostname of the Database Server.

NOTE: The OFSAAI Server IP/Hostname is auto-populated by default.

22. Click **Next**. The *Web Application Server* window is displayed.

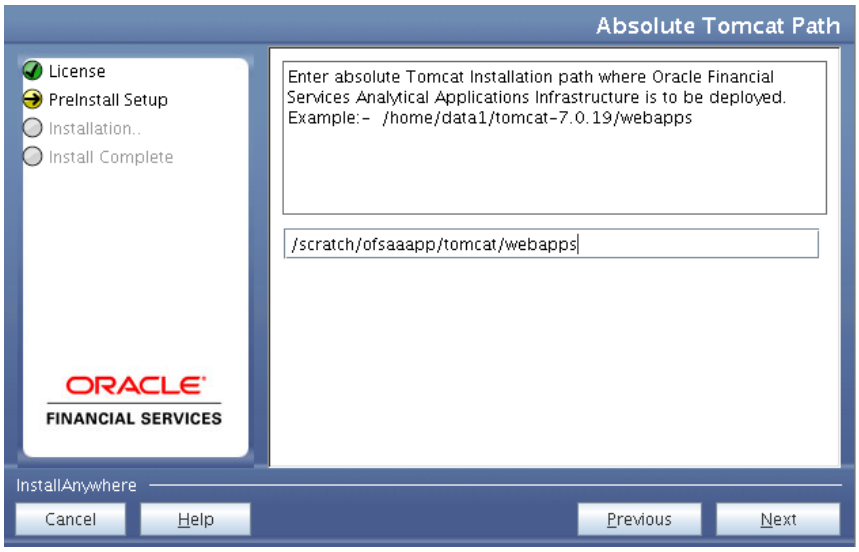
Web Application Server



23. Select the appropriate Web Application server type. The options are Tomcat, WebSphere and WebLogic.
24. Click **Next**. Based on the selection, corresponding screens are displayed.

    For Tomcat: The *Absolute Tomcat Path* window is displayed.

Absolute Tomcat Path



25. Enter the Tomcat installation path (till /webapps) where OFSAAI will be deployed.

    ***For* WebSphere**: The *WebSphere Setup Details* window is displayed.

WebSphere Setup Details

26. Enter the installation path (up to the Node Cell Name directory) of the WebSphere. The format is WebSphere path <`WebSphere profile directory>/installedApps/<NodeCellName>`.

    For WebLogic: The *Weblogic Home* window is displayed.

WebLogic Home

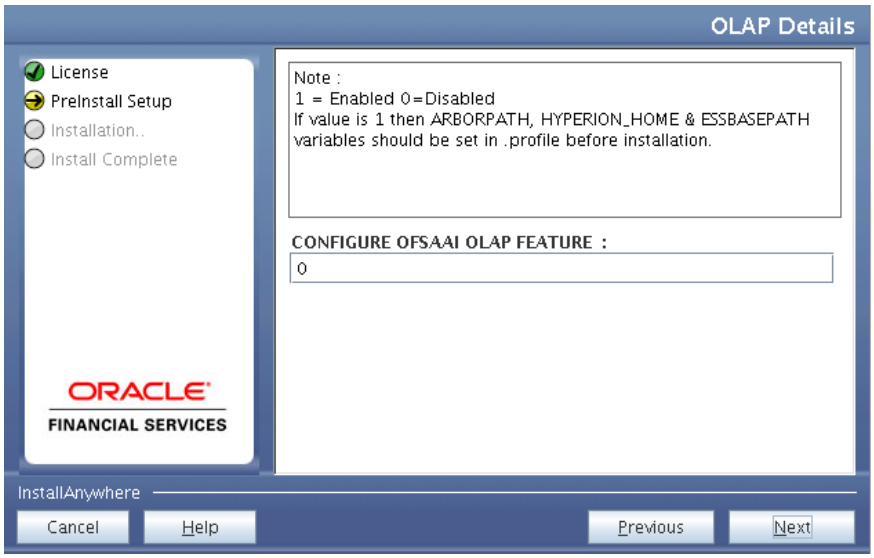
27. Enter the WebLogic home directory path.

WebLogic Setup Details

28. Enter the path of the WebLogic domain home directory and click **Next**.

    The *OLAP Details* window is displayed.

OLAP Details

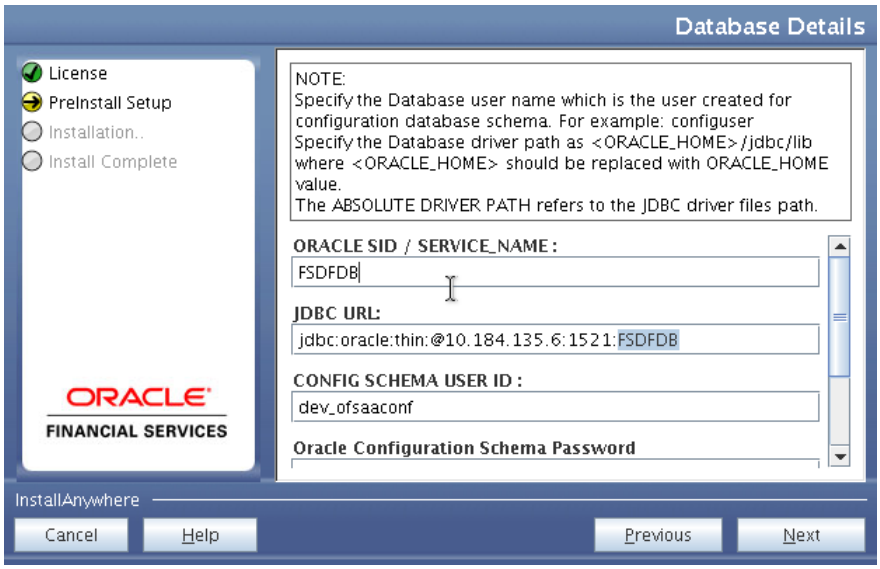


29. Enter 1 if you want to configure OFSAAI OLAP feature. By default, 0 is displayed.
30. Click **Next**. The *Web Server Details* window is displayed.

Web Server Details

31. Select the **Enable HTTPS** checkbox to configure HTTPS, if required and enter the WEB SERVER (HTTP Server) PORT, WEB APP SERVER (HTTP Server) IP address, Context name for deployment and the Web Local path to any folder on the Web Application Server (Tomcat/ WebSphere/ WebLogic).
32. Click **Next**. The *Database Details* window is displayed.

Database Details

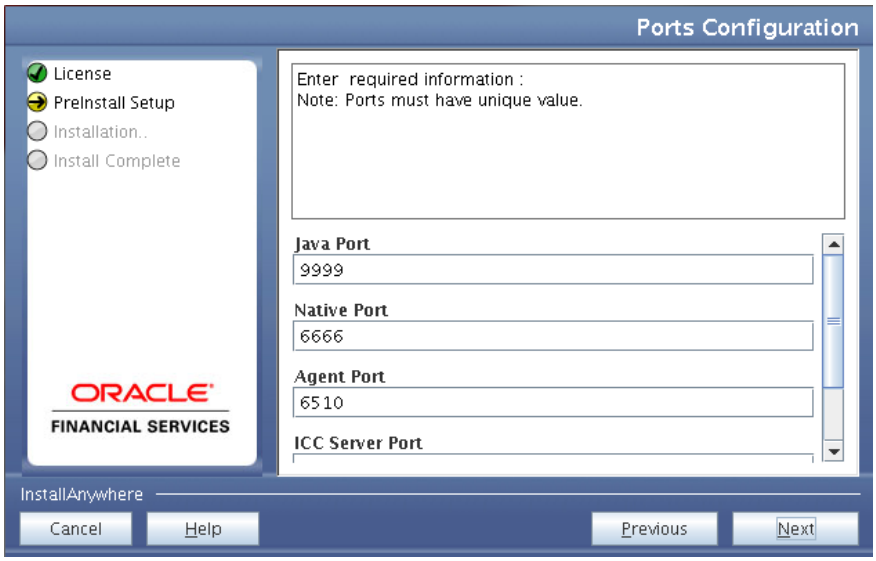


33. Enter Oracle SID/Service Name.

NOTE: The JDBC URL, CONFIGURATION SCHEMA USER ID and Oracle Configuration Schema Password, and ABSOLUTE DRIVER PATH fields are auto-populated. ABSOLUTE DRIVER PATH can be the path where Oracle DB client is installed or JDBC driver is installed. For example:
`/scratch/oracle/app/oracle/product/11.2.0/client_1/jdbc/lib`

34. Click **Next**. The *Ports Configuration* window is displayed.

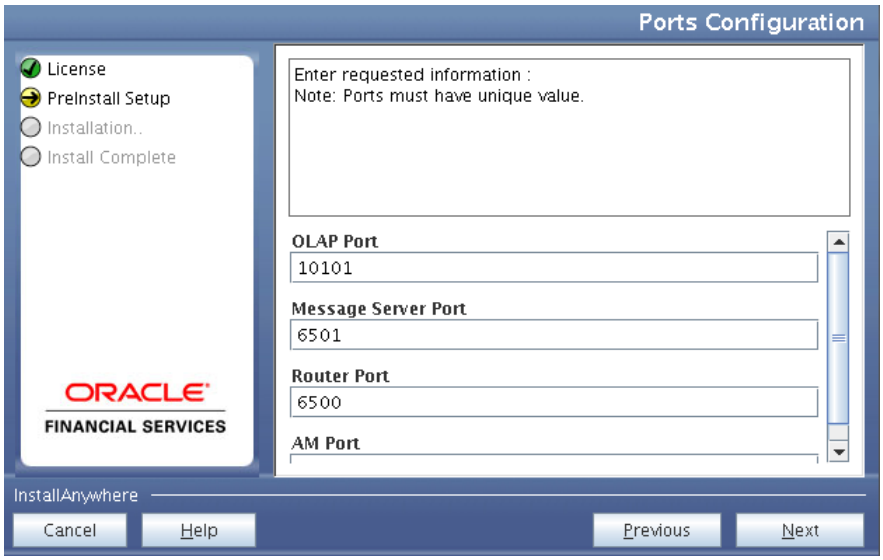
Ports Configuration



NOTE: The Java Port, Native Port, Agent Port, ICC Server Port, and ICC Native Port fields are auto-populated. You can proceed with the default port values configured or modify.

35. Click **Next**. The *Ports Configuration* window is displayed.

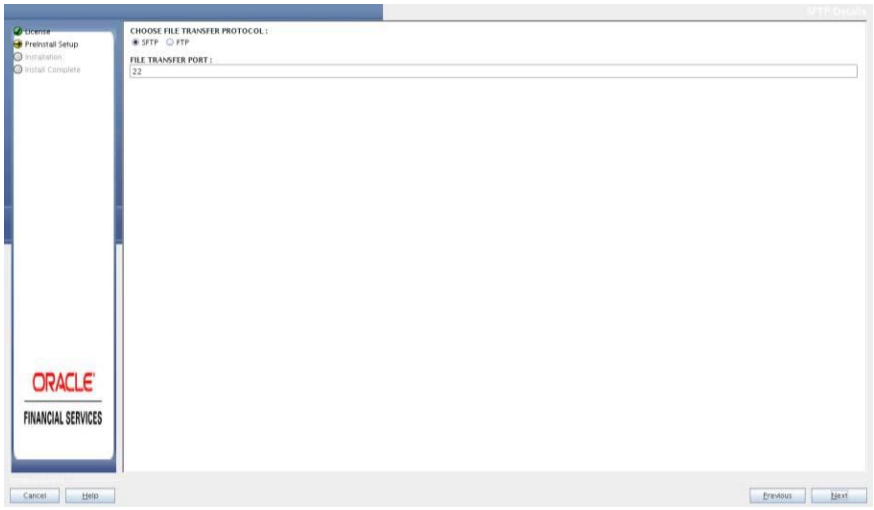
Ports Configuration



NOTE: The OLAP Port, Message Server Port, Router Port, and AM Port fields are auto-populated. You can also configure the Ports settings.

36. Click **Next**. The *SFTP Details* window is displayed.

SFTP Details

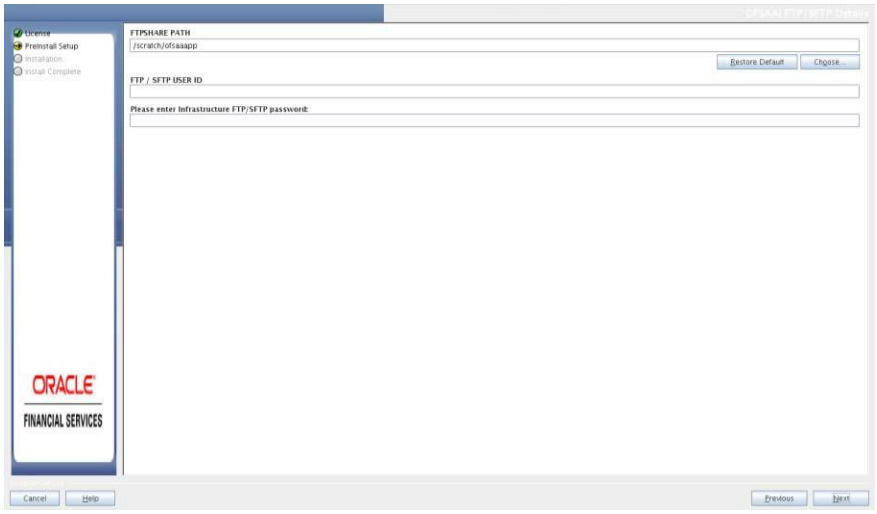


37. Enter **1** to enable SFTP or **0** to enable FTP.

NOTE: ENABLE SFTP and FILE TRANSFER PORT fields are auto-populated.
Ensure the system on which the OFSAA Infrastructure is being installed, has either FTP/ SFTP enabled.
You can also modify the SFTP settings.

38. Enter the port to be used for file transfer.
39. Click **Next**. The *OFSAAI FTP / SFTP Details* window is displayed.

OFSAAI FTP / SFTP Details



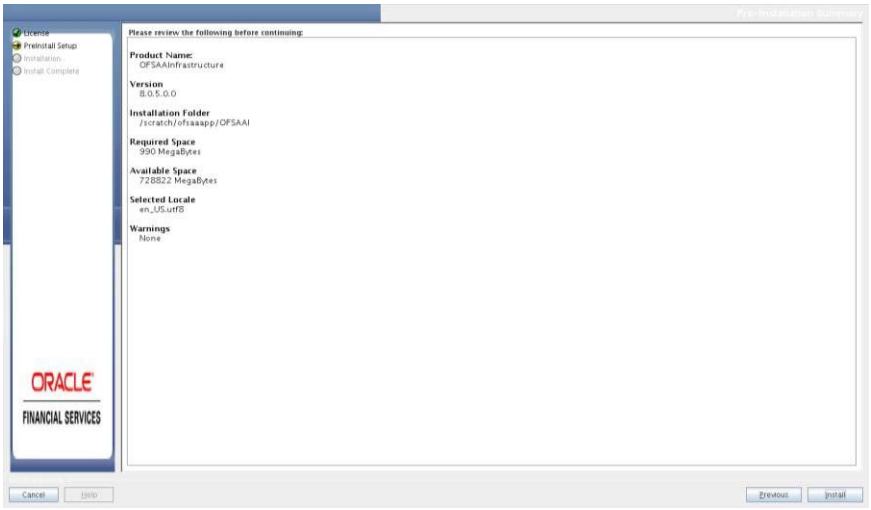
40. Enter the FTPSHARE path. This is same as the OFSAA Staging/ Metadata directory.

41. Enter the FTP/SFTP User ID and Password for FTPSHARE directory access.

NOTE: The transfer of data (files) between the OFSAAI Server and the Web Application Server happens over FTP/ SFTP. Ensure the necessary host configurations are made for a successful handshake.
For more details, see FTP/SFTP Configuration for File Transfer.

42. Click **Next**. The *Pre Installation Summary* window is displayed.

Pre Installation Summary



43. Click **Install**. The *Installing OFSAA Infrastructure* window is displayed.

Installing OFSAA Infrastructure

NOTE: Anytime during the installation, you can click **Cancel** to stop the installation. Once completed, the *INSTALLATION SUMMARY* window is displayed.

Installation Summary

The *INSTALLATION SUMMARY* window displays the number of Fatal Errors, Errors, Debug Statements, Information, and Warnings along with the location of log files.

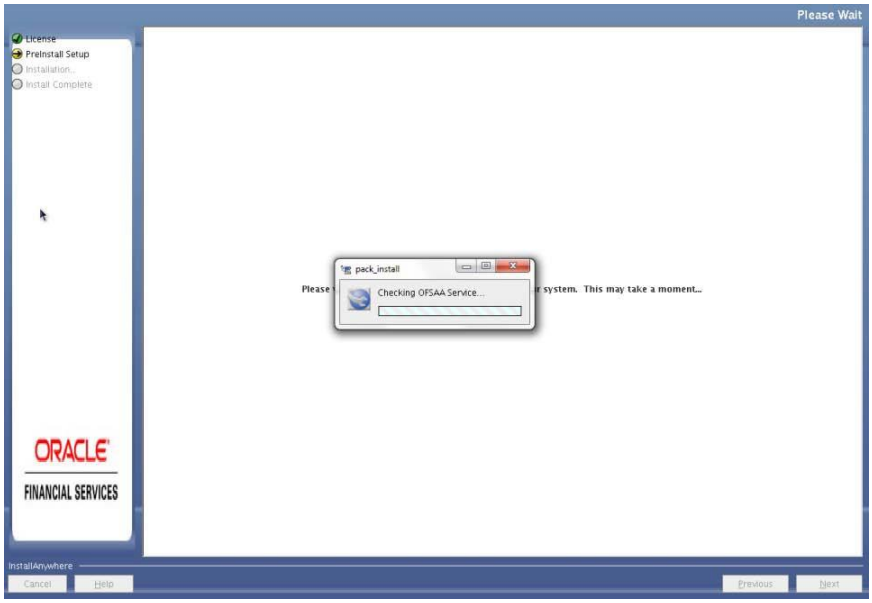
44. Click **Next**. The *Installation Complete* window is displayed.

Installation Complete

NOTE: If the installation is successful with some warnings, you can navigate to the installation log for more details and address them.

45. Click **Done**. The following message is displayed: Please wait, pack install is being configured for your system. This may take a moment.

Checking OFSAAI Services

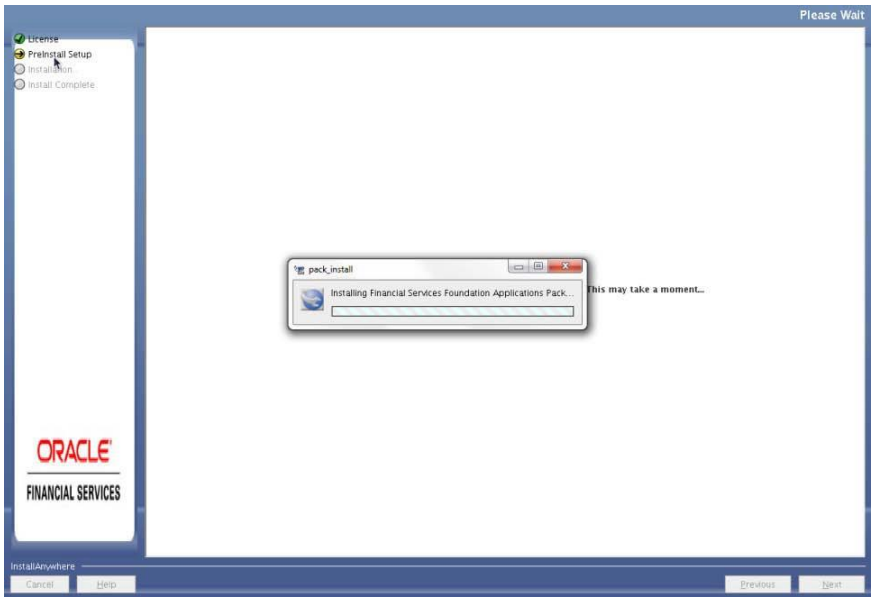


NOTE: This step verifies the OFSAA services startup. In case of errors during services check, an appropriate error message is displayed.

After checking the OFSAA services, installation proceeds with the OFS BFND Application Pack Installation.

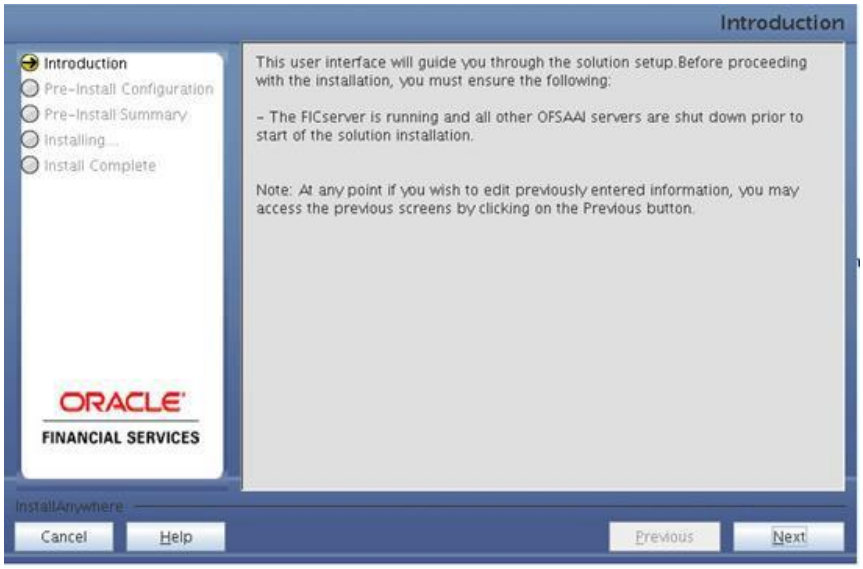
46. The Installer will prepare to install *Oracle Financial Services Data Foundation Applications Pack.*

Installing Oracle Financial Services Data Foundation Applications Pack



47. The *Solution Setup – Introduction* window is displayed.

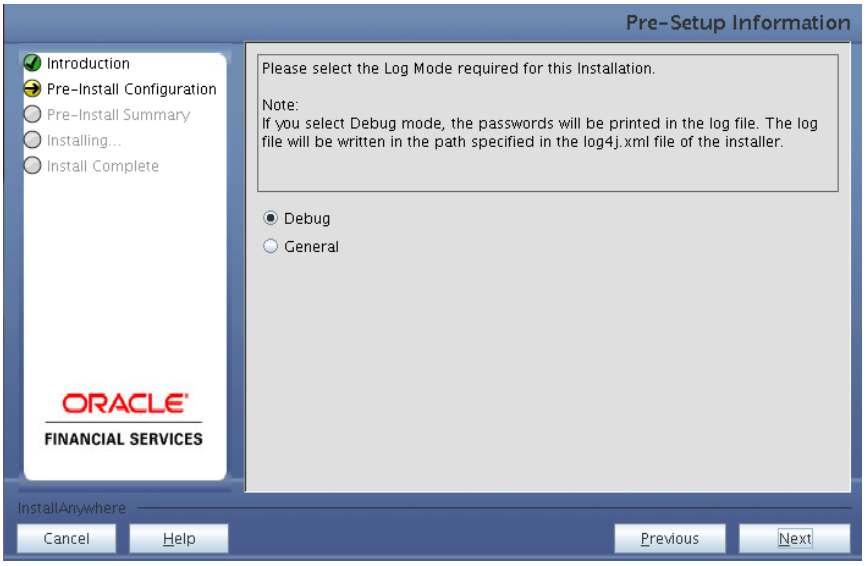
Solution Setup Introduction



48. Click **Next**. Log mode window is displayed. Select the **Log Mode**.

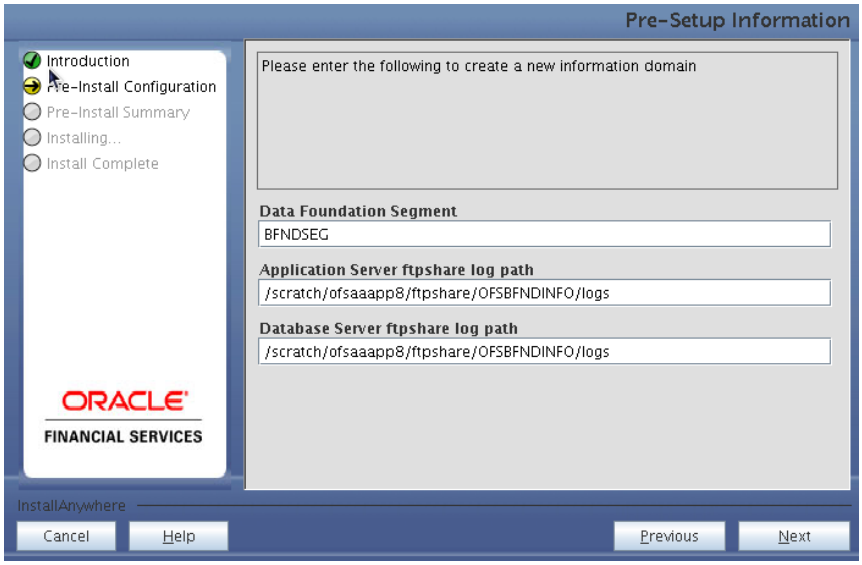
NOTE: If **Debug** is selected, the Passwords will get printed in the log file.
If **General** is selected then the general information will get printed in the log file.

Log Mode

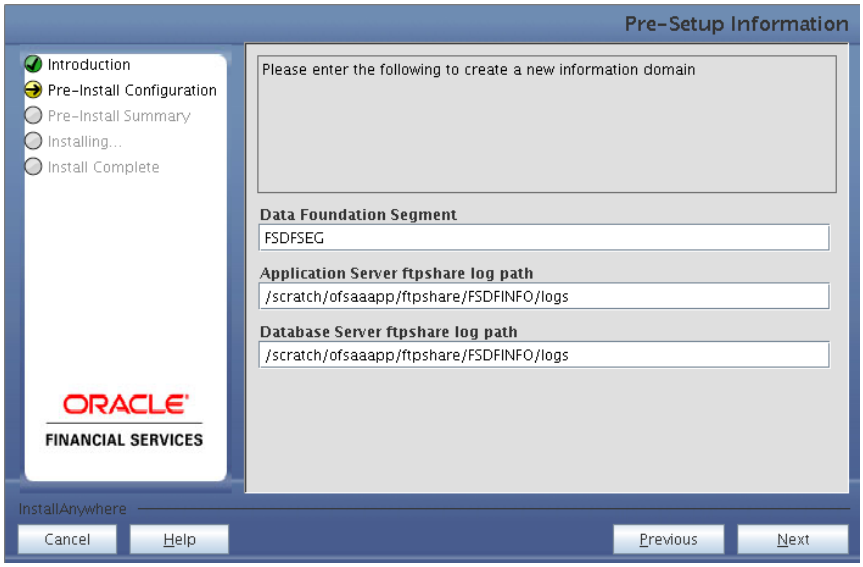


49. Click on **Next**. Segment creation window is displayed. Enter the Data Management Segment, Application Server ftpshare log path, and Database server ftpshare log path in the *Information Domain* window, and click **Next**.

Segment Creation

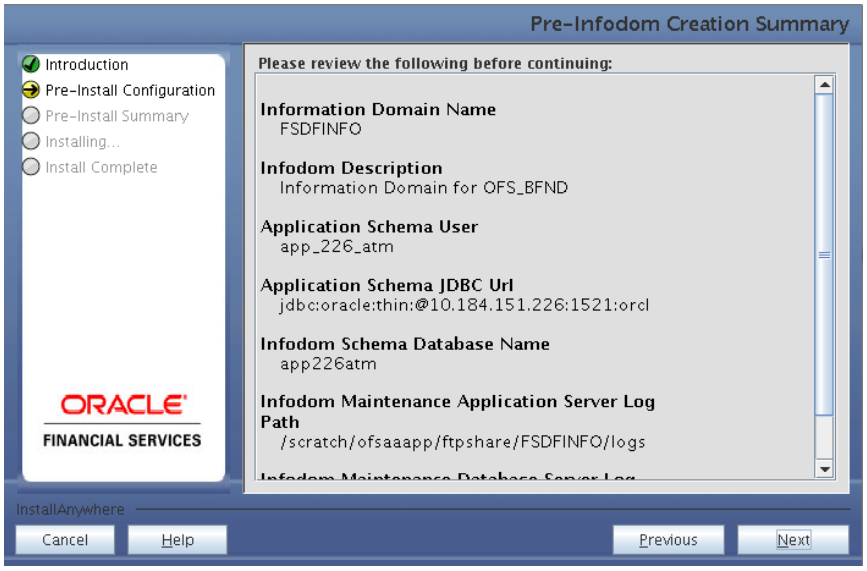


NOTE: If you are installing FSDF on top of any other pack, you must provide segment name and click **Next**.



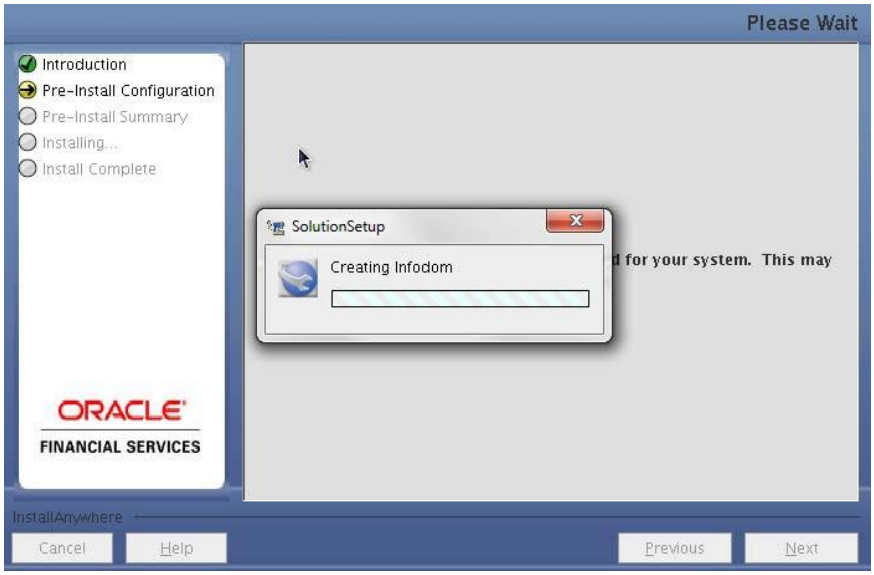
50. Click **Next**. The *Pre-Information Creation Summary* window is displayed.

Pre-Information Domain Creation Summary



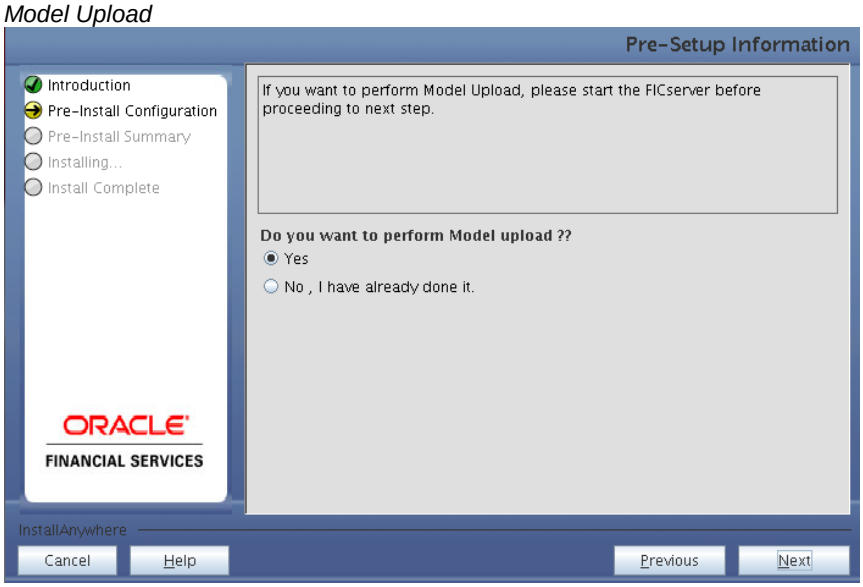
51. Click **Next**. The *Information Domain Creation* window is displayed.

Information Domain Creation



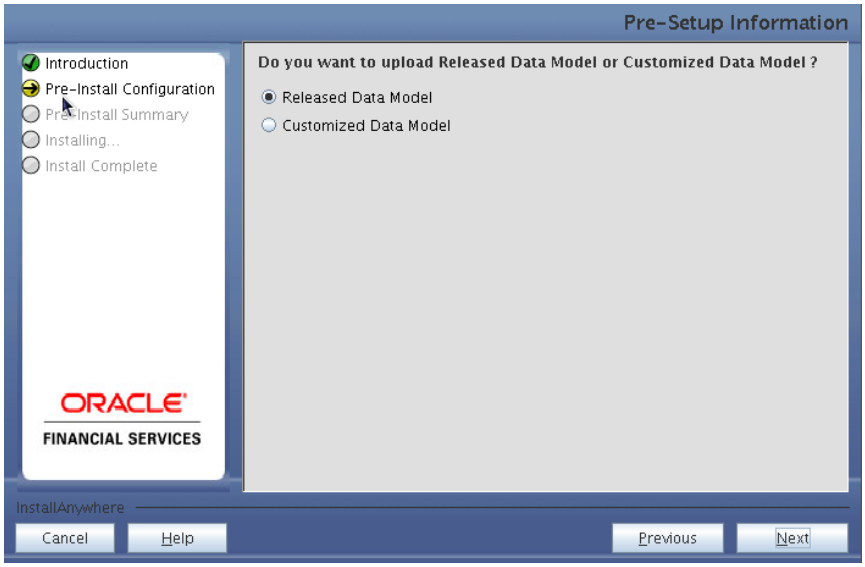
52. Click **Next**. The *Model Upload* window is displayed.

Model Upload



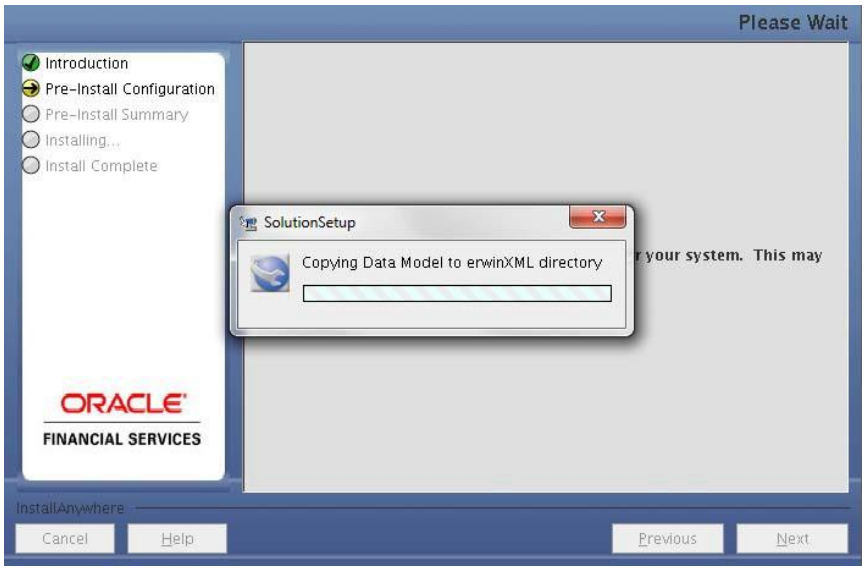
53. Select **Yes** and click **Next**. The *Model Type* window is displayed.

Model Type



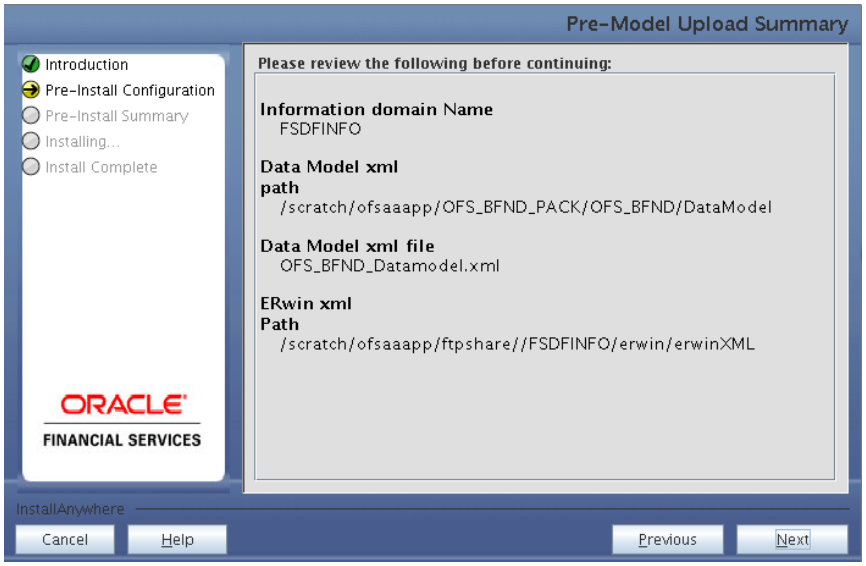
54. Select **Released Data Model** and click **Next**. The Model will get copied to **ftpshare**.

Model Copy



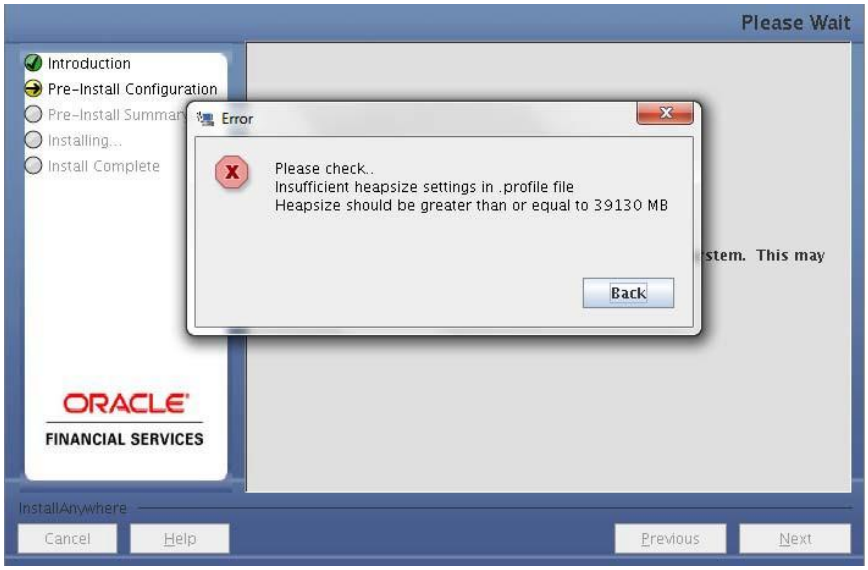
55. The *Pre-Model Upload Summary* window is displayed.

Model Review



56. Click **Next**, It will check for the Heap Memory Warning.

Model Heap Memory Warning



57. Click **Back**, Update your `.profile` entry with required heap memory size.

    a. Open a new session in Putty

    b. Shutdown OFSAAI server using `$FIC_HOME/ficapp/common/FICServer/bin/ stopofsaai.sh`

    c. Update the `X_ARGS_APP` entry in .profile following example:

    ```
    X_ARGS_APP="-Xms2g -Xmx18g -XX:+UseAdaptiveSizePolicy -
    XX:MaxPermSize=1024M -XX:+UseParallelOldGC  -
    XX:+DisableExplicitGC"
    ```

NOTE: Ensure that, in an integrated environment for pack on pack installation the memory size is 10 times the value of all the data model sizes taken together.

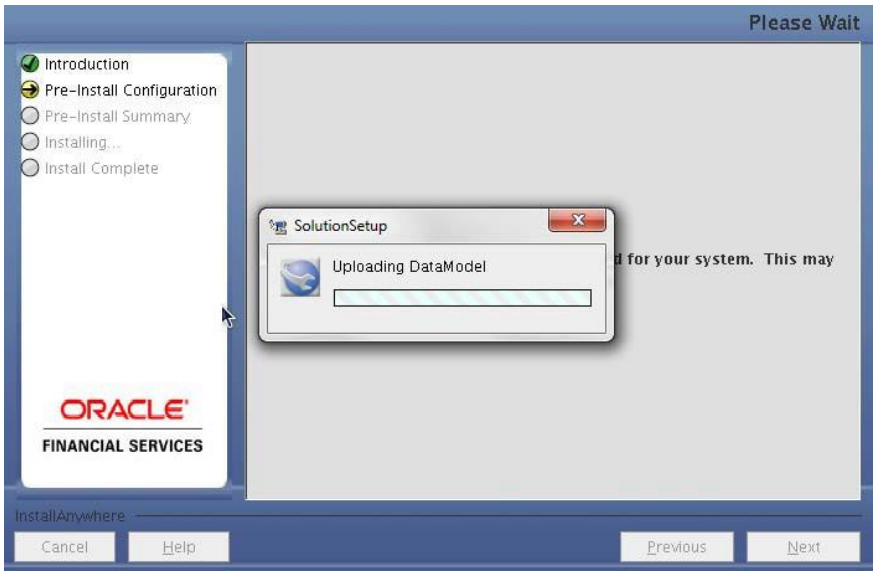
    d. Run .profile file.

    e. Start OFSAA services using $FIC_HOME/ficapp/common/FICServer/bin/ startofsaai.sh

    f. Proceed for Model Upload.

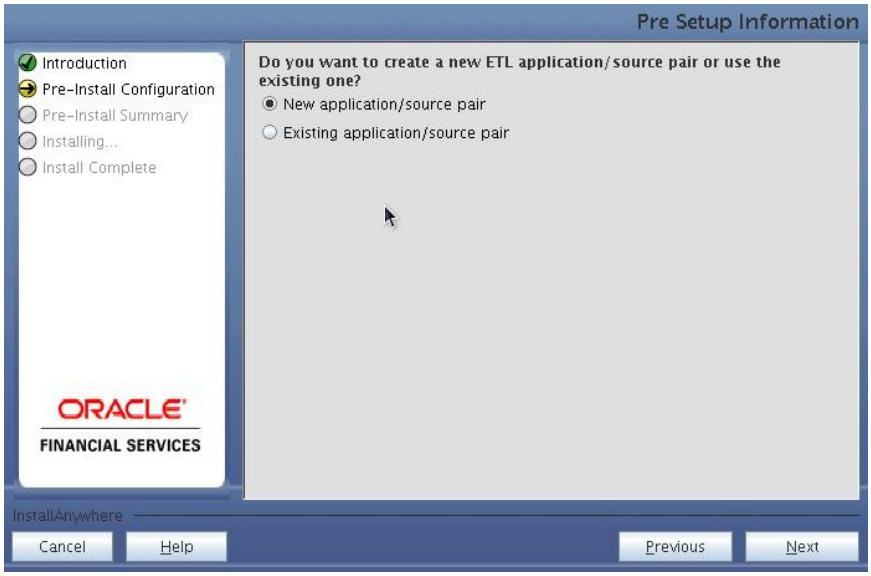
58. Click **Next** again. The Data Model Upload will get start. This will take 3 Hours approx.

Model Upload



59. After Data Model Upload completion, the *Pre-Setup Information* window is displayed.

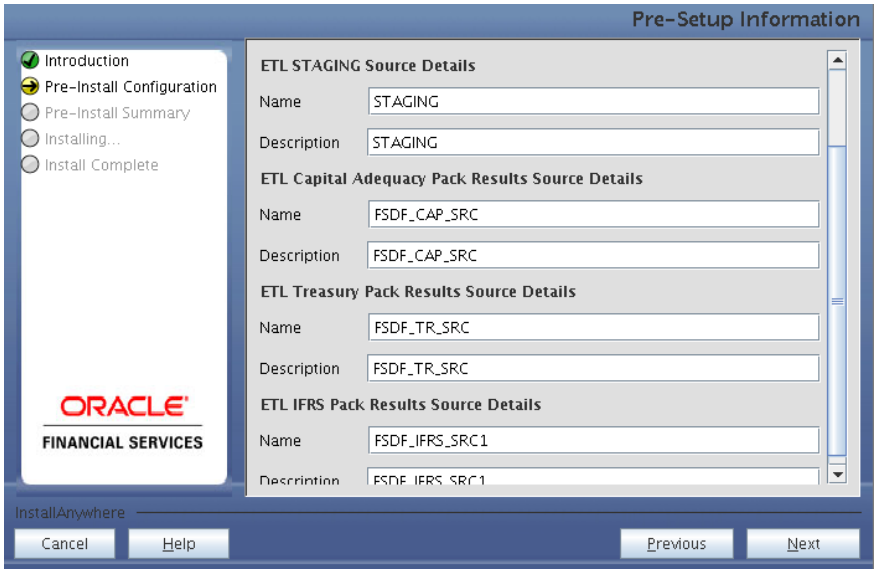
ETL Application/ Source Pair



60. Select **New Application/Source pair** and click **Next**.

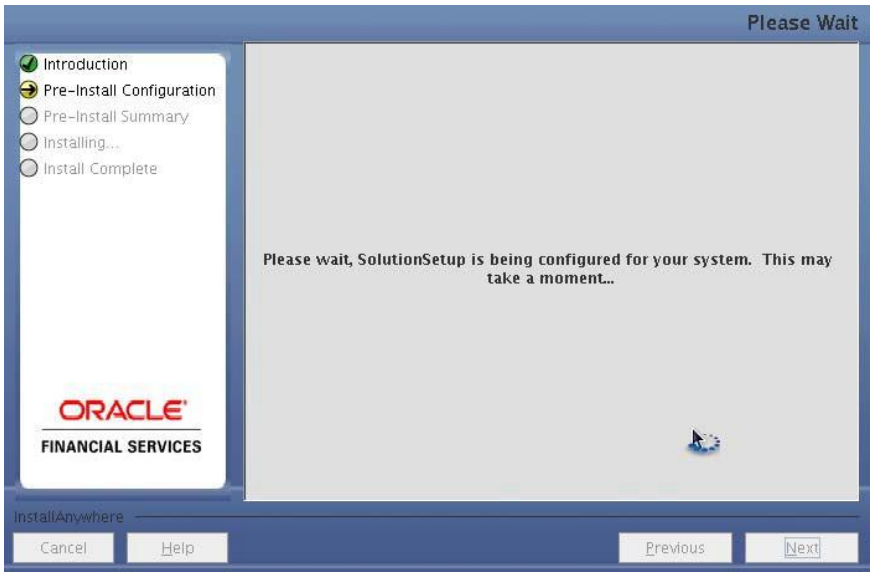
NOTE: If the option **New application/source pair** is chosen, then the *Staging Details* window is displayed seeking the application and source name for creation of the same.

Staging Details



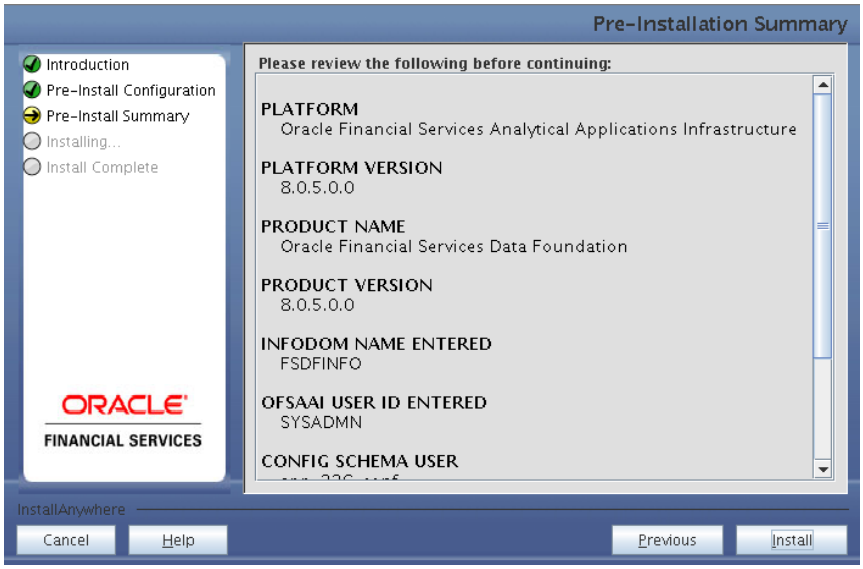
61. Click **Next**. This creates application and source within OFSAAI. This also generates source model. This process takes some time depending on the number of entities / attributes in the atomic schema. This process cannot be rolled back.

Staging Creation



62. After Creation, Click **Next.** The *Pre-Installation Summary* window is displayed.

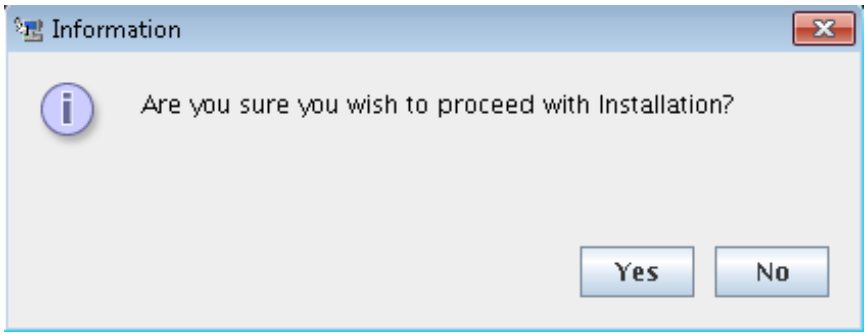
Installation Details Review



NOTE: This window displays the pre-installation summary. Verify all details and proceed.

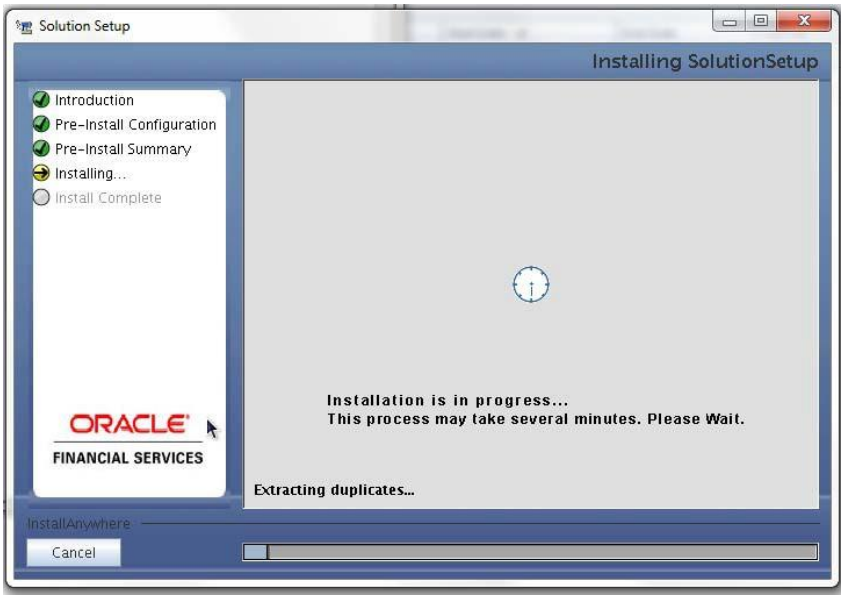
63. Click **Install**. A pop-up window asks for the confirmation.

Confirmation



64. Click **Yes**. The Installation is initiated and progress is displayed in the *Installing SolutionSetup* window.

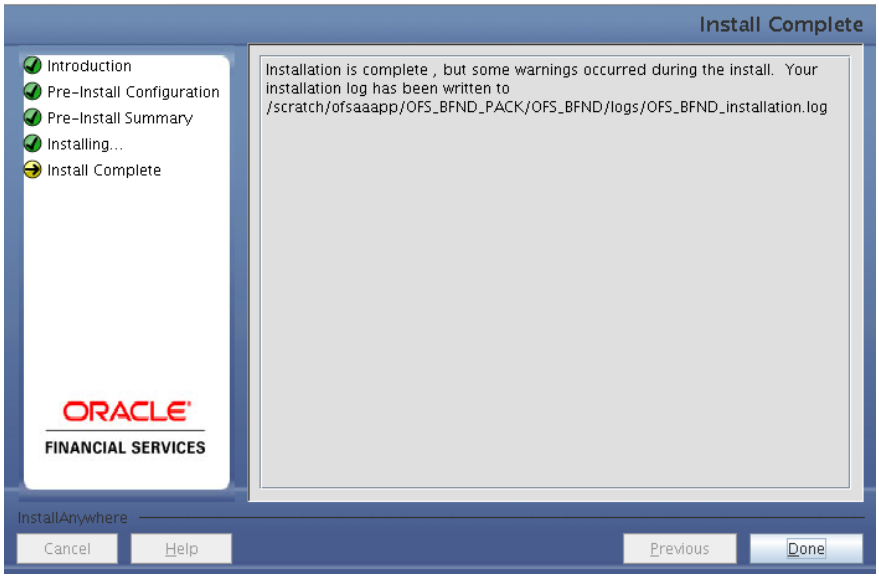
Installing SolutionSetup



NOTE: Anytime during the installation you can click **Cancel** to stop the installation.

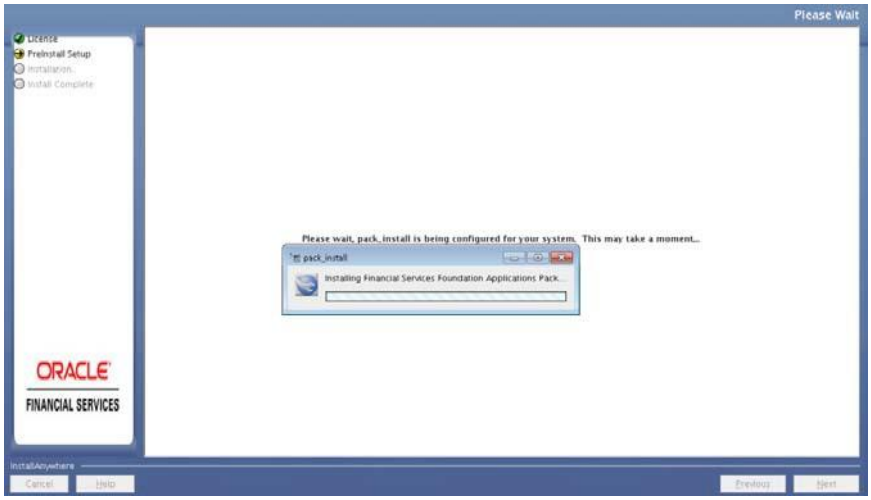
65. After the installation is complete, the *Install Complete* window is displayed.

Install Complete



66. Click **Done**. The panel will go back to *App Pack Installation* Window.

App Pack Installation

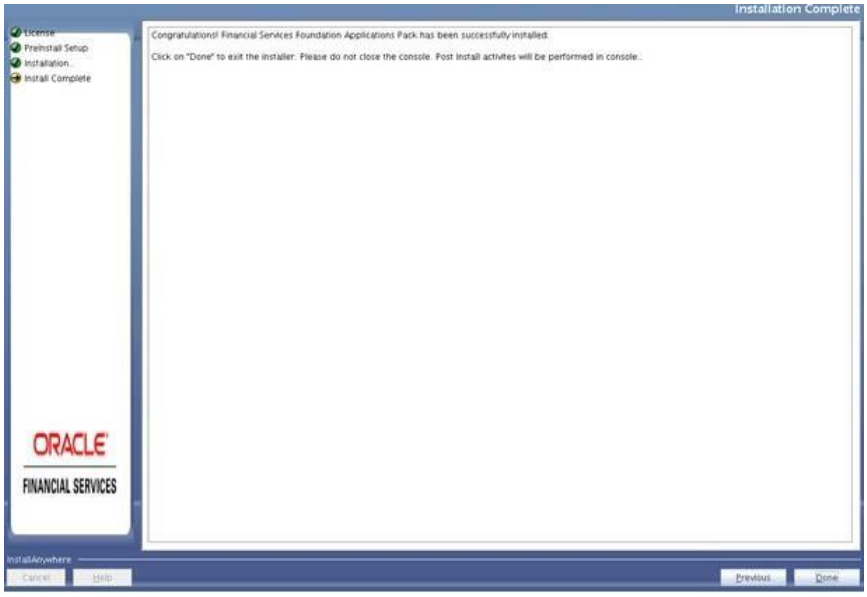


67. After processing the *Installation Summary* window is displayed.

Installation Summary

68. Click **Done**. The *Installation Complete* window is displayed.

Installation Complete



69. Click **Done**.

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

The Post Install Health checks are displayed: You have successfully installed the OFS BFND Application Pack.

Installation Complete on Console

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

Launching installer...

/profile executed for ofsaaapp.
*********************************************************
CTRL characters removal started ...
CTRL characters removal over ...
Windows executable files removal started ...
Windows executable files removal over ...
-----------------sairam-------------------------------------------
We are now in /scratch/ofsaaapp ...
*********************************************************
/profile executed for ofsaaapp.
/profile executed for ofsaaapp.
executing "ant"
Buildfile: /scratch/ofsaaapp/OFSAAI/ficweb/build.xml
Trying to override old definition of datatype resources

existtest:
     [echo] Checking for file /scratch/ofsaaapp/OFSAAI/ficweb/OFSAAI.war existense

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

BUILD SUCCESSFUL
Total time: 1 minute 30 seconds
OFSAA App Layer Services start-up check started...
Starting startofsaai.sh service...
OFSAA Service - OK
Starting icc service...
ICC service - OK
Shutting down icc service...
Shutting down OFSAA service...
OFSAAI App Layer Services check Status: SUCCESSFUL.
OFSAAI DB Layer Services check started...
Calling agentshutdown.sh to check and kill, if any of the server is running...
OLAP Data Server service is not running.
MESSAGE Server service is not running.
AM service is not running.
ROUTER service is not running.
Starting ROUTER Service
ROUTER service started in background mode.
Starting AM Service
AM service started in background mode.
Starting MESSAGE SERVER Service
MESSAGE SERVER service started in background mode.
Starting OLAP DATA SERVER Service
OLAP DATA SERVER service started in background mode.
OLAP Data Server service is not running.
Stop MESSAGE Server service with Proces ID : 2642
Stop AM service with Proces ID : 2623
Stop ROUTER service with Proces ID : 2613
OFSAAI DB Layer File Services check Status: SUCCESSFUL.
*********************************************************
Installation completed...
*********************************************************
/scratch/ofsaaapp/OFS_BFND_PACK/bin>
/scratch/ofsaaapp/OFS_BFND_PACK/bin>
/scratch/ofsaaapp/OFS_BFND_PACK/bin>
```

70. Install the patches listed in the following table. Refer to the Description column for details:

Patch Number	Type	Description
33663417	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch. **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 OFSAAI Mandatory Patch **33663417** whenever you Install or Upgrade the Application, or whenever you apply an Incremental Patch.
27938294	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28079607	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28033582	AAI mandatory compatibility patch	Enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. Applying this patch resolves compatibility issues.

71. Install the patches listed in the following table. Refer to the Description column for details:

Patch Number	Type	Description
28214459	OFSDF mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28311975	OFSDF mandatory compatibility patch	Enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 that are dependent on OFSDF 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. Applying this patch resolves compatibility issues.

72. DMT migration utility is executed during installation of OFSDF Application Pack, to migrate the DMT metadata (PLC/Data Source/Data Mapping/Data File Mapping) to be persisted in tables instead of XML. You may be required to re-run DMT migration utility in some scenarios. To identify whether to run the utility, how to run, and how to handle migration issues, see OFSAA DMT Metadata Migration Guide.

    Note: Execute the DMT Migration Utility to manually migrate the DMT metadata of the Applications which are not upgraded to 8.0.6.0.0.

73. Perform the steps mentioned in Post Installation Configuration section.

74. For enabling Transparent Data Encryption (TDE), see Appendix S.
75. For enabling Data Redaction, see *Data Redaction* section under *Data Security and Data Privacy* chapter in OFS Analytical Applications Infrastructure Administration Guide 8.0.6.0.0.

4.5.2 Installing in SILENT Mode

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

To install OFS BFND Pack in SILENT mode, follow these steps:

NOTE: For Schema Creator Utility steps, see Executing the Schema Creator Utility.

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

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

3. Execute the user `.profile` file using this command in user home directory:

   ```
   . ./.profile
   ```

4. For Big Data installation, give access permission using this command:

   ```
   chmod -R 775 ftpshare  ftpshareh FSDF806 libs
   ```

5. Create a folder `kit/<release_number>` in user home.

   For example: `/scratch/ofsaa/kit/806`

6. For Big Data installation, place the installer zip folder in the above mentioned path and extract using this command:

   ```
   unzip -a OFS_BFND_PACK.zip
   ```

   Note: Delete file if you have space issue.

7. For Big Data installation, ensure that `ofsaa-hive-udf.jar` file is present in `HiveAuxDir`, and `spark2 lib` in CDH installed server. If it is a cluster, then each node must consist of the file in these locations:

   - /scratch/ofsaa/kit/806/OFS_BFND_PACK/OFS_AAAI_PACK/fichome/utility/DMT/UDF/lib/ofsaa-hive-udf.jar
   - `spark2` lib

8. Navigate to `OFS_BFND_PACK` directory.
9. Edit the `OFS_BFND_PACK/conf/OFS_BFND_PACK.xml` file to enable the product licenses.

   NOTE: Ensure to enter **Yes** in ENABLE tag for `OFS_AAI/APP_ID` to install OFS BFND applications.
   See Configuring OFS_BFND_PACK.XML File for details on configuring this XML file.

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

NOTE: See Configuring OFSAAI_InstallConfig.xml File for details on configuring this XML file.

11. If you are performing installation on Big Data infodom, then navigate to the path `<INSTALLER_DIR>/OFS_BFND_PACK/OFS_BFND/conf` and perform these steps:
    - For Stage and Results on Hive:
        a. Rename `default.properties` to `default.properties_RDBMS.template`
        b. Rename `default.properties.BIGDATA.template` to `default.properties`
    - For Stage on Hive and Results on RDBMS:
        a. Rename `default.properties` to `default.properties_RDBMS.template`
        b. Rename `default.properties_Hybrid.template` to `default.properties`
12. Execute the schema creator utility.
    NOTES:
    a. This step is mandatory and must be executed before every OFSAA Application Pack installation.
    b. Ensure to execute with -s option in Online/ Offline Mode.
    c. For more information, see Executing the Schema Creator Utility.
13. In the installer folder `<INSTALLER_DIR>/OFS_BFND_PACK/OFS_BFND/conf`:
    - When performing installation for RDBMS, create a copy of the `Silent.template` file and rename it to `Silent.props`.
    - When performing installation for Big Data (Stage and Results on Hive), rename `Silent.BIGDATA.template` to `Silent.props`.
    - When performing installation for Big Data (Stage on Hive and Results on RDBMS), rename `Silent_Hybrid.template` to `Silent.props`.
14. Edit the file `Silent.props` and specify the parameters as per the requirements. SILENT installation is achieved via a properties file (`Silent.props`) that must be updated with proper values, before attempting to install, using the silent mode.
    - When performing fresh OFSDF installation, enter values for parameters in the *Silent.template* file. For detailed information, see *Silent.template* in the Appendix: Configuring SILENT.template file.
    - When performing installation for Big Data (Stage and Results on Hive), enter values for parameters in the *Silent.BIGDATA.template* file. For detailed information, see *Silent.BIGDATA.template for Stage and Results on Hive* in the Appendix D.
    - When performing installation for Big Data (Stage on Hive and Results on RDBMS), enter values for parameters in the *Silent_Hybrid.template* file. For detailed information, see *Silent_Hybrid.template Stage on Hive and Results on RDBMS* in

the Appendix D.

15. When performing installation for Big Data (Stage on Hive and Results on RDBMS), rename Data Models:
    a. Rename `OFS_BFND_Datamodel.xml` to `OFS_BFND_Datamodel.xml.RDBMS.template`
    b. Rename `OFS_BFND_Datamodel.xml.template` to `OFS_BFND_Datamodel.xml`
    c. Rename `OFS_BFNDHV_Datamodel.xml.template` to `OFS_BFNDHV_Datamodel.xml`

Installation:

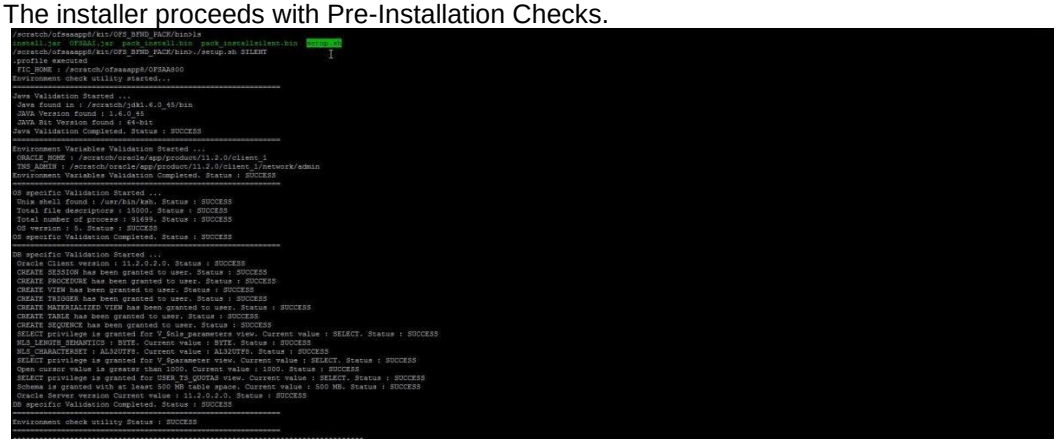
16. Give a path for installation log file in `log4j.xml` in `OFS_BFND_PACK/OFS_BFND/conf` directory.
17. Navigate to the following directory:

    `OFS_BFND_Pack/bin/`

18. Execute the following command in the console to execute the application pack installer with Silent option:

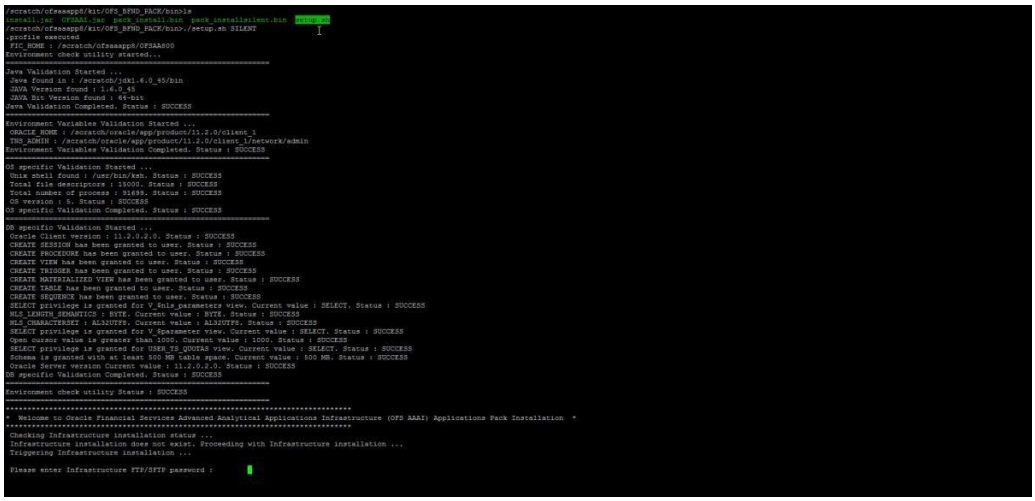
    `./setup.sh SILENT`

    The installer proceeds with Pre-Installation Checks.



19. On successful completion of Pre-Installation checks, when prompted enter the Infrastructure FTP/SFTP password.

Console Prompts	User Inputs
Enter Infrastructure FTP/SFTP password	Enter the password to access Product Staging/Metadata repository directory in the application server. **Note**: In case the prompt reads as below, enter the user name/ password for accessing the product Staging/ Metadata Repository FTPSHARE.



20. Enter the Hive Server SFTP/FTP password value, when prompted at the command prompt (Follow this step when performing installation for Big Data).

Console Prompts	User Inputs
Please enter Hive Server SFTP/FTP password	Enter the password to access the HIVE Server. **Note:** This information is required if you have opted for Big Data installation. Enter the Hive Server FTP/SFTP Password.

21. Enter **Always** when prompted to add host key fingerprint.

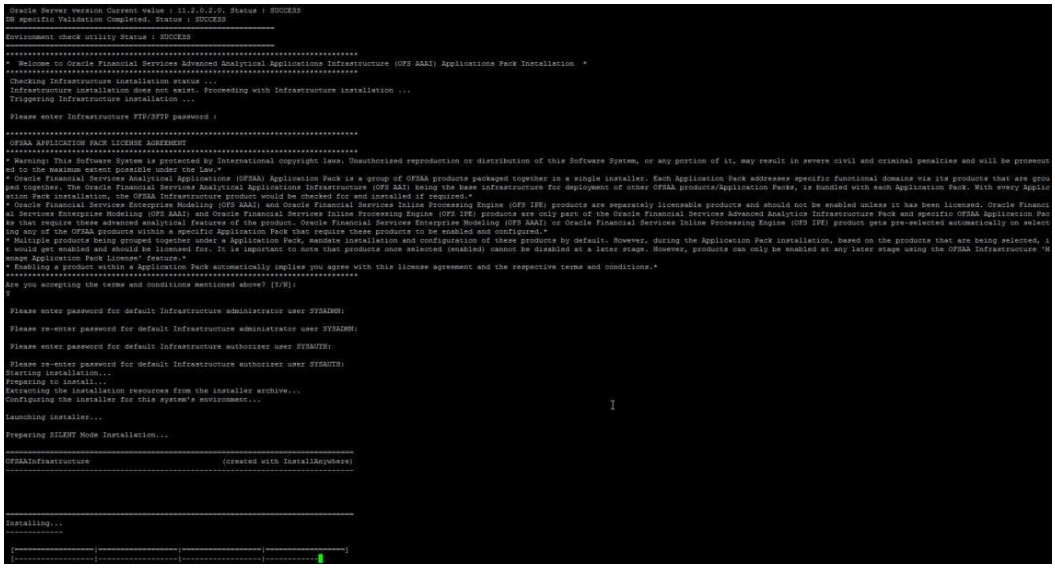
    The OFSAAI License Agreement is displayed.

22. Enter **Y/y** to accept the License Agreement and proceed.

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

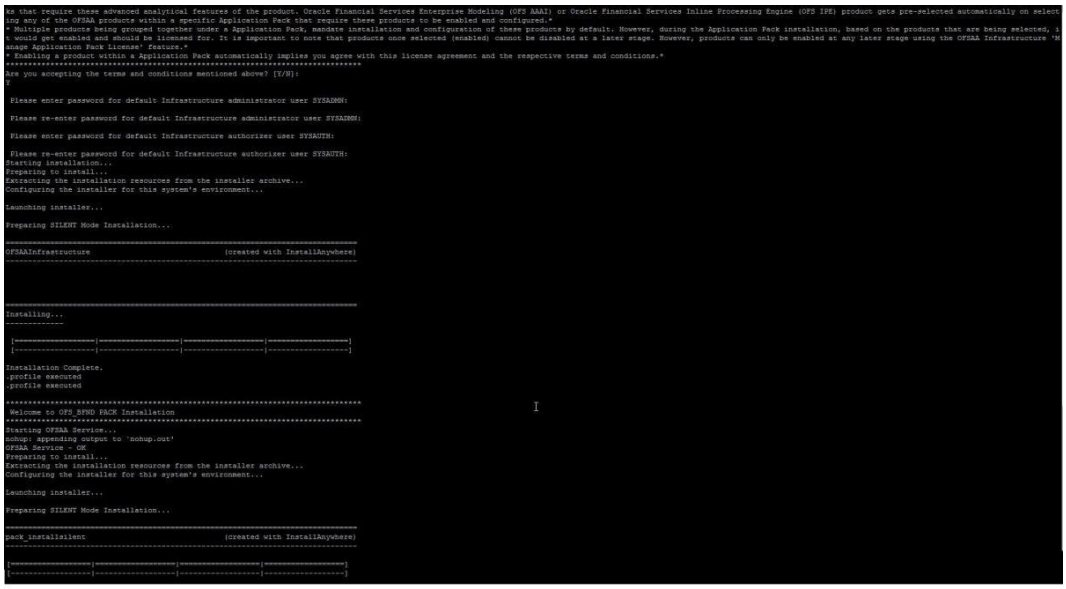
23. The OFS AAI platform is installed.

NOTE: After the platform is installed, it proceeds for the OFS BFND PACK installation. After successful OFS BFND Pack installation, WAR file is generated and all the servers are verified.

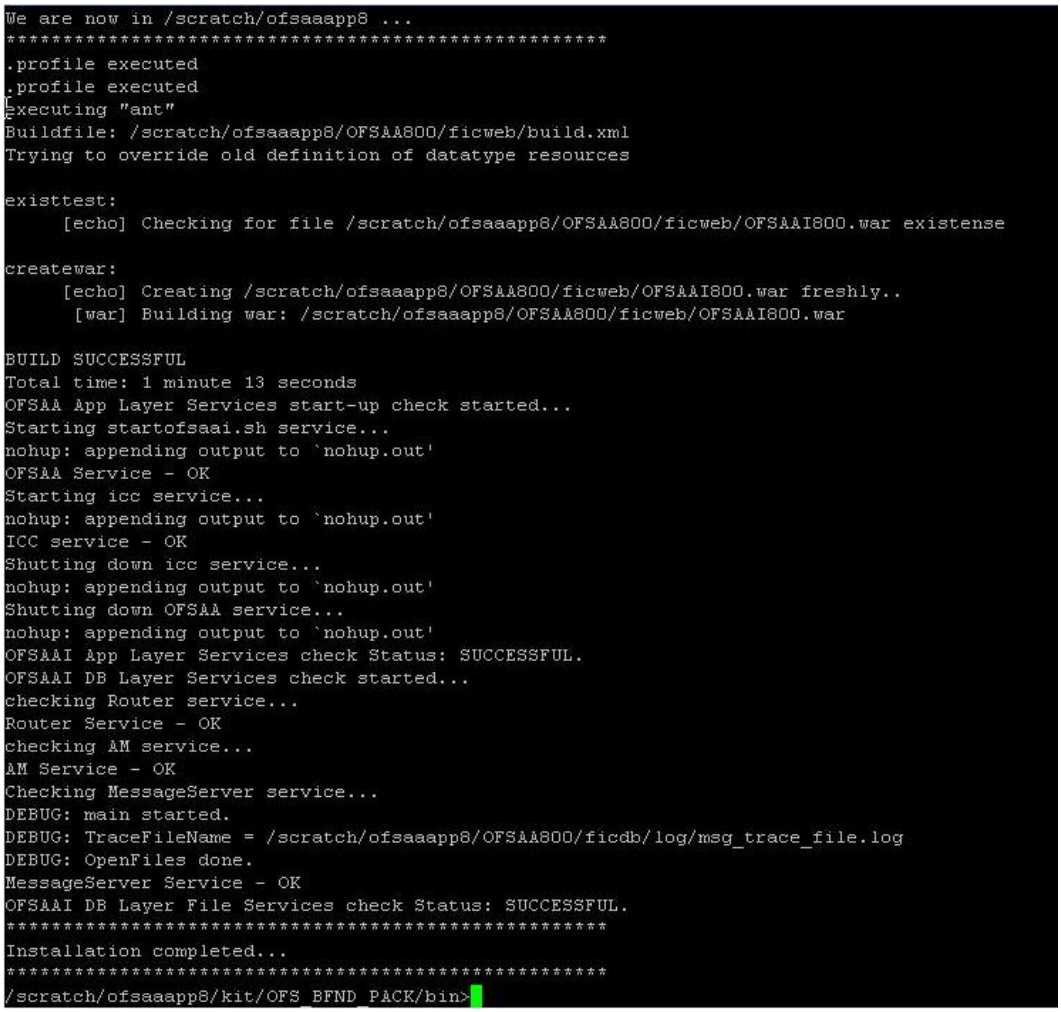


24. The OFS BFND Pack installation starts.

NOTE: Data Model Upload may take several hours to get complete. You can check the Logs in `/OFS_BFND_PACK/OFS_BFND/logs`.



NOTE: Do not close the console until the installation is complete.



25. The following message is displayed in the console:

    Installation completed…

26. To verify if the release is applied successfully, check the log files mentioned in the section Verifying the Log File.

27. Install the patches listed in the following table. Refer to the Description column for details:

Patch Number	Type	Description
33663417	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch. **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 OFSAAI Mandatory Patch **33663417** whenever you Install or Upgrade the Application, or whenever you apply an Incremental Patch.
27938294	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28079607	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28033582	AAI mandatory compatibility patch	Enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. Applying this patch resolves compatibility issues.

28. Install these patches only for fresh FSDF installation (RDBMS). Refer to the Description column for details:

    NOTE: Do not install these patches for Big Data installation.

Patch Number	Type	Description
28214459	OFSDF mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28311975	OFSDF mandatory compatibility patch	Enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 that are dependent on OFSDF 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. Applying this patch resolves compatibility issues.

29. For Big Data installation process:

    Note: During both Big Data installation processes:

    For Big Data SQL to refresh the data, ensure to truncate Stage tables during the second time and onwards, and then load the data. Truncation is not required during the first time.

- **For Stage and Results on Hive**:
  a. Install these patches **28146898**, and **28432036**. Refer to the Readme available with each patch for further instructions on installing the patch.
  b. Create a directory under user home and place the below mentioned files.

     Or else, place the shell script (`load-csv-hdfs-run.sh`) file in `Seeded_data`

and run it. Ensure to provide `775` permission to the shell script.

- Location of the seeded CSV files is:

  `FICHOME/scripts_OFS_BFND/atomic/insert/hive/Dimension/Seeded_data`

- Location of the shell script file `load-csv-hdfs-run.sh` is:

  `ficdb/bin`

To load seeded data, run this command:

```
./load-csv-hdfs-run.sh <HDFS_TEMP_DIR>
  <HIVE_SCHEMA_NAME>
```

For example:

```
./load-csv-hdfs-run.sh /user/ofsaa/load datadom806
```

Note: HDFS_TEMP_DIR is not the Hive warehouse directory. Also, ensure that the path is not Hive Metastore directory.

- The script expects two parameters. They are:
  - `HDFS_TEMP_DIR`
  - `HIVE DATABASE NAME`
- HDFS_TEMP_DIR – `/user/<Cloudera hive user name>/<Any_Name>`

- **For Stage on Hive and Results on RDBMS**:

a. Grant the BIGDATA_SQL user privilege to all the schemas.

For example:

```
grant BDSQL_USER to BSZBDSCONF806;

grant BDSQL_USER to BSZBDSMETA806;

grant BDSQL_USER to BSZBDSATM806;

grant all privileges to BSZBDSMETA806;
```

b. In `$FIC_HOME/ficdb/bin`, execute the file `externaltablecreator.sh` with these arguments:

```
$userId = SYSADMN

$infodom = RDBMS_INFODOM

$dbAlias= RDBMS_INFODOM Metadom alias

$hiveSchema = Hive Schema Name

$directory = Warehouse Directory(with double quotes)

$user_connection_url = metadomUID/password@SID
```

For example:

```
./externaltablecreator.sh SYSADMN FSDFINFO META
bszbdsdatadom "\"ORA_BIGDATA_CL_cluster\" "
bszbdsmeta806/password123@OFSAA
```

Note: For more information about External Tables, see the section Verifying Oracle's External Tables Utility.

30. DMT migration utility is executed during installation of OFSDF Application Pack, to migrate the DMT metadata (PLC/Data Source/Data Mapping/Data File Mapping) to be persisted in tables instead of XML. You may be required to re-run DMT migration utility in some scenarios. To identify whether to run the utility, how to run, and how to handle migration issues, see OFSAA DMT Metadata Migration Guide.

    Note: Execute the DMT Migration Utility to manually migrate the DMT metadata of the Applications which are not upgraded to 8.0.6.0.0.

31. Perform the steps mentioned in Post Installation Configuration section.
32. For enabling Transparent Data Encryption (TDE), see Appendix S.
33. For enabling Data Redaction, see *Data Redaction* section under *Data Security and Data Privacy* chapter in OFS Analytical Applications Infrastructure Administration Guide 8.0.6.0.0.

4.5.3 Verifying the Log File

The log files `OFS_BFND_installation.log` can be found in the installation path `<OFSBFND Installer Folder>/OFS_BFND_PACK/OFS_BFND/logs` and `OFSAAInfrastructure_Install.log` can be found in the installation path `$FIC_HOME`. The log files contain detailed summary of installation processes. It also shows the number of Fatal Errors, Errors, Debug Statements, Information, and Warnings.

NOTE: Applications Pack installer performs all the pre-requisite validation checks during installation. Any errors encountered during the process are displayed in InfrastructurePreValidations.log generated in `<OFS_BFND_PACK Installer Folder>/bin` directory.

Three log files:

- Application Pack specific log file (overall status of the app pack installation) can be found in:

  `<OFSBFND Installer Folder>/OFS_BFND_PACK/logs/Pack_install.log`

- AAI Installation log file can be found in:
  `<OFSBFND Installer folder>/OFS_BFND_PACK/OFS_AAI/logs/OFSAAI<timestamp>.log`

- Application installation log file. The following log file can be found in:
  `<OFSBFND Installer Folder>/OFS_BFND_PACK/OFS_BFND/logs`:
  - `OFS_BFND_Installation_debug.log`
  - `OFS_BFND_installation.log`

4.6 Verifying the Installation

This section explains the steps to verify the installation of OFSDF Application Pack.

To verify that you have successfully installed the OFSDF pack, follow the below steps:

1. Login in to the Atomic Schema. Verify that all the database objects like view, procedure, and functions are compiled without any compilation error.
2. Verify the application log (must not have any error).
3. Deploy the EAR/WAR files and check whether the application screen is up. For deployment of the application, see Appendix C.

5 Upgrading the OFSDF Application Pack

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

NOTE: To upgrade to Oracle Financial Services Data Foundation Application Pack 8.0.6.0.0, you need to have at least Oracle Financial Services Data Foundation Application Pack 8.0.2.0.0 or higher installed on your system.

NOTE: To upgrade from version prior to OFSDF 802 to OFSDF 806, first upgrade the existing OFSDF version to OFSDF 802, and then upgrade that OFSDF 802 to OFSDF 806.

NOTE: The user profile executing the installation must have the permission on `/tmp` prior to installation.

NOTE: Sufficient space must be available in `/tmp` prior to installation, else the installation will terminate, and logs are not generated.

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

1. To download and copy the OFSDF Application Pack v8.0.6.0.0 archive file, see Downloading and Copying the OFSDF Applications Pack Installer section.

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

2. Log in to the OFSAA Server with user credentials that was used to install OFSAA.
3. Shut down all the OFSAAI Services. For more information, refer to the *Start/Stop Infrastructure Services* section in Appendix E.
4. Execute the following command:

   ```
   chmod -R 755 $FIC_HOME
   ```

5. If you have Unzip utility, skip to the next step. Download the Unzip utility (OS specific) and copy it in **Binary** mode to the directory that is included in your PATH variable, typically **$HOME** path or directory in which you have copied the 8.0.6.0.0 installer.

   - Uncompress the unzip installer file using the command:

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

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

   - Give EXECUTE permission to the file using the command:

```
chmod 755 OFS_BFND_80600_<OperatingSystem>.zip
```

6. Extract the contents of the Oracle Financial Services Data Foundation Application Pack 8.0.6.0.0 installer archive file using the following command:

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

7. Give EXECUTE permission to the archive file. Navigate to the path *OFS_BFND_80600_<OperatingSystem>.zip* and execute the command:

   ```
   chmod -R 755 OFS_BFND_PACK
   ```

8. In the installer folder `<INSTALLER_DIR>OFS_BFND_PACK/OFS_BFND/conf`, create a copy of the SILENT file:

   - And rename `Silent_upgrade_8041-806.template` file to `Silent.props`, when performing upgrade from versions earlier than OFSDF 805 to OFSDF 806.
   - And rename `Silent_upgrade_805-806.template` file to `Silent.props`, when performing upgrade from OFSDF 805/8051 to OFSDF 806.

9. Edit the file `Silent.props` and specify the parameters as per the requirements. SILENT installation is achieved via a properties file (`Silent.props`) that must be updated with proper values. There are two types of upgrade to OFSDF 806. They are:

   - **Upgrade from versions earlier than OFSDF 805 to OFSDF 806**:

     When performing upgrade from versions earlier than OFSDF 805 to OFSDF 806, enter values for parameters in the *Silent_upgrade_8041-806.template* file. For detailed information, see *Silent_upgrade_8041-806.template* in the Appendix: Configuring SILENT.template file.

   - **Upgrade from version OFSDF 805/8051 to OFSDF 806**:

     When performing upgrade from version OFSDF 805 to OFSDF 806, enter values for parameters in the *Silent_upgrade_805-806.template* file. For detailed information, see *Silent_upgrade_805-806.template* in the Appendix: Configuring SILENT.template file.

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

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

    To verify if the release is applied successfully, check the log files mentioned in the section Verifying the Log File.

    You can ignore ORA-00001, ORA-00955, ORA-02260, and ORA-01430 errors in the log file. In case of any other errors, contact Oracle Support.

    NOTE: `OFS_BFND_80600` upgrade does not support GUI mode installation.

11. For more information on securing your OFSAA Infrastructure, refer to the Security Guide in OHC Documentation Library.
12. After successful installation, follow these steps:

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

Tomcat

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

WebLogic

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

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

WebSphere

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

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

14. Install the patches listed in the following table. Refer to the Description column for details:

Patch Number	Type	Description
33663417	AAI mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch. **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 OFSAAI Mandatory Patch **33663417** whenever you Install or Upgrade the Application, or whenever you apply an Incremental Patch.
27938294	AAI Mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28079607	AAI Mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28033582	AAI Mandatory	Enables you to upgrade selected packs in your

	compatibility patch	OFSAA instance to 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. Applying this patch resolves compatibility issues.

15. Install the patches listed in the following table. Refer to the Description column for details:

Patch Number	Type	Description
28214459	OFSDF mandatory one-off patch	Refer to the Readme available with the patch for further instructions on installing the patch.
28311975	OFSDF mandatory compatibility patch	Enables you to upgrade selected packs in your OFSAA instance to 8.0.6.0.0 that are dependent on OFSDF 8.0.6.0.0 and makes the existing packs from earlier versions compatible with 8.0.6.0.0. Applying this patch resolves compatibility issues.

16. DMT migration utility is executed during installation of OFSDF Application Pack, to migrate the DMT metadata (PLC/Data Source/Data Mapping/Data File Mapping) to be persisted in tables instead of XML. You may be required to re-run DMT migration utility in some scenarios. To identify whether to run the utility, how to run, and how to handle migration issues, see OFSAA DMT Metadata Migration Guide.

    Note: Execute the DMT Migration Utility to manually migrate the DMT metadata of the Applications which are not upgraded to 8.0.6.0.0.
17. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on *generating and deploying EAR / WAR file*, refer Appendix C section.
18. Restart all the OFSAAI services. For more information, refer to the *Start/Stop Infrastructure Services* section in Appendix E.
19. For enabling Transparent Data Encryption (TDE), see *Configuring TDE in case of Upgrade* section in Appendix S.
20. For enabling Data Redaction, see *Enabling Data Redaction in case of Upgrade* in Appendix S.

5.1 Performing Model Upload Outside Installer

NOTE: This section is applicable if you are performing Model Upload outside the installer.

The following tables should not have any data before Model Upload is triggered. Based on your current FSDF version, the tables must be selected.

You can take the backup of these tables and reload the data after Model Upload is performed.

In FSDF 8.0.0.0.0

- DIM_PRODUCT_FEATURE
- FCT_ACCOUNT_FEATURE_MAP
- STG_MGMT_FORECAST

- FCT_MGMT_FORECAST

FSDF 8.0.1.0.0

- STG_TIME_SPECIFIC_OBLIGATIONS
- DIM_TERMINAL
- FCT_REG_CAP_ACCOUNT_SUMMARY

FSDF 8.0.2.0.0

- FCT_REG_CAP_ACCOUNT_SUMMARY
- FCT_IFRS_ACCOUNT_SUMMARY
- FCT_IFRS_STAGE_DETERMINATION
- FCT_REG_OR_CAPITAL_SUMMARY
- FCT_REG_LE_CAPITAL_SUMMARY
- FCT_REG_CP_CAPITAL_SUMMARY
- FCT_REG_CAP_POOL_SUMMARY
- FCT_REG_CAP_PLCD_COLL_SUMMARY
- FCT_REG_COUNTERPARTY_CVA
- FCT_REG_RUN_LEGAL_ENTITY_MAP

FSDF 8.0.3.0.0

- FCT_REG_AGG_CASH_FLOWS
- FCT_CREDIT_LINE
- FCT_LOAN_ACCOUNT_SUMMARY
- FCT_ACCOUNT_FAIR_VALUE
- DIM_UOM_ATTR
- DIM_UOM_HIER
- FCT_INSTRUMENT_MARKET_PRICES
- STG_ACCOUNT_INCEPTION_RATES

FSDF 8.0.3.1.0

- FCT_LOAN_ACCOUNT_SUMMARY
- FCT_ACCOUNT_FAIR_VALUE
- DIM_UOM_ATTR
- DIM_UOM_HIER
- FCT_INSTRUMENT_MARKET_PRICES
- STG_ACCOUNT_INCEPTION_RATES

In FSDF 8.0.4.0.0

- FCT_LLFP_ECL_RECONCILIATION
- STG_PROFESSION_RANK_MASTER
- FCT_INSTRUMENT_MARKET_PRICES

In FSDF 8.0.4.1.0

- FCT_LLFP_ECL_RECONCILIATION

- STG_PROFESSION_RANK_MASTER
- FCT_INSTRUMENT_MARKET_PRICES

6 Post Installation Configuration

Once the OFSDF Applications Pack installation is completed successfully, certain post-installation steps are required to set configuration parameters. These configuration parameters are distributed across the machines on which Infrastructure Web, Application, and Database components have been installed.

NOTE: Ensure to clear the application cache prior to the deployment of Infrastructure or Application Service Packs / One-off patches. This is applicable to all Web Servers (WebSphere, WebLogic, and Tomcat) and OS combinations.

NOTE: DMT Migration Utility must be executed post FSDF 8.0.6.0.0 upgrade, if the environment has customized T2Ts, F2Ts, or PLCs, or any other earlier version of OFSAA applications. For more information and steps to execute DMT Migration Utility, see *OFSAA DMT Metadata Migration Guide*.

NOTE: When the following change is not made in the Erwin data model, make it as mentioned in the FSDF_Data_Model_8.0.6.0.0_Readme.html file. The FCT_MITIGANTS.n_sub_asset_level_skey column is mapped to two Foreign Key references. Remove the reference to DIM_ASSET_LEVEL (N_ASSET_LEVEL_SKEY).

NOTE: When the following change is not made in the Erwin data model, make it as mentioned in the FSDF_Data_Model_8.0.6.0.0_Readme.html file. The table FSI_PARTY_RIGHT_TO_FORGET consists of PARTY_ID with data length Varchar (20). Increase this data length to 50 (when the Party ID is expected to be more than 20 in length).

This chapter includes the following sections:

- Configuring Resource Reference
- Starting OFSAA Infrastructure Services
- Adding TNS entries in the TNSNAMES.ORA File
- Configuring Oracle R distribution and Oracle R Enterprise (ORE)
- Configuring Oracle Financial Services Inline Processing Engine (OFS IPE)
- Configuring Big Data Processing
- Verifying Oracle's External Tables Utility
- Creating and Deploying the Application Pack Web Archive
- Accessing the OFSAA Application

6.1 Configuring Resource Reference

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

6.2 Starting OFSAA Infrastructure Services

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

6.3 Adding TNS entries in the TNSNAMES.ORA File

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

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

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

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

NOTE: Ensure that TNS entry for both Config and Metadom are mentioned in the `tnsnames.ora` file during Big Data installation.

6.4 Configuring Oracle Rdistribution and Oracle REnterprise (ORE)

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

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

     ```
     GRANT RQADMIN TO <config_schema>;
     ```
3. Log in to the database with dba privileges and provide the following privileges to Atomic Schemas:
   - `CREATE MINING MODEL` privilege (to execute the Data Mining models) by executing the command:

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

6.4.1 Installing OFS AAAI Runner Package

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

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

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

6.4.1.1 Prerequisites

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

Refer to the following instructions to install OFSAAIRunner package:

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

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

   Successful installation is indicated in the installation log as:

   ```
   * DONE (OFSAAIRunner)
   ```

   ```
   Making packages.html ... done
   ```

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

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

   ```
   >library(OFSAAIRunner)
   ```

   `>OFSAAIRunner::` and press TAB twice. This lists out all the functions.

6.4.2 Uninstalling OFSAAI Runner Package

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

Perform the following instructions to uninstall the OFSAAIRunner package:

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

   ```
   #ORE
   ```

   ```
   >remove.packages("OFSAAIRunner")
   ```

3. To save workspace image, enter the command:

   ```
   >q()
   ```

4. Enter **y** when prompted to save the workspace image. **Save workspace image? [y/n/c]: y**
5. Navigate to the directory `$ORACLE_HOME/R/library` and verify that the package is not listed there by executing the command:

   ```
   ls -l
   ```

6.5 Configuring ORE Execution

Perform the following step to configure ORE execution:

- Add a TNS entry in `tnsnames.ora` file with tns name same as that of value set for ORACLE_SID in database server.
  Note: For RAC database, follow the preceding configuration in all machines.

6.6 Configuring Tomcat

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

To configure `web.xml` file, perform these steps:

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

   Set the *mapped file* parameter to **false** in the `servlet` tag mentioned with:

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

6.7 Configuring Big Data Processing

This section is not applicable if you have enabled **Financial Services Big Data Processing** during the installation of OFSAAI 8.0.6.0.0 full installer. Follow instructions in this section if you intend to enable Big Data Processing.

This section includes the following topics:

- Copying Jars to OFSAA Installation Folder
- Copying KEYTAB and KRB5 Files in OFSAAI
- Enabling Big Data

6.7.1 Copying Jars to OFSAA Installation Folder

1 Download the supported `Cloudera HIVE JDBC Connectors` and copy the following .jar files to the location in the installation server, which is specified in `OFS_BFND_SCHEMA_BIGDATA_IN.xml`. For supported versions, see OFSAA Technology Matrix 8.0.6.0.0.

- `hive_service.jar`
- `hive_metastore.jar`
- `HiveJDBC4.jar`
- `zookeeper-3.4.6.jar`
- `TCLIServiceClient.jar`

2 Copy the following Jars from the `<Cloudera Installation Directory>/jars` directory based on the CDH version to the location in the installation server, which is specified in `OFS_BFND_SCHEMA_BIGDATA_IN.xml`:

CDH v5.3.3:

- `slf4j-log4j12-1.7.5.jar`

- slf4j-api-1.7.5.jar
- libthrift-0.9.0.jar
- libfb303-0.9.0.jar
- httpcore-4.2.5.jar
- httpclient-4.2.5.jar
- hive-exec-0.13.1-cdh5.3.3.jar
- hadoop-core-2.5.0-mrl-cdh5.3.3.jar
- hadoop-common-2.5.0-cdh5.3.3.jar
- hadoop-auth-2.5.0-cdh5.3.3.jar
- commons-logging-1.1.3.jar
- commons-io-2.4.jar
- commons-configuration-1.7.jar
- commons-collections-3.2.2.jar
- log4j-1.2.17.jar

CDH v5.4.4:

- slf4j-log4j12-1.7.5.jar
- slf4j-api-1.7.5.jar
- libthrift-0.9.2.jar
- libfb303-0.9.2.jar
- httpcore-4.2.5.jar
- httpclient-4.2.5.jar
- hive-exec-1.1.0-cdh5.4.4.jar
- hadoop-core-2.6.0-mrl-cdh5.4.4.jar
- hadoop-common-2.6.0-cdh5.4.4.jar
- hadoop-auth-2.6.0-cdh5.4.4.jar
- commons-logging-1.1.3.jar
- commons-io-2.4.jar
- commons-configuration-1.7.jar
- commons-collections-3.2.2.jar
- log4j-1.2.17.jar

CDH v5.8.4:

- slf4j-log4j12-1.7.5.jar
- slf4j-api-1.7.5.jar
- libthrift-0.9.3.jar

- libfb303-0.9.3.jar
- httpcore-4.3.jar
- httpclient-4.3.jar
- hive-exec-1.1.0-cdh5.8.4.jar
- hadoop-core-2.6.0-mrl-cdh5.8.4.jar
- hadoop-common-2.6.0-cdh5.8.4.jar
- hadoop-auth-2.6.0-cdh5.8.4.jar
- commons-logging-1.2.jar
- commons-io-2.4.jar
- commons-configuration-1.7.jar
- commons-collections-3.2.2.jar
- log4j-1.2.17.jar

CDH 5.13

- slf4j-log4j12-1.7.5.jar
- slf4j-api-1.7.5.jar
- libthrift-0.9.3.jar
- libfb303-0.9.3.jar
- httpcore-4.3.jar
- httpclient-4.3.jar
- hive-exec-1.1.0-cdh5.13.0.jar
- hadoop-core-2.6.0-mr1-cdh5.13.0.jar
- hadoop-common-2.6.0-cdh5.13.0.jar
- hadoop-auth-2.6.0-cdh5.13.0.jar
- commons-logging-1.2.jar
- commons-io-2.4.jar
- commons-configuration-1.7.jar
- commons-collections-3.2.2.jar
- log4j-1.2.14.jar

6.7.2 Copying KEYTAB and KRB5 Files in OFSAAI

A `Keytab` is a file containing pairs of Kerberos principals and encrypted keys (these are derived from the Kerberos password). The `krb5.conf` file contains Kerberos configuration information, including the locations of KDCs and admin servers for the Kerberos realms of interest, defaults for the current realm and for Kerberos applications, and mappings of hostnames onto Kerberos realms.

If the Authentication is configured as KERBEROS_WITH_KEYTAB for the Hive database, then you must use the Keytab file to login to Kerberos. The Keytab and Kerberos files must be copied to OFS_BFND_PACK installation server.

Ensure the `.profile` file contains entry for kinit in the following format:

```
kinit ##PRINCIPAL_CREATED## -k -t  ofsaa.keytab
```

For example:

```
kinit ofsaa@WHFBSY.ORACLE.COM -k -t ofsaa.keytab
```

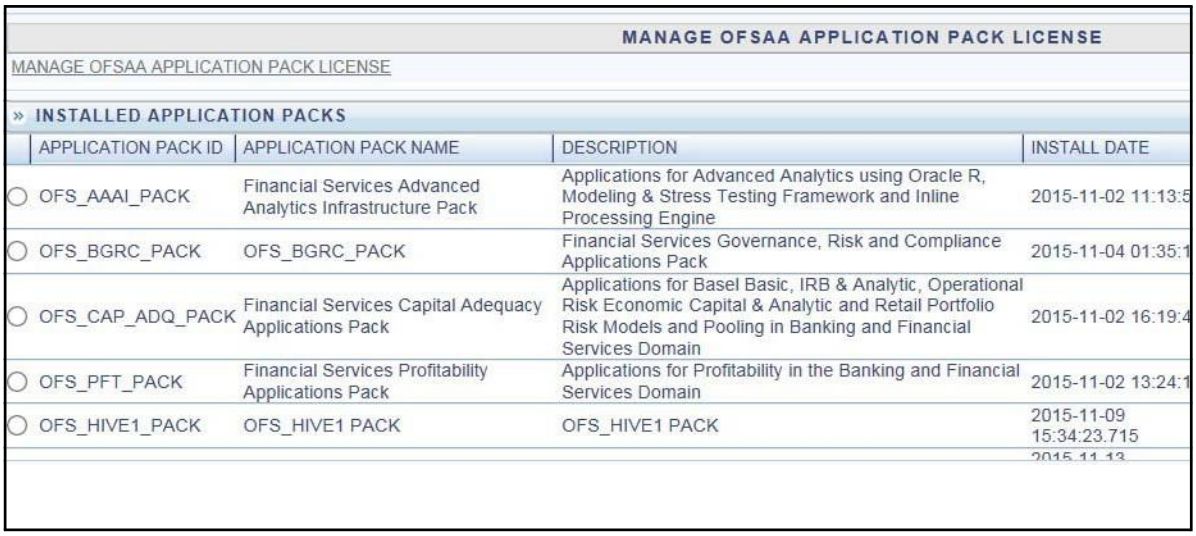
NOTE: The kinit command is used to login to the Kerberos authentication and authorization system. Only registered Kerberos users can use the Kerberos system.

6.7.3 Enabling Big Data

To enable Big Data option, follow these steps:

1. Log in to the application as SYSADMN user or any user with System Administrator privileges.
2. Click System Configuration & Identity Management tab.
3. Expand Financial Services Analytical Applications Infrastructure, select Administration and Configuration and click System Configuration.
4. Click **Manage OFSAA Product License(s)**. The Manage OFSAA Application Pack License window is displayed.

Figure 6–1 Manage OFSAA Application Pack License



5. Select **OFS_AAAI_PACK** application pack from Installed Application Packs. The products in the application pack are displayed.
6. Select Financial Services Analytical Applications Infrastructure - Big Data option.
7. Click **VIEW LICENSE AGREEMENT**. The License Agreement section is displayed.

Figure 6–2 License Agreement

8. Select the option **I ACCEPT THE LICENSE AGREEMENT**.
9. Click **ENABLE**. A confirmation message is displayed showing that the product is enabled for the pack.

6.7.4 Configuring Apache Livy Interface

Apache Livy is an Interface service that enables easy interaction with a Spark cluster over a REST interface. Perform the following configurations for Big Data installation.

6.7.4.1 Configuring Spark

NOTE: This section is applicable only during Stage and Results on Hive installation.

Ensure crossJoin is configured as follows:

1. Open the **Cloudera Manager** application.
2. Navigate to **SPARK2** > **Configuration**, and search for `spark-defaults.conf`.

   For example:

   `/etc/spark2/conf.cloudera.spark2_on_yarn/spark-defaults.conf`
3. Set spark.sql.crossJoin.enabled=**true**.
4. Set spark.executor.memory=**10g**.

   NOTE: When the Spark memory settings are set to low values, T2Ts execution fails. To resolve this, adjust the value of `spark.executor.memory` variable.

6.7.4.2 Set metastore Path for Spark

NOTE: This section is applicable during both installation processes in Big Data (Stage and Results on Hive, and Stage on Hive and Results on RDBMS).

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

   For example:

   ```
   cp /etc/hive/conf.cloudera.hive/hive-site.xml
   /etc/spark2/conf.cloudera.spark2_on_yarn
   ```
2. Edit the file to add the following entries in SPARK2 conf:

in hive conf	in SPARK2 conf

<property> <name>hive.metastore.warehouse.dir</name> <value>/user/hive/warehouse</value> </property>	<property> <name>spark.sql.warehouse.dir</name> <value>/user/hive/warehouse</value> </property>

NOTE: When Cloudera is configured for a cluster, then all the nodes must adhere to this configuration.

6.7.4.3 Cluster Configuration

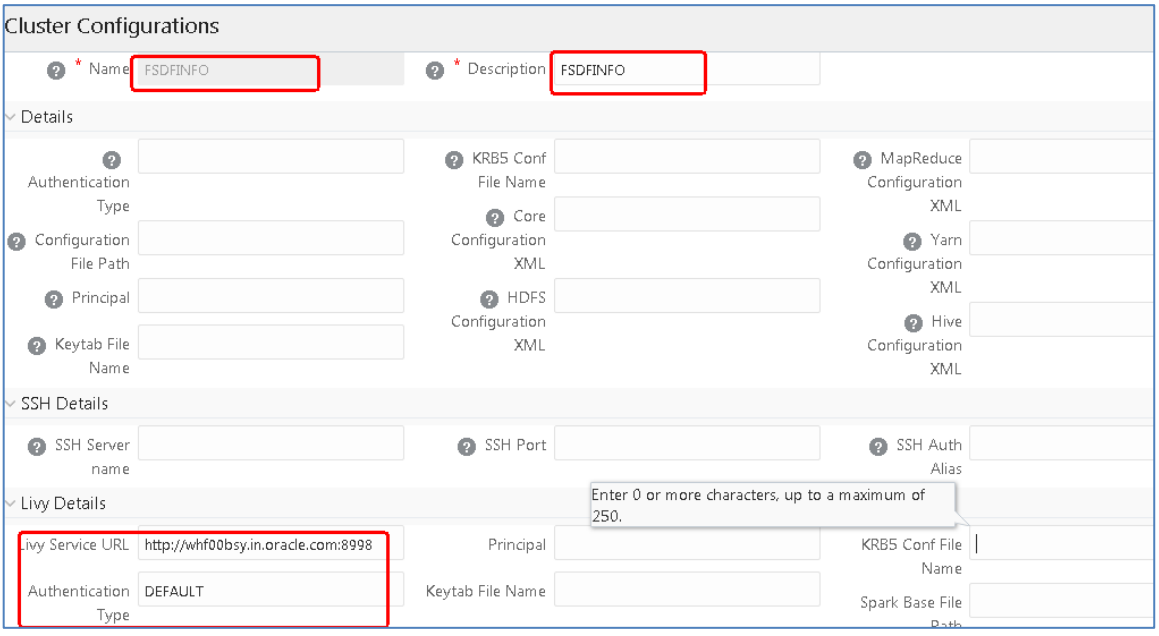
NOTE: This section is applicable only during Stage and Results on Hive installation.

Configure DMT to provide Apache Livy Interface details. Ensure that you have the proper role to access this screen.

To add a New Cluster, add appropriate roles to the user:

NOTE: To add a new cluster and then register it, the user must have DMTADMIN (Data Management Admin) role. Therefore, assign DMTADMIN role to the user, and ensure to map the DMTADMIN role to the FSDFADMIN user group.

1. Navigate to **Data Management Framework** > **Data Management Tools** > **DMT Configuration** > **Register Cluster** > **Add Cluster**.
2. Enter the details as shown in the image. In the Livy Service URL field, enter Livy Server URL of your environment.



3. To populate DIM_DATES, navigate to the **Batch Execution** screen. Perform these steps:
   a. Run the batch FSDFINFO_ POP_DATES_DIM_HIVE.
   b. SCD batches (FSDFINFO_DATA_FOUNDATION_SCD, FSDFINFO_DIM_ACCOUNT_SCD) are sequenced with wait mode **Yes** enabled.

NOTE: FSDFINFO_DATA_FOUNDATION_SCD and FSDFINFO_DIM_ACCOUNT_SCD batches are made sequential.

c. Click **Execute Batch**.

d. Monitor the status of the batch in the **Batch Monitor** screen of OFSAAI.

4. Execute T2T Batches in the **Run Management** screen.

   NOTE: In Run Management, FSDF_SOURCED_RUN is made sequential.

6.7.5 Verifying Oracle's External Tables Utility

NOTE: This section is applicable only for Stage on Hive and Results on RDBMS installation.

On successful installation of the OFSDF Application Pack for Big Data, the list of Hive external tables created can be verified using Oracle's External Tables Utility. Oracle's External Tables Utility facilitates Oracle Database to query data that is stored outside of the database in flat files, in a way such that they are inside a database. Views and synonyms can be created against these external tables. They are useful in the Extract Transform and Load (ETL) process of data warehouses because the data does not required to be staged and can be queried in parallel. For more details, see External Tables Concepts.

To verify the External Tables created for Big Data:

1. Navigate to the file `$FIC_DB_HOME/log/FSDF/CreateExternalTable.log`. This log file consists of an acknowledgement of the external tables created:

   ```
   Created
   ```

2. To verify the external tables created in the database:

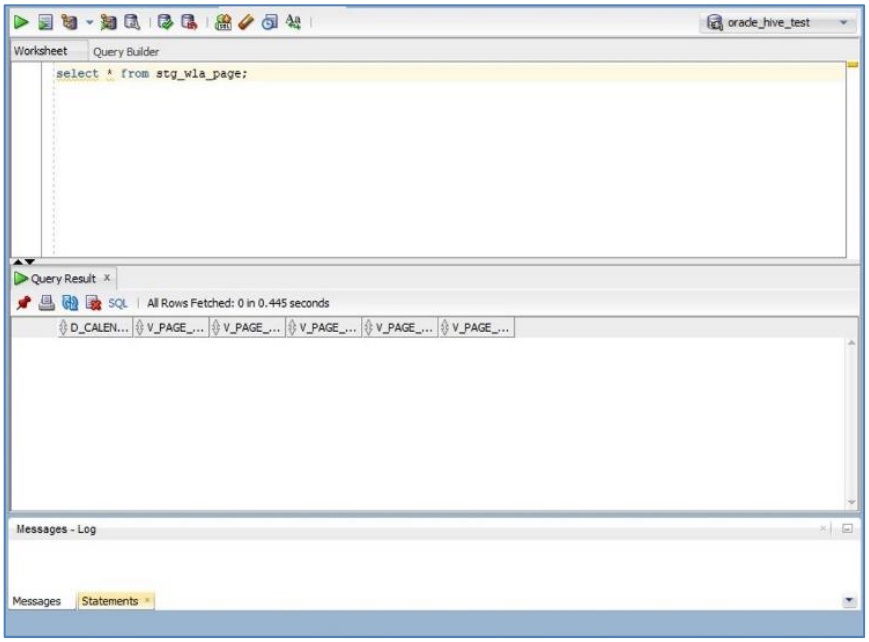
   a. Open the database application.

   b. Navigate to the **Tables** option. A list of External Tables is displayed.

   c. In the query window, only the read queries can be executed on these External Tables.

   For example:

   ```
   Select * from <external_table_name>
   ```



6.8 Creating and Deploying the Application Pack Web Archive

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

For identifying the location of the generated Web Archive file and for generating and deploying the web archive file at any time later, refer Appendix C.

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

6.9 Accessing the OFSAA Application

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

Refer to Appendix E for details on accessing the OFSAA Application on successful deployment of the application Web Archive.

7 Appendix A: Configuring Web Server

This appendix includes the following sections:

- Configuring Web Server
- Configuring Web Application Server

7.1 Configuring Web Server

This step assumes an installation of a Web Server exists as per the prerequisites.

Refer the product specific Installation Guide/ Configuration Guide to install/ configure the Web Server. If an installation already exists, skip and proceed to the next step.

NOTES:

1. Make a note of the IP Address/ Hostname and Port of the web server. This information is required during the installation process.
2. Refer *Oracle Financial Services Analytical Applications Infrastructure Security Guide* mentioned in the Documentation Library for OFSAAI 8.0.6.0.0 (OHC), for additional information on securely configuring your Web Server.
3. Ensure to enable sticky session/affinity session configuration on the web server. Refer the respective product specific Configuration Guide for more details. Additionally, you also need to enable the sticky session/affinity session configuration at Load Balancer level if you have configured a Load Balancer in front of the web server(s).

7.2 Configuring Web Application Server

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

This section includes the following topics:

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

NOTE: Make a note of the IP Address/ Hostname and Port of the web application server. This information is required during the installation process (required if Web Server is not configured).

Make a note of the IP Address/ Hostname and Port of the web application server. This information is required during the installation process (required if web server is not configured).

Refer *OFSAA Secure Configuration Guide/ Security Guide* in OHC Documentation Library for additional information on securely configuring your Web Server.

7.2.1 Configuring WebSphere Application Server for Application Deployment

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

This section includes the following topics:

- Creating New Profile in WebSphere
- Managing Applications in WebSphere
- Configuring WebSphere Application Server to Use a Load Balancer or Proxy Server
- Deleting WebSphere Profiles
- Configuring WebSphere Shared Library to Support Jersey 2x and Jackson 2.9x Libraries
- Configuring WebSphere HTTPS
- Setting WebSphere Memory
- Configuring WebSphere for REST Services Authorization
- Configuring Application Security in WebSphere

7.2.1.1 Creating New Profile in WebSphere

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

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

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

Example:

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

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

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

Example:

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

ipa020dor -enableAdminSecurity true -adminUserName ofsaai -
adminPassword ofsaai -samplespassword ofsaai"
```

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

7.2.1.2 Managing IBM WebSphere SDK Java Technology Edition Versions

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

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

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

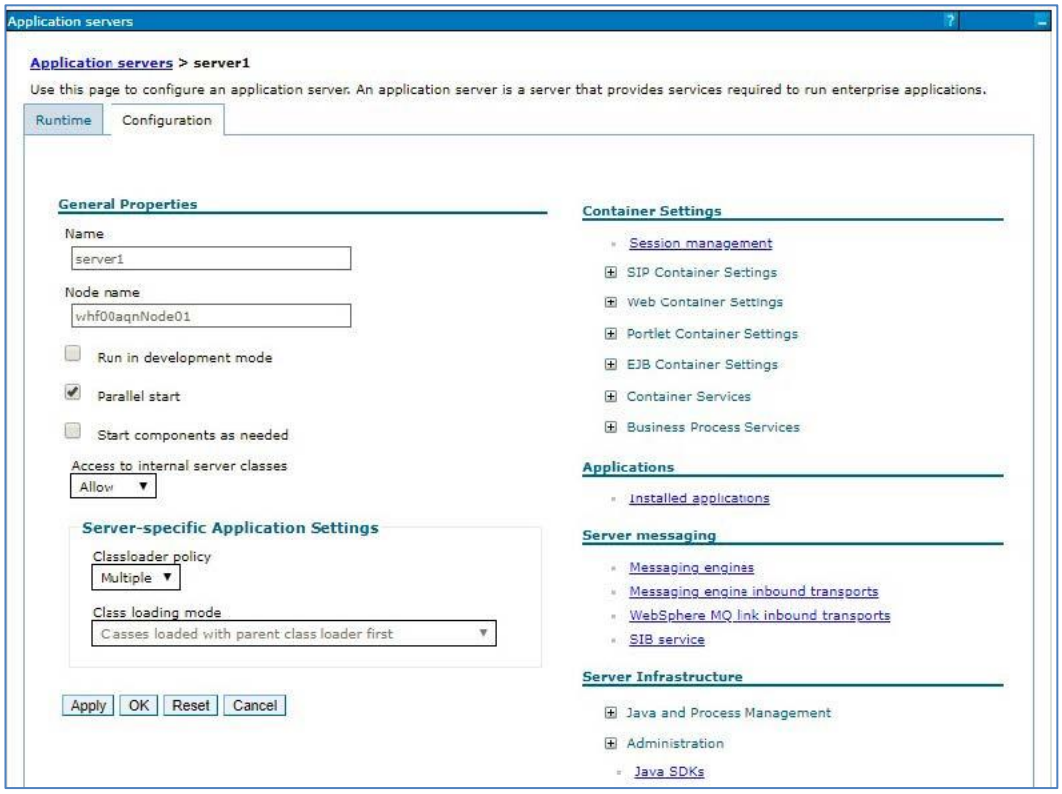
1. Enter the WebSphere URL in the format `http://HOST_NAME:PORT_NUMBER/ibm/console` (use https if SSL is enabled.).

   For example:

   `http://192.168.1.0:9000/ibm/console`

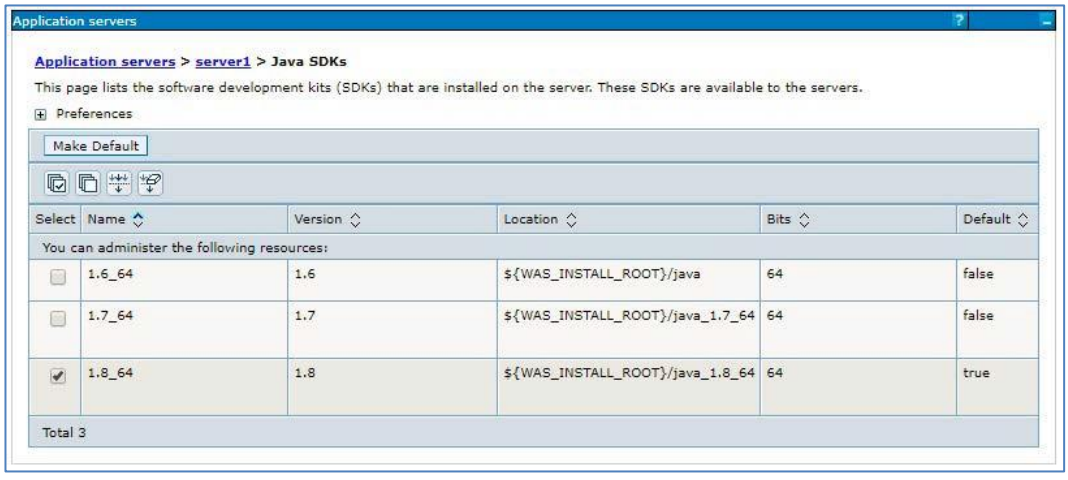
2. Login with your administrator user ID and password.
3. From the LHS menu, click **Servers** to expand and view the menu.
4. Click **Server Types** to expand the menu further and then click **WebSphere Enterprise Application Servers** to view the *Application Servers* window.
5. On *Application Servers*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

   Application Server - Java SDKs



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

Application Server - List of Java SDKs



7. Select either 1.7_64 or 1.8_64 based on the JVM version with which you plan to install OFSAA or have installed with.
8. Click **Make Default** button and save to master repository.
9. Restart the WebSphere Application Server to apply the changes to the IBM application profile.

7.2.1.3 Managing Applications in WebSphere

To manage the installed applications in WebSphere, do the following:

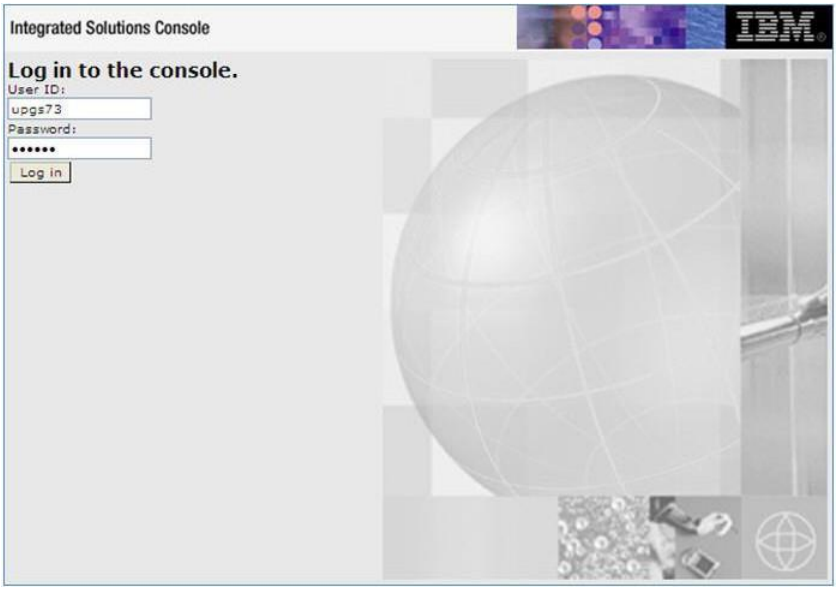
1. Open the administrator console using the following URL:

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

   Example: `http://10.111.222.333:9003/ibm/console` (https, if SSL is enabled)

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

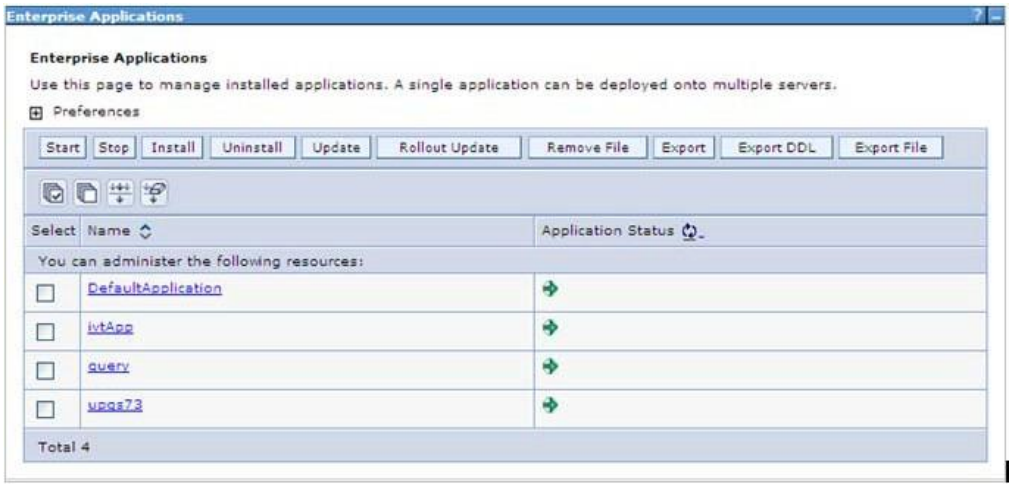
The *Integrated Solutions Console Login* window is displayed.



Integrated Solutions Console Login

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

4. The *Enterprise Applications* screen is displayed.



Enterprise Applications

5. This Enterprise Applications screen helps you to:

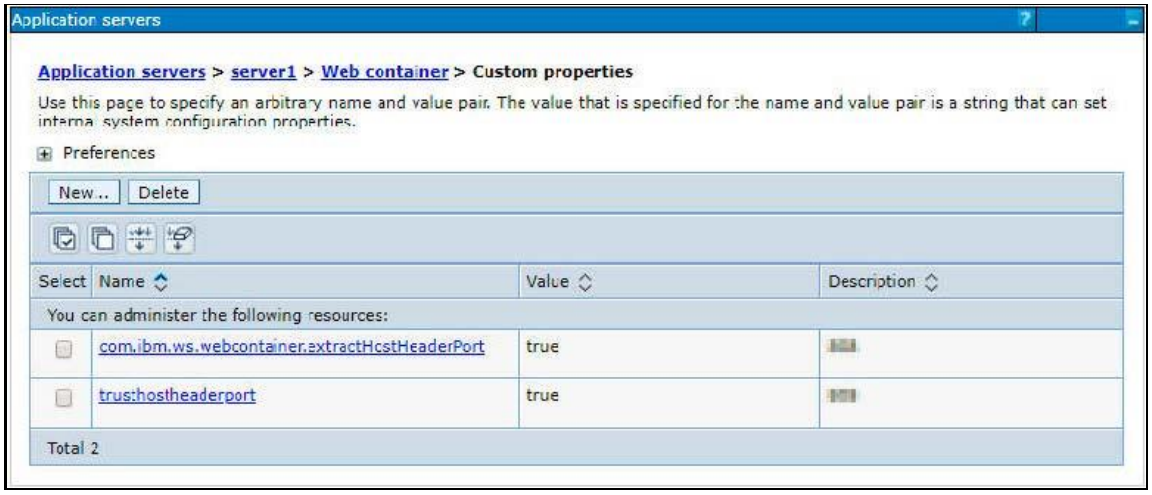
   - Install new application
   - Uninstall existing applications
   - Start or Stop the installed applications

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

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

The following steps describe the configuration:

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



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

7.2.1.5 Deleting WebSphere Profiles

To delete a WebSphere profile, do the following:

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

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

   ```
   manageprofiles.sh -delete -profileName <profile_name>
   ```
5. Delete profile folder.
6. Example:

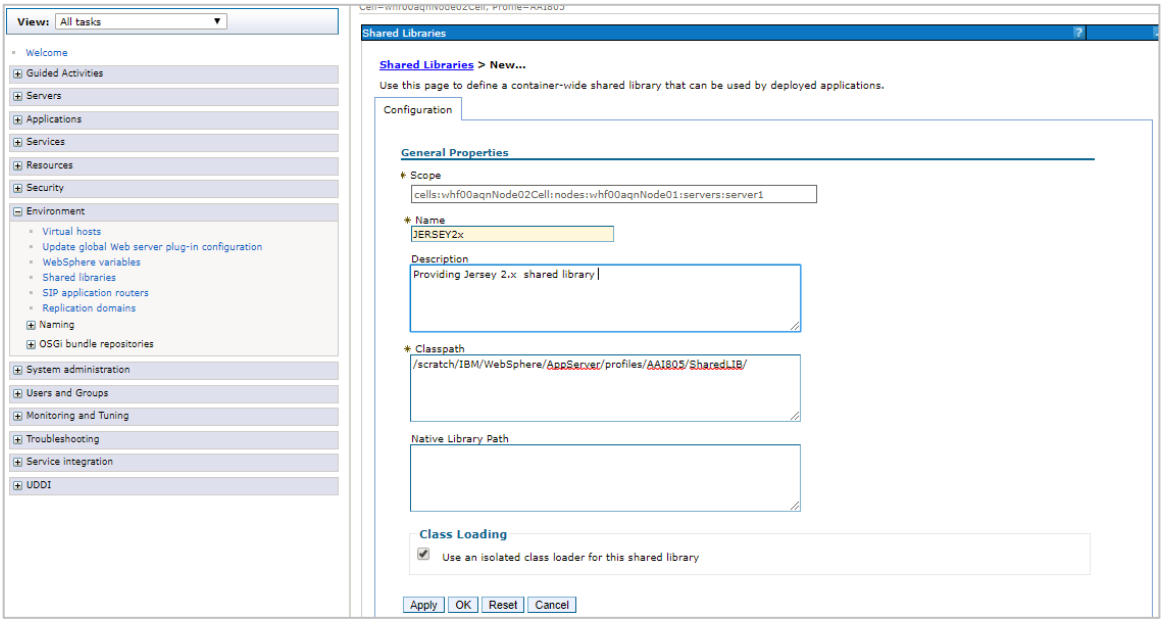
   ```
   <WebSphere_Installation_Directory>/AppServer/profiles/<profile_name>
   ```
7. Execute the command:

   ```
   manageprofiles.sh -validateAndUpdateRegistry
   ```

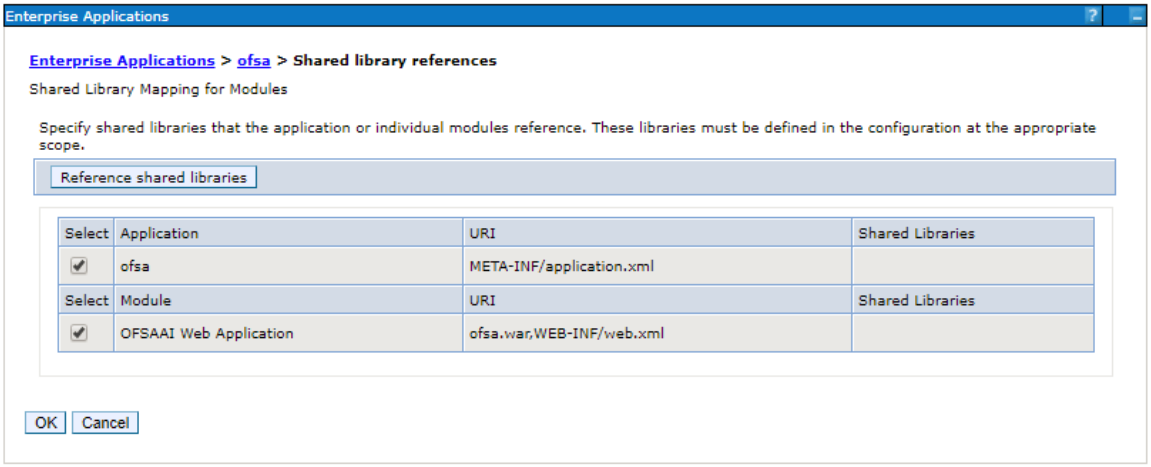
7.2.1.6 Configuring WebSphere Shared Library to Support Jersey 2x and Jackson 2.9x Libraries

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

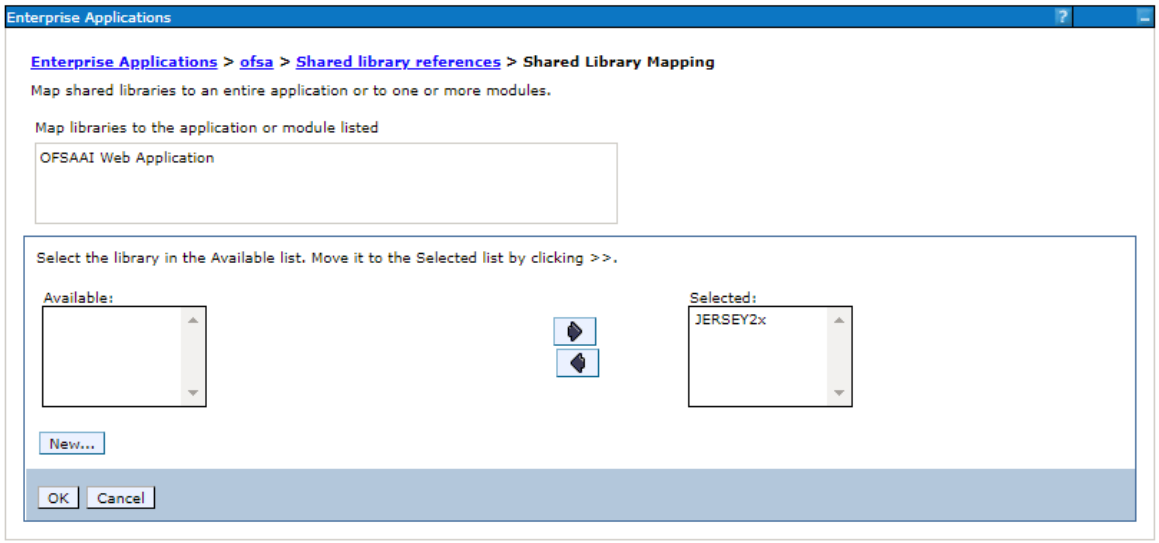
1. Click **Environment** from the menu on the left to expand and view the list. Click **Shared Libraries** to open the Shared Libraries window.



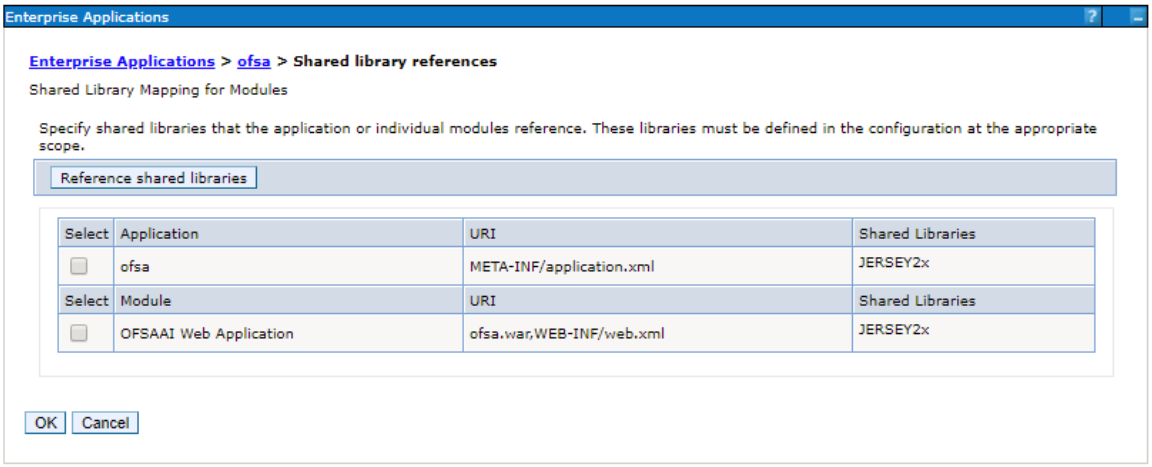
2. Enter details as shown in the following:
    a. **Name**: Enter a unique identifiable name.
    b. **Description**: Enter a valid description.
    c. **Classpath**: Enter the absolute path where the JARs related to Jersey 2.x and Jackson 2.9x are copied. These jars are available in the *<OFSAA_HOME>/utility/externallib/WEB-INF/lib* directory after creation of the EAR file.
3. Select **Use an isolated class loader for this library**.
4. Click **OK** to save to master configuration.
5. Select the application or module and map the shared libraries. Click **OK**. In the following illustration, **ofsa** is selected.



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



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



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

```
com.ibm.websphere.jaxrs.server.DisableIBMJAXRSEngine=true
```

10. Restart the application.

7.2.1.7 Configuring WebSphere HTTPS

Following are the steps for configuring an HTTPS Transport on WebSphere:

1. Create a profile using the *Profile Creation Wizard* in WebSphere.
2. Note down the HTTPS port specified during this process and use the same as servlet port or web server port during OFSAAI installation.
3. To enable https configuration on Infrastructure, assign value 1 to "`HTTPS_ENABLE`" in OFSAAI_InstallConfig.xml for SILENT mode OFSAAI installation.

7.2.1.8 Setting WebSphere Memory

To configure the WebSphere Memory Settings:

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

   `Initial heap size = 512`

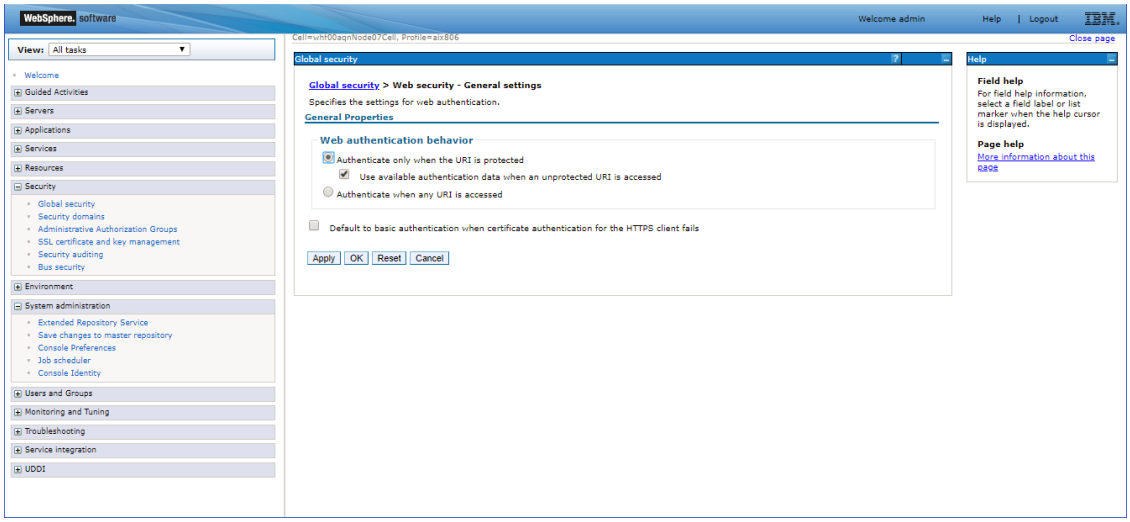
   `Maximum heap size =3072`

7.2.1.9 Configuring WebSphere for REST Services Authorization

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

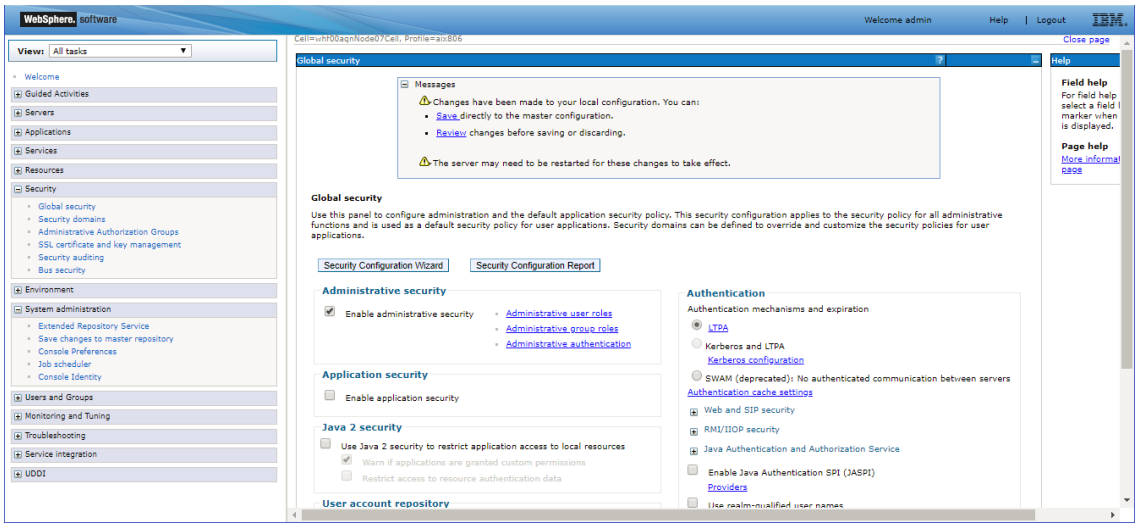
1. Log on to WebSphere console with the **User ID** provided with the admin rights.

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



5. De-select the **Use available authentication data when an unprotected URI is accessed** checkbox.

6. Click **OK.**



7. Click **Save** to save the changes to master configuration.

7.2.1.10 Configuring Application Security in WebSphere

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

7.2.2 Configuring WebLogic for Application Deployment

Applicable only if the web container is WebLogic.

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

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

This section includes the following topics:

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

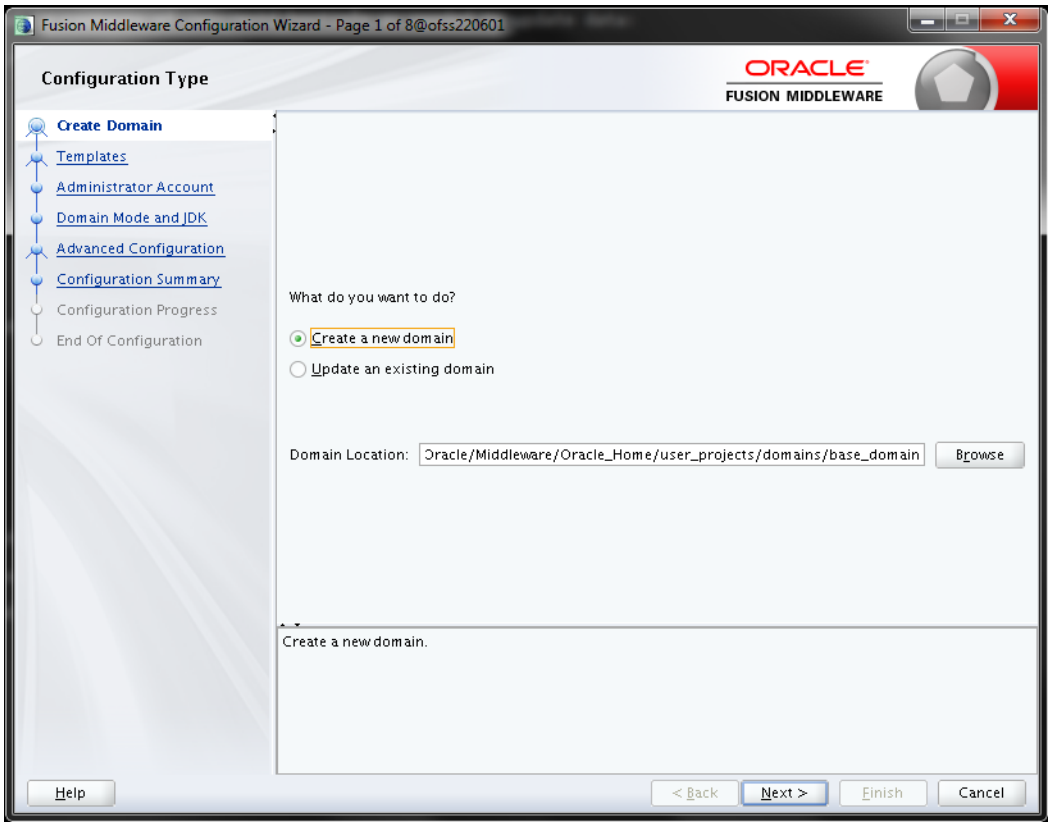
7.2.2.1 Creating Domain in WebLogic Server

To create a new domain using Configuration Wizard in WebLogic, do the following:

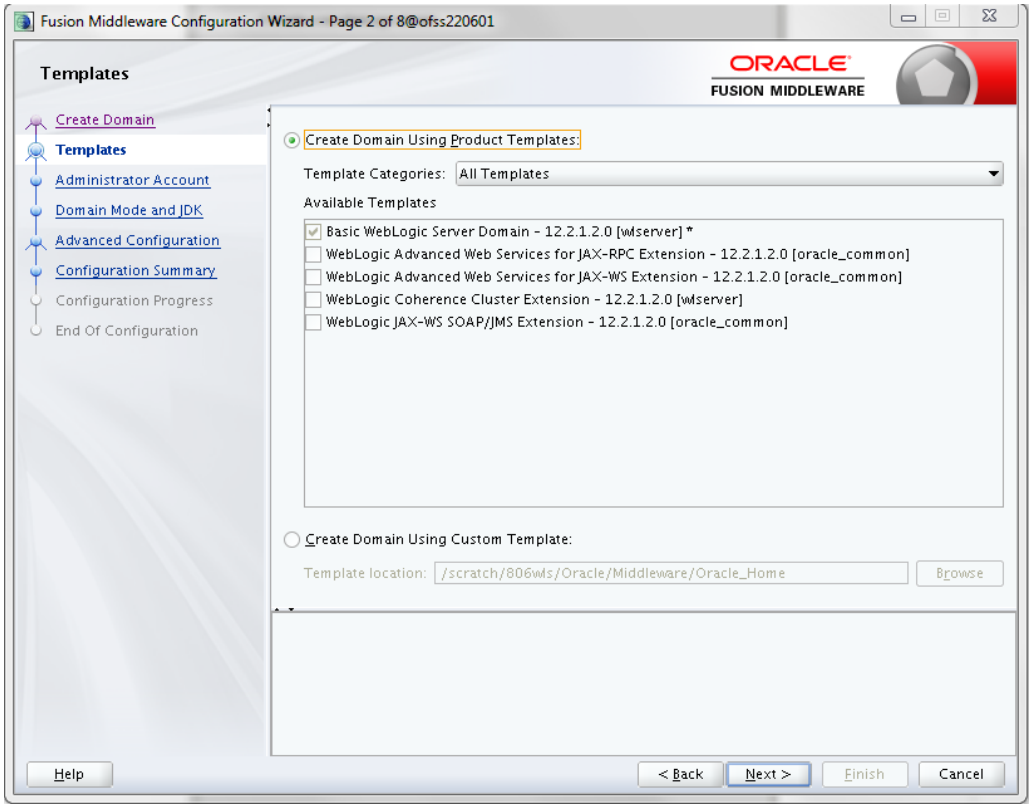
1. Navigate to `<WLS_HOME>/wlserver/common/bin` directory and execute the command:

   `./config.sh`

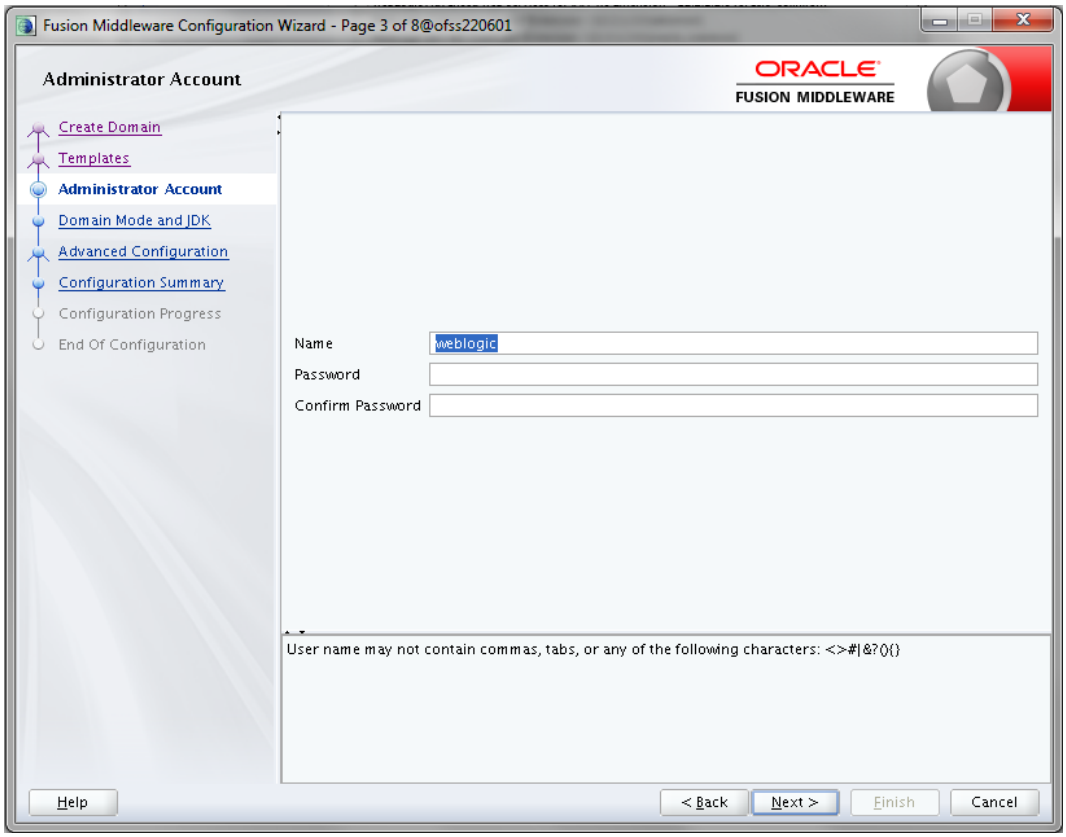
   The **Configuration Type** window of the Configuration Wizard is displayed


Fusion Middleware Configuration Wizard - Page 1 of 8@ofss220601
Configuration Type
ORACLE
FUSION MIDDLEWARE
Create Domain
Templates
Administrator Account
Domain Mode and JDK
Advanced Configuration
Configuration Summary
Configuration Progress
End Of Configuration
What do you want to do?
Create a new domain
Update an existing domain
Domain Location:
Oracle/Middleware/Oracle_Home/user_projects/domains/base_domain
Browse
Create a new domain.
Help
< Back
Next >
Finish
Cancel

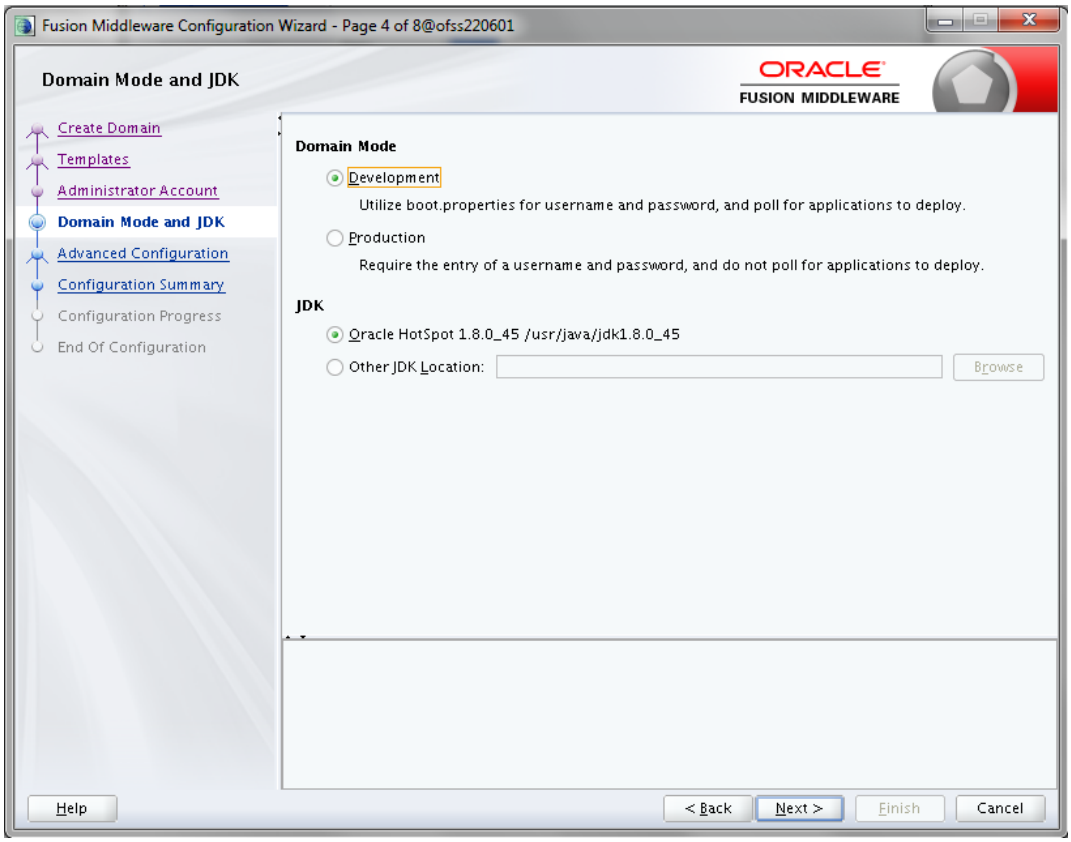
2. Select the **Create a new domain** option and click **Next**. The **Templates** window is displayed.



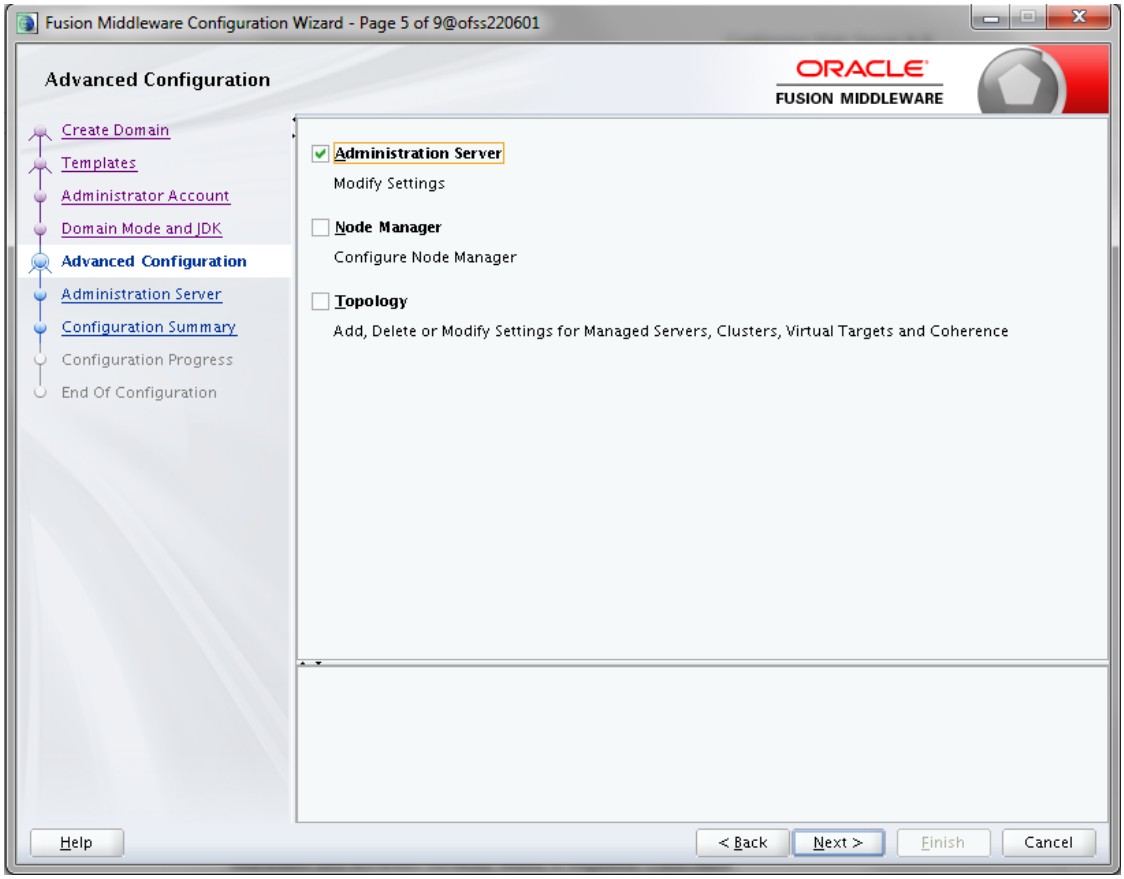
3. Select the **Create Domain Using Product Templates** option and click **Next**. The *Administrator Account* window is displayed.



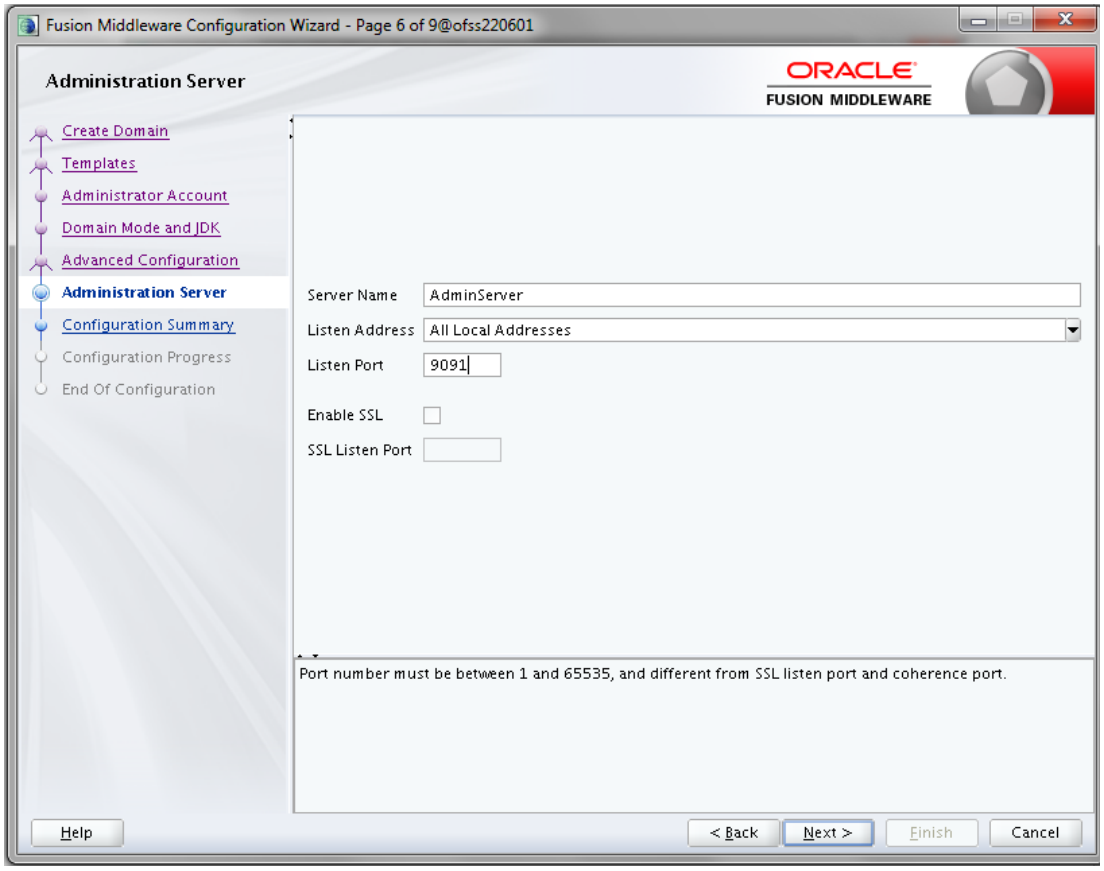
4. Enter the user name to be assigned to the administrator, the password and confirm the password. Click **Next**. The *Domain Mode and JDK* window is displayed.



5. Select from the following options:
    - In the *Domain Mode* section, select the required mode (Development or Production).
    - In the *JDK* section, select the required option. If you select **Other JDK Location, c**lick **Browse,** navigate to the JDK location, and select. Click **Next**.
    - The *Advanced Configuration* window is displayed.

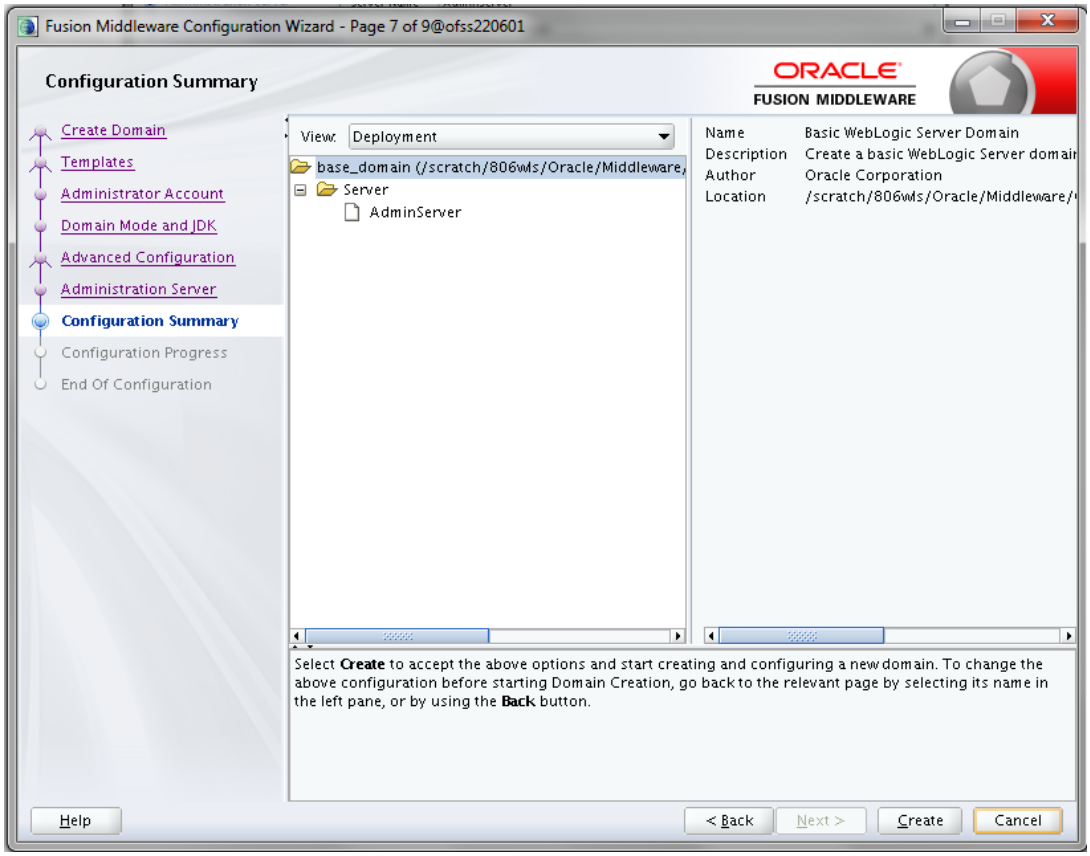


6. Select **Administration Server**. A WebLogic Server domain must have an Administration Server. You can also select **Manages Servers**, **Clusters and Machines** and **RDBMS Security Store**, if required. Click **Next**. The *Administration Server* window is displayed

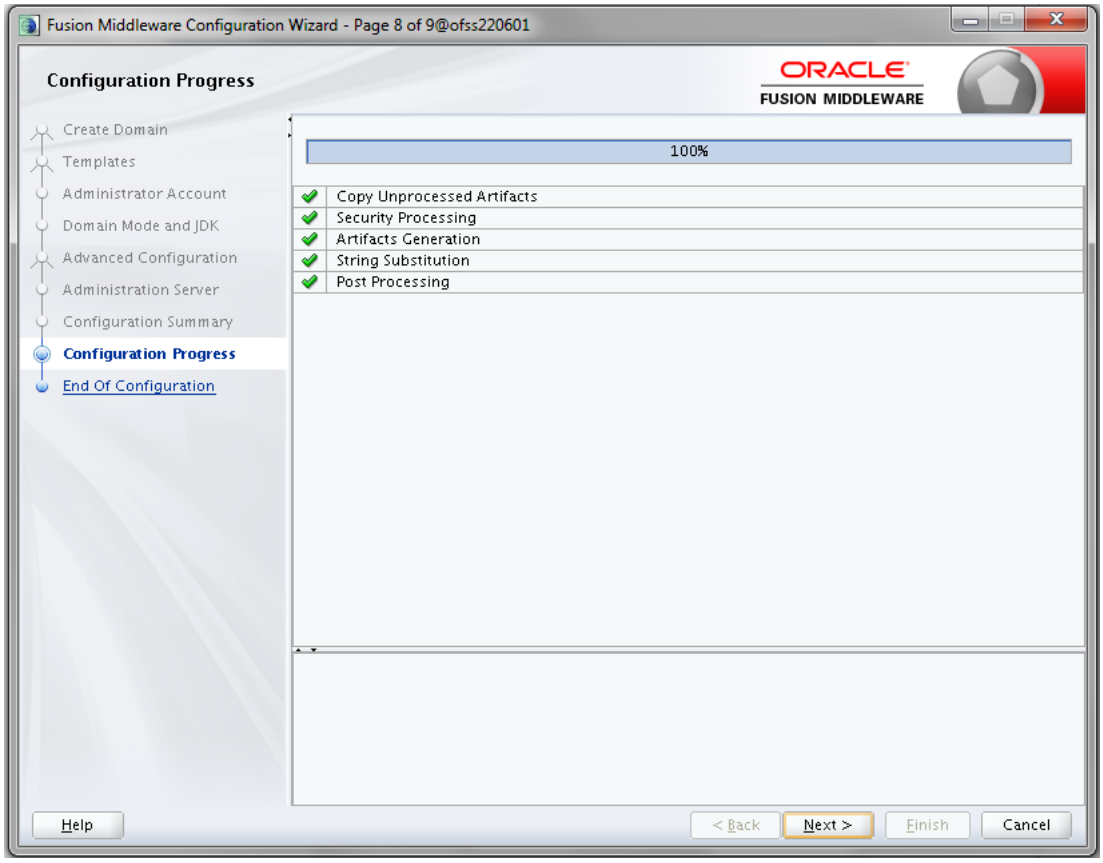


7. Enter Administration Server details such as the **Server Name**, **Listen Address**, **Listen Port**, **Enable SSL**(for secure login using https, select this check box), and **SSL Listen Port**. Click **Next**. The *Configuration Summary* window is displayed.

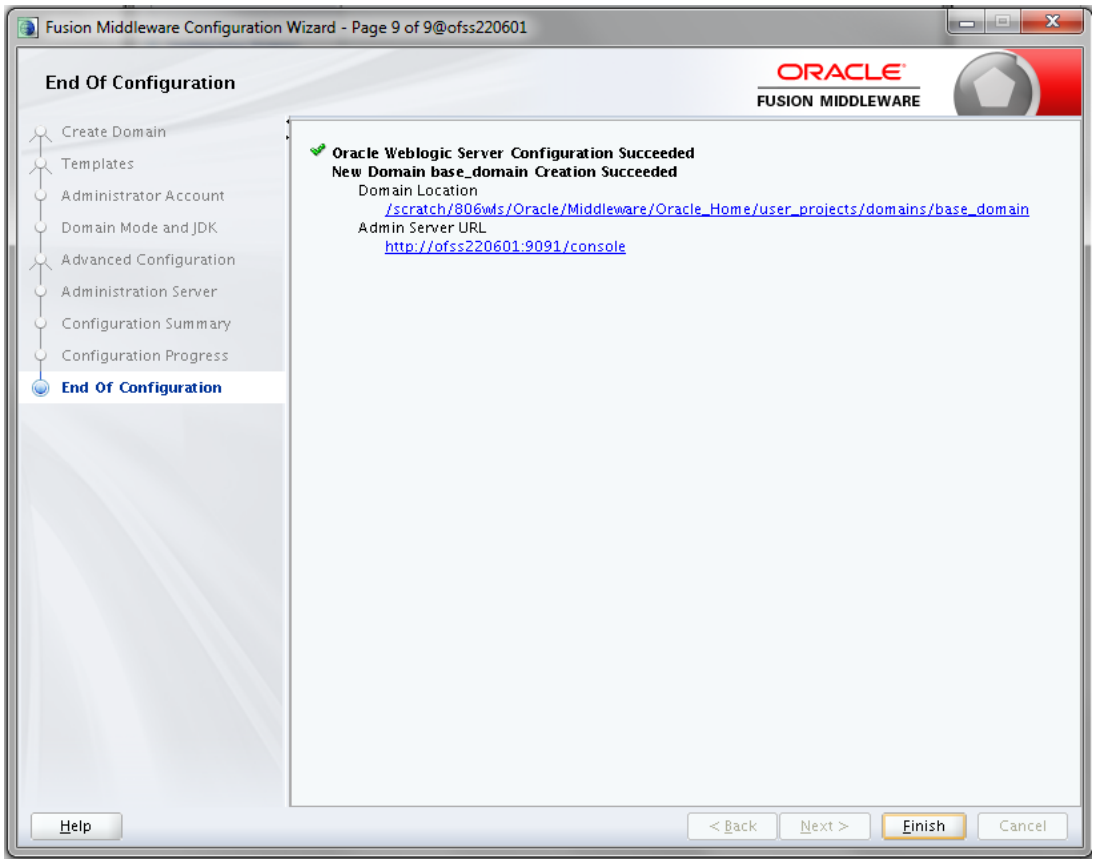
NOTE: Make a note of the Listen Port or SSL Listen Port value (for example: 7007), since the same has to be re-entered in the Servlet port field during Infrastructure installation.



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



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



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

NOTE: Note down the HTTPS port specified during this process and use the same as servlet port or web server port during OFSAAI Installation. To enable https configuration on Infrastructure, assign value 1 to "HTTPS_ENABLE" in OFSAAI_InstallConfig.xml for silent mode OFSAAI installation.

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

7.2.2.2 Deleting Domain in WebLogic

1. Navigate to the following directory:

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

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

7.2.2.3 Setting WebLogic Memory

To configure the WebLogic Memory Settings:

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

   Example 1:

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

   Example 2:

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

7.2.2.4 Configuring WebLogic for REST Services Authorization

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

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

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

7.2.3 Configuring Apache Tomcat Server for Application Deployment

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

- Administering Tomcat User
- Configuring Tomcat to use JAVA 64 bit Executables

- Configuring Servlet Port
- Configuring SSL Port
- Setting Apache Tomcat Memory
- Configuring Tomcat for User Group Authorization
- Uninstalling WAR Files in Tomcat
- Configuring Axis API

7.2.3.1 Administering Tomcat User

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

This file contains an XML tag <user> for each individual user, which will display the username and password used by admin to log on to Tomcat, and the role names to which the admin user is associated with. For example, <user name="admin" password="admin" roles="standard,manager"/>

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

7.2.3.2 Configuring Tomcat to use JAVA 64 bit Executables

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

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

With:

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

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

NOTE: In case tomcat is installed under different UNIX profile, set JAVA_BIN environment variable in .profile to include the Java Runtime Environment absolute path.
For example:

```
export JAVA_BIN /usr/java/jdk1.7.0_65/jre/bin
export JAVA_BIN = /usr/jdk1.7.0_75/bin/sparcv9 for Solaris Sparc
```

7.2.3.3 Configuring Servlet Port

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

If you need to use a different port number, you must first configure the port in the "`server.xml`" in the "`conf`" directory of Tomcat Installation directory. The following steps guide you through the configuration process:

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

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

2. Against this tag, a parameter is specified '`Connector port = "8080"` '. Edit this value to the new port number that will be used during the installation process.
3. Save your changes in `server.xml file`.

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

7.2.3.4 Configuring SSL Port

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

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

NOTE: Make a note of the servlet port configured. This information would be required during the installation of OFSAA Application Pack.

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

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

7.2.3.5 Setting Apache Tomcat Memory

To configure the Apache Tomcat Memory Settings:

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

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

7.2.3.6 Configuring Tomcat for User Group Authorization and Data Mapping

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

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

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

3. Save and close the file.

7.2.3.7 Uninstalling WAR Files in Tomcat

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

7.2.3.8 Configuring Axis API

This step is optional and required only if the web application server used in Apache Tomcat. If you use any other web application server, skip and proceed to next step.

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

8 Appendix B: Configuring Resource Reference in Web Application Servers

This appendix includes the following topics:

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

8.1 Configuring Resource Reference in WebSphere Application Server

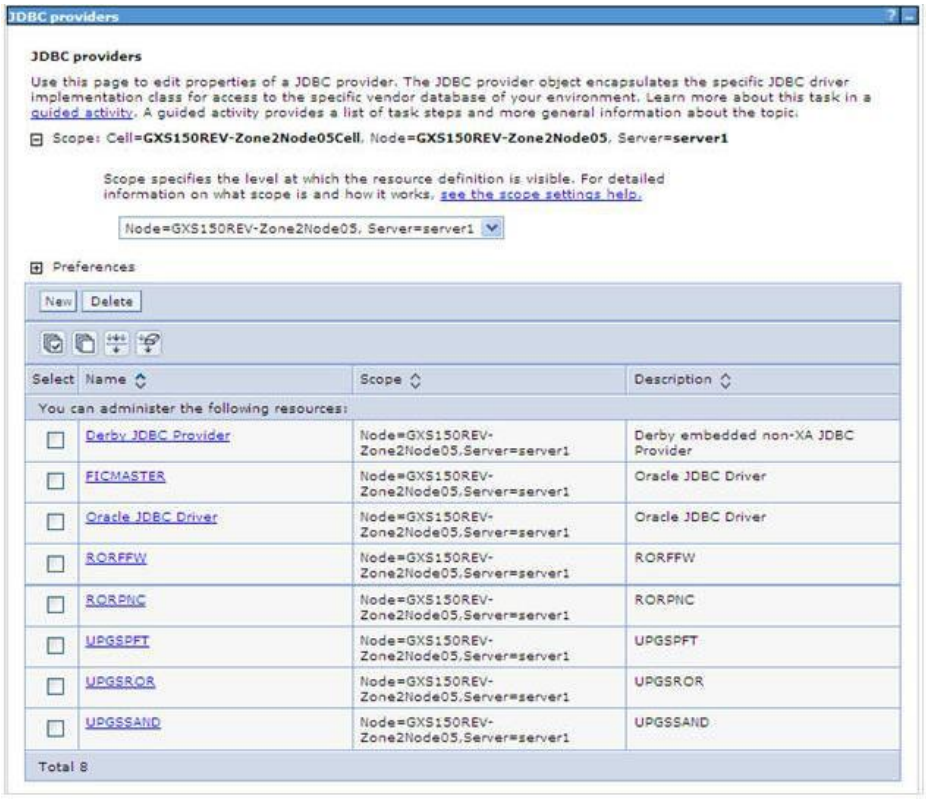
This section is applicable only when the Web Application Server is WebSphere.

This section includes the following topics:

- Creating JDBC Provider
- Creating Data Source
- Creating J2C Authentication
- Creating JDBC Connection Pooling

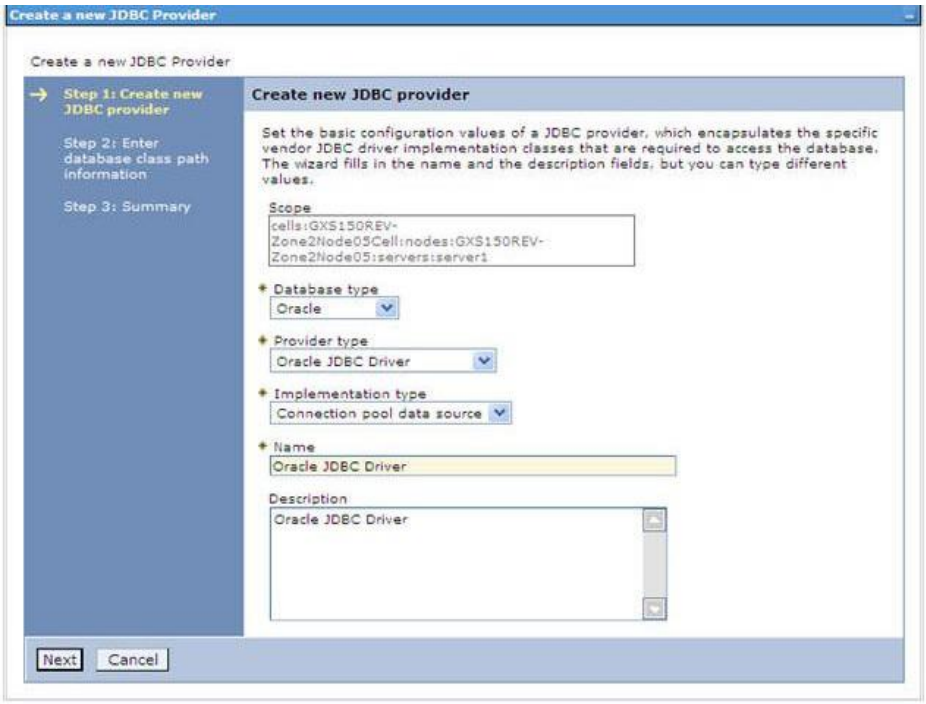
8.1.1 Creating JDBC Provider

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



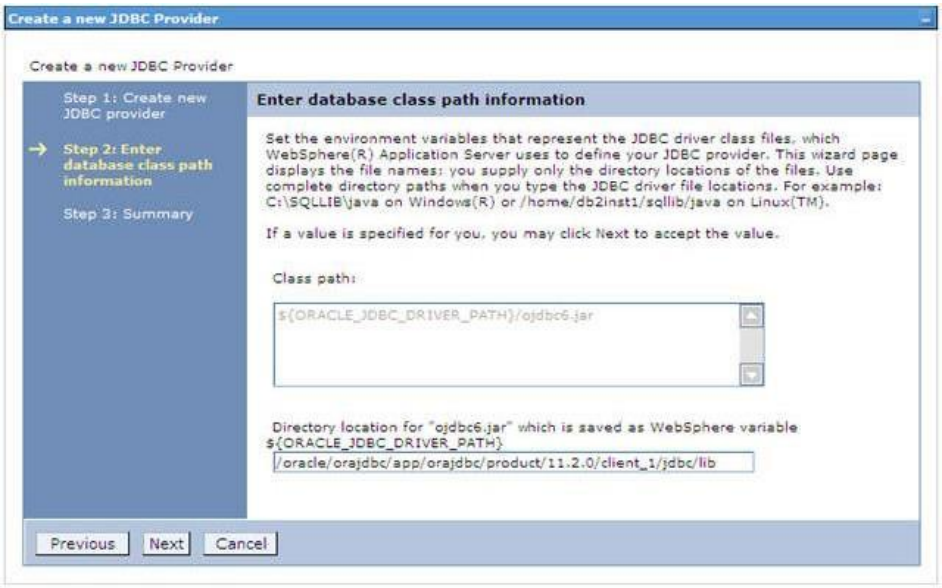
JDBC Providers

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



Create a new JDBC Provider

6. Enter the following details:
    - Database Type - Oracle
    - Provider Type- Oracle JDBC Driver
    - Implementation Type- Connection pool data source
    - Name- The required display name for the resource
    - Description - The optional description for the resource
7. Click **Next.**



Enter database class path information

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

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

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

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

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

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

Summary

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

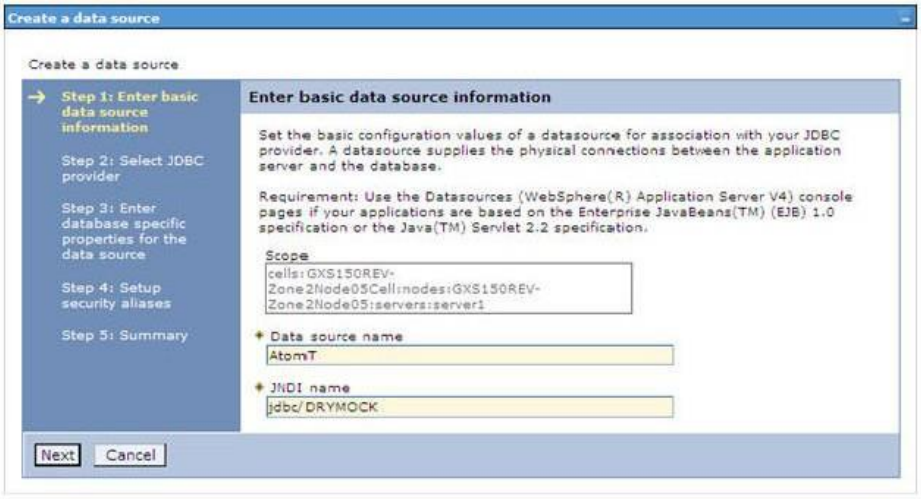
8.1.2 Creating Data Source

The steps given below are applicable for both CONFIG and ATOMIC data source creation.

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

Data Sources

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



Create a Data Source

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

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

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

Select JDBC Provider

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

Enter Database Properties

9. Specify the database connection URL.

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

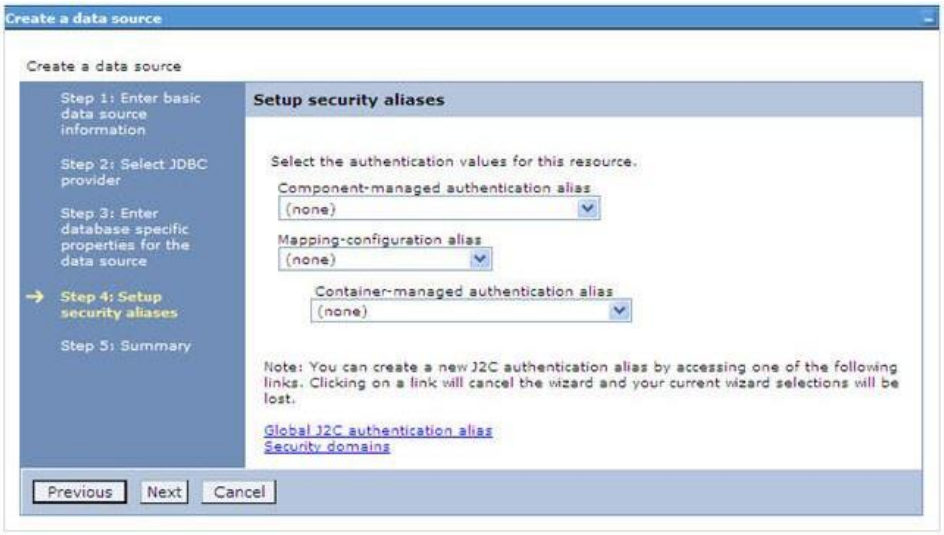
10. Select **Data Store Helper Class Name** from the drop-down list and ensure that the checkbox **Use this data source in container managed persistence (CMP)** is selected.

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

For Example:

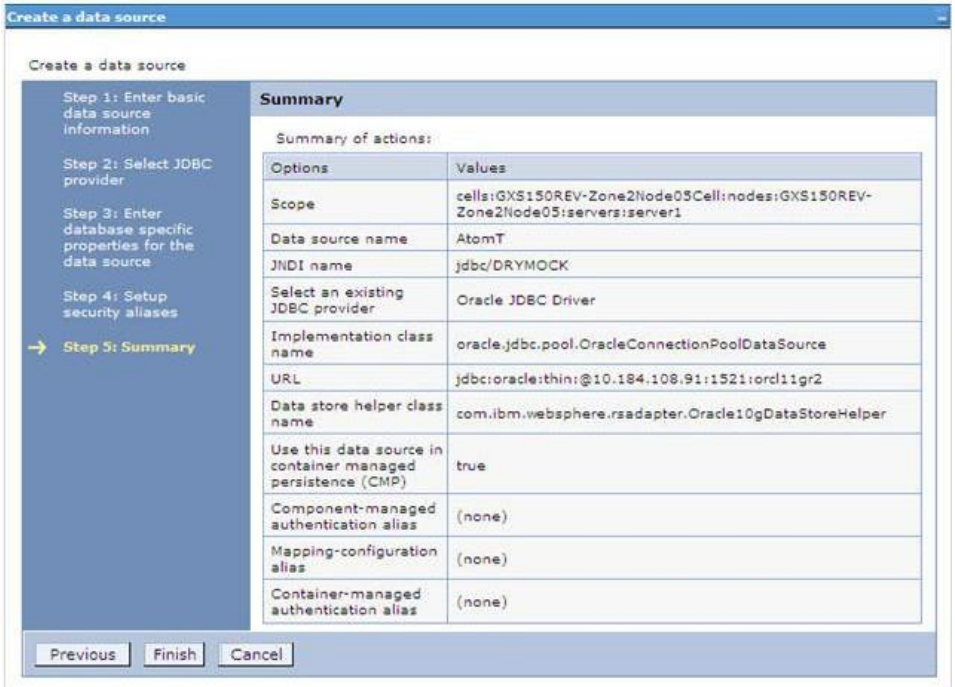
```
jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=1
0.11.12.13)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=10.11.12.14)(PORT=1521)
)(LOAD_BALANCE=no)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=pqadb)))
```

11. Click **Next**.



Setup Security Aliases

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



Summary

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

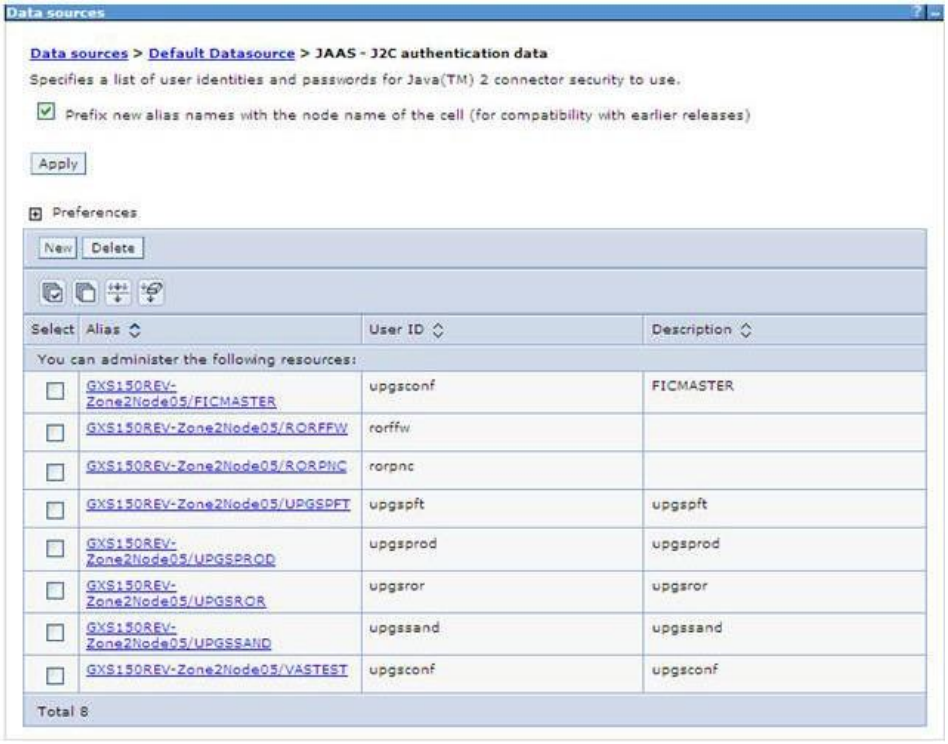
13. You must create another Data source by following the above procedure with jdbc/FICMASTER as JNDI name pointing to the "configuration schema" of Infrastructure.

8.1.3 Creating J2C Authentication

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

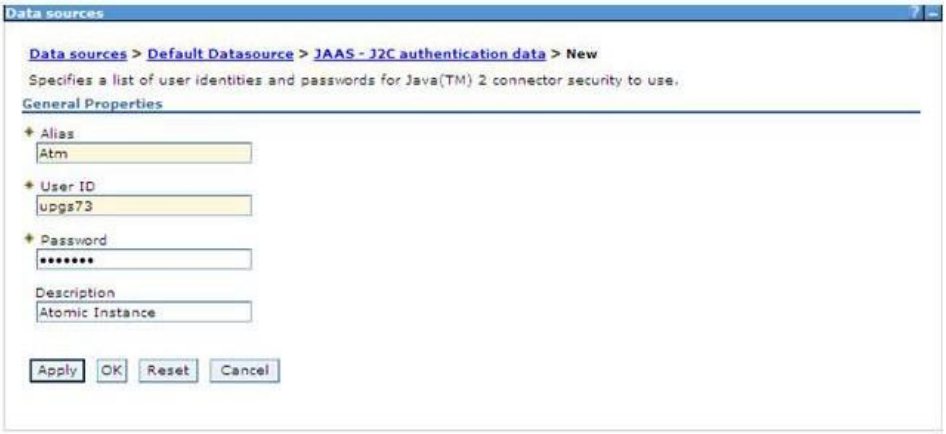
To create J2C Authentication details:

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



JAAS - J2C Authentication Data

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



JAAS - J2C Authentication Data - New

3. Enter the **Alias**, **User ID**, **Password**, and **Description**. Ensure the following:

   - User ID is the Oracle user ID created for the respective CONFIG and ATOMIC Schema for the "Information Domain".

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

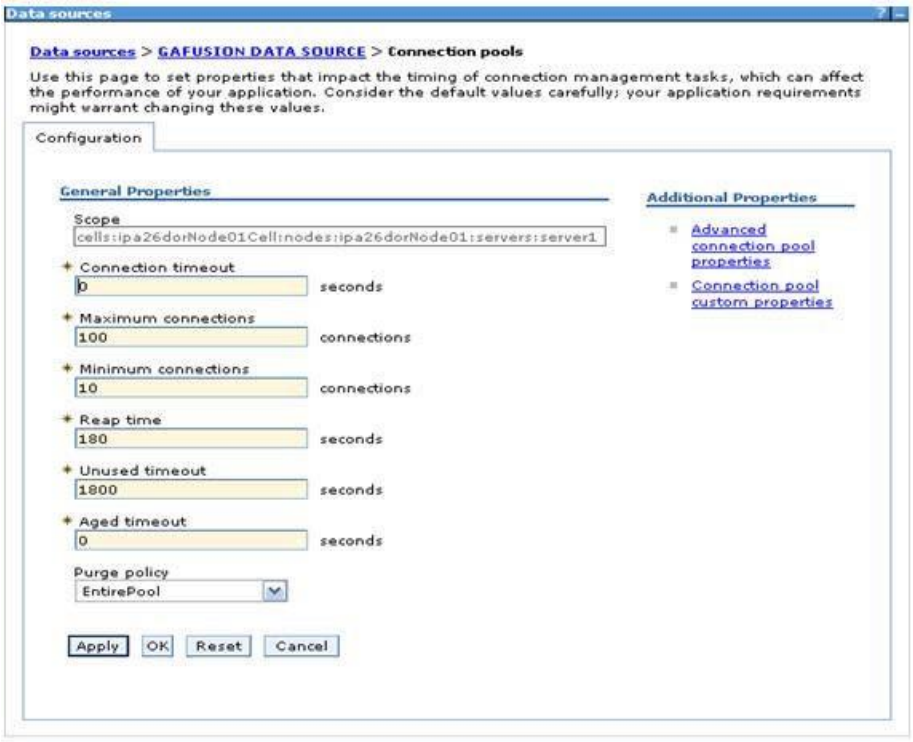
4. Click **Apply** and save the details.

8.1.4 Creating JDBC Connection Pooling

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

1. Expand the **Resources** option in the LHS menu and click **JDBC → Data sources** option. The *Data sources* page is displayed.

2. Click the newly created Data Source `$DATA_SOURCE$` and navigate to the path `Data sources>$DATA_SOURCE$>Connection pools`.



Connection Pools

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

8.2 Configuring Resource Reference in WebLogic Application Server

This section is applicable only when the Web Application Server is WebLogic.

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

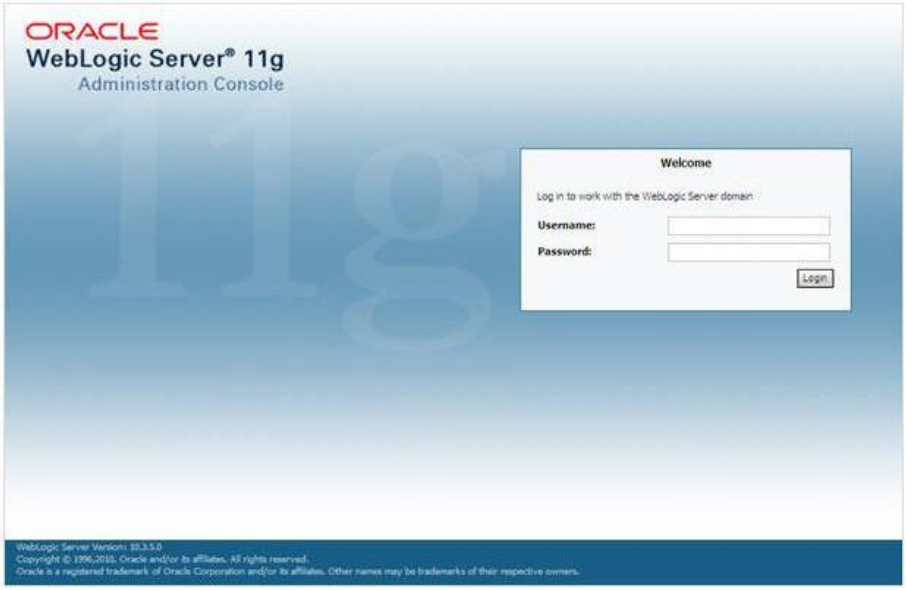
In WebLogic, you can create "Data Source" in the following ways:

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

8.2.1 Creating Data Source

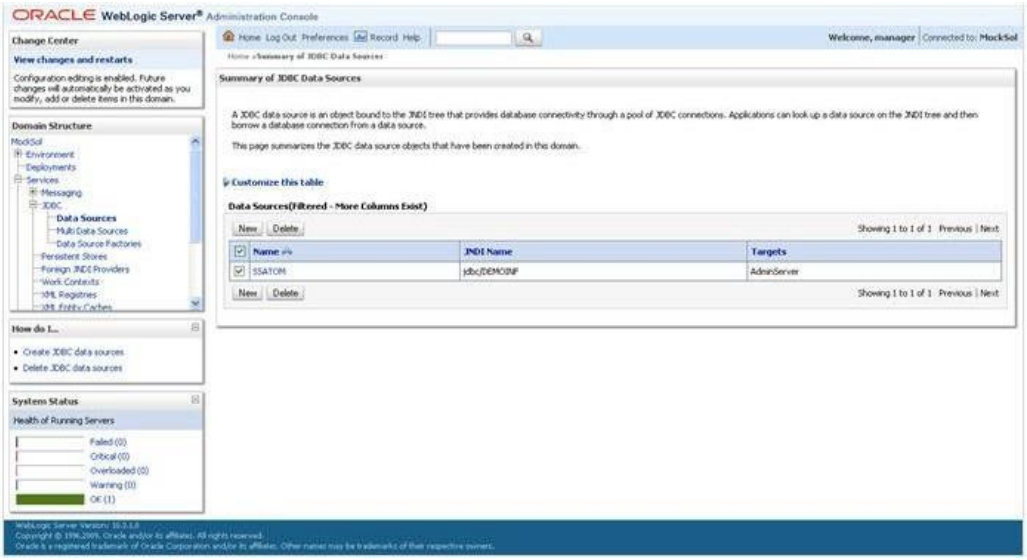
The steps given below are applicable for both config and atomic data source creation.

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



Welcome

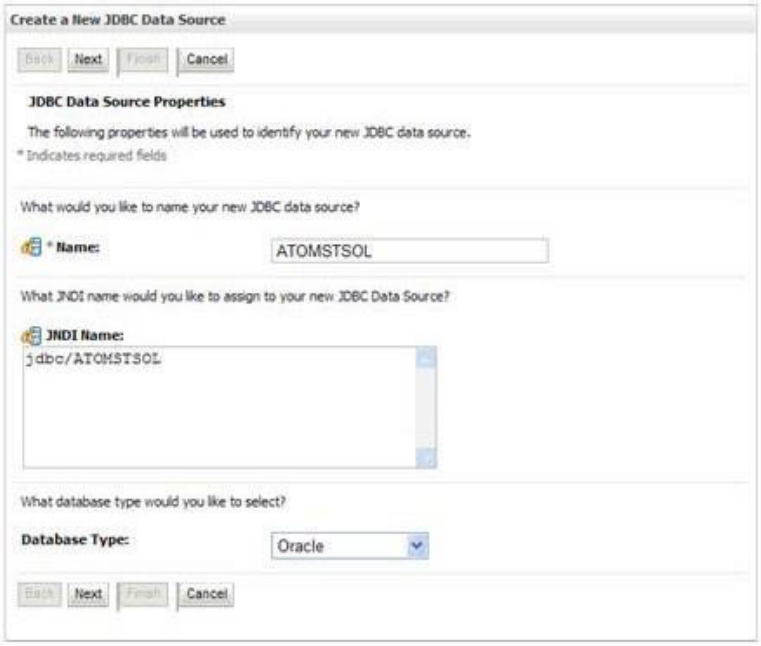
3. From the LHS menu (Domain Structure), click **Services → Data Sources**. The *Summary of JDBC Data Sources* window is displayed.



Summary of JDBC Data Sources

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

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

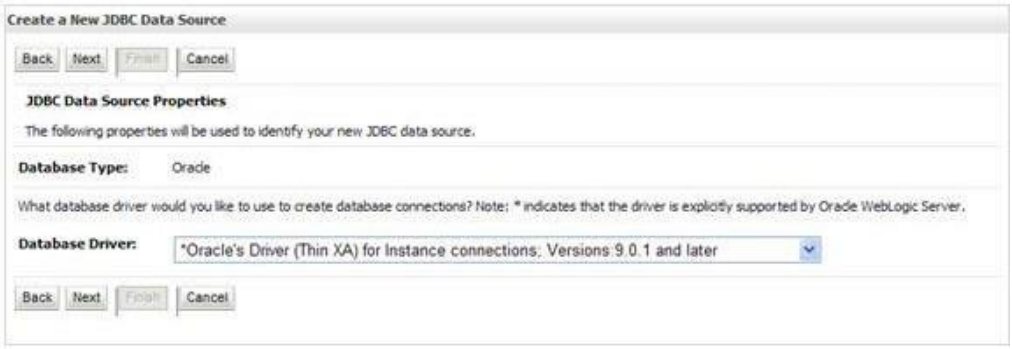


Create a New JDBC Data Source

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

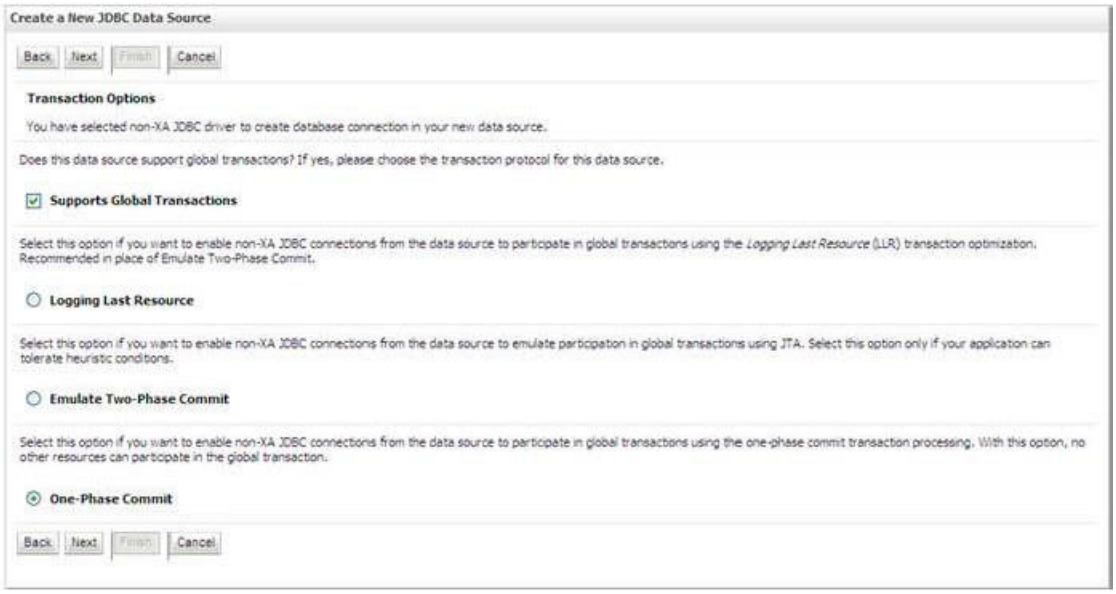
   Ensure the following:

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



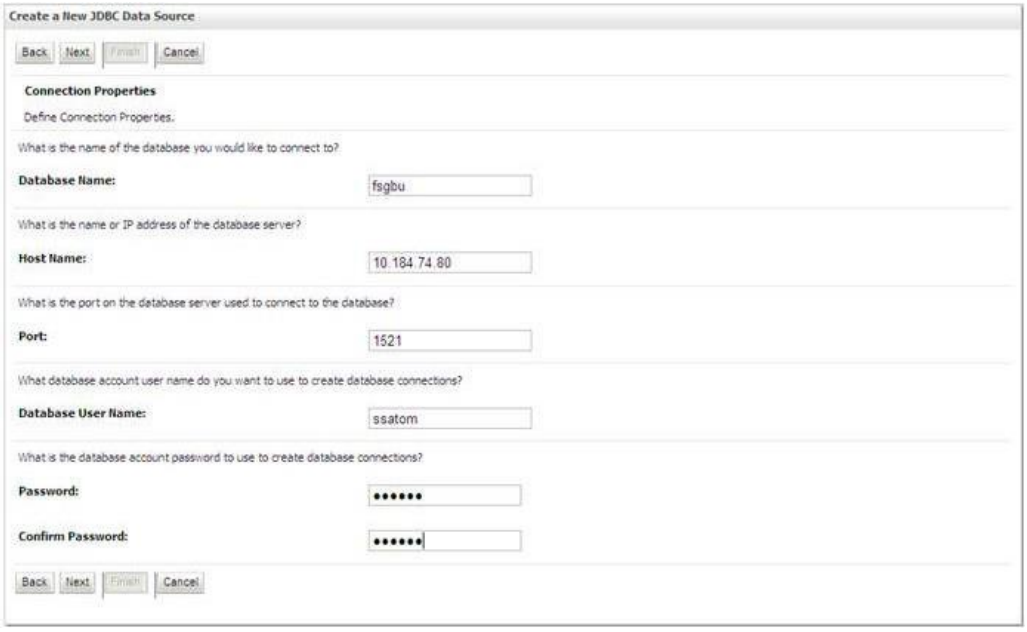
JDBC Data Source Properties

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



Transaction Options

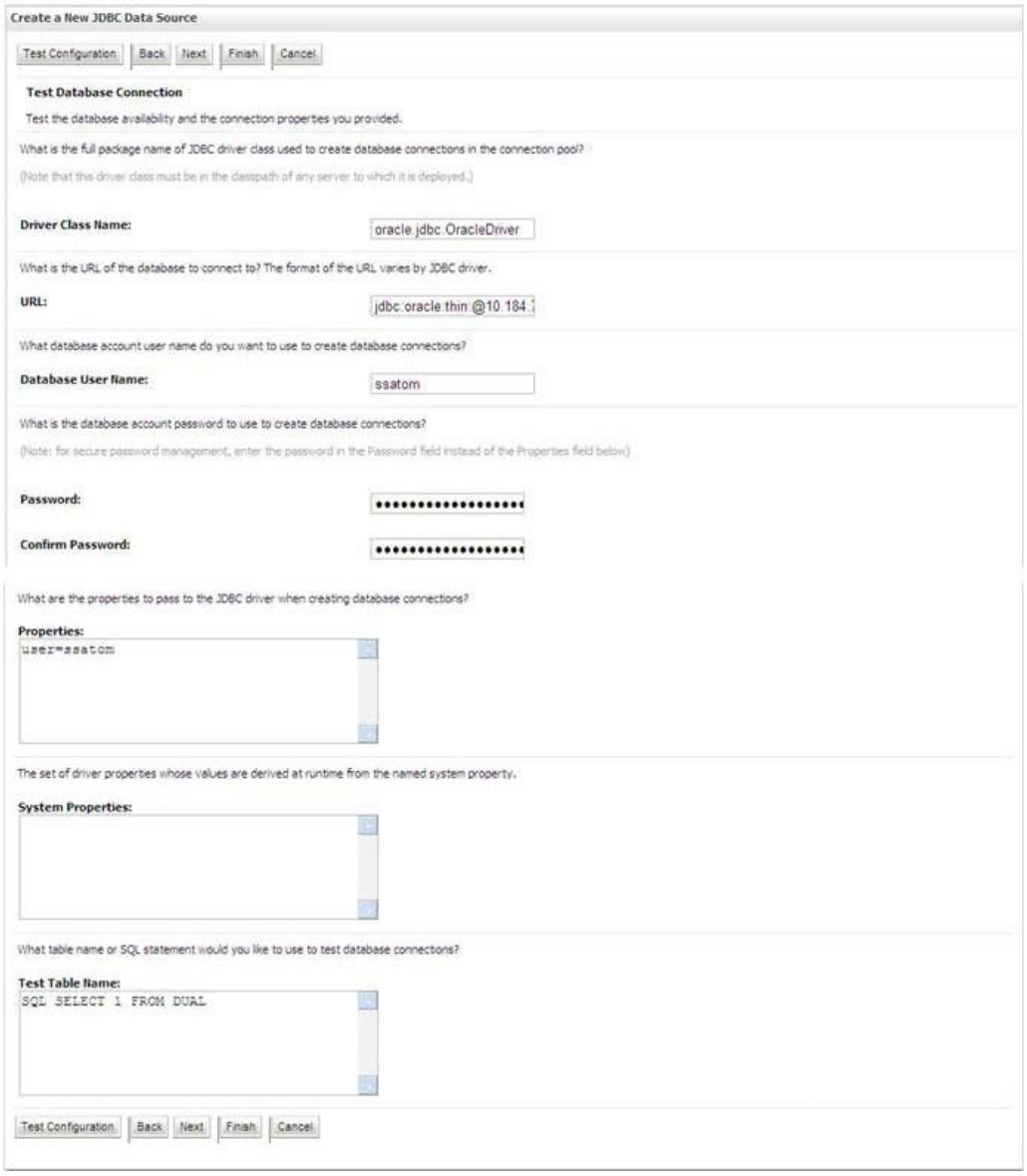
7. Select the Supports Global Transactions checkbox and the One-Phase Commit option.
8. Click **Next**. The *Connection Properties* window is displayed.



Connection Properties

9. Enter the required details such as the **Database Name**, **Host Name**, **Port**, **Oracle User Name**, and **Password**.

10. Click **Next**. The *Test Database Connection* window is displayed.



Test Database Connection

11. Verify the details and click **Test Configuration** and test the configuration settings.

    A confirmation message is displayed stating "Connection test succeeded."

12. Click **Finish**. The created "Data Source" is displayed in the list of Data Sources.

NOTE: "User ID" is the Oracle user ID that is created for the respective CONFIG and ATOMIC schema of the respective "Information Domain".

"User ID" to be specified for data source with "FICMASTER" as "JNDI" name should be the Oracle user ID created for the CONFIG schema.

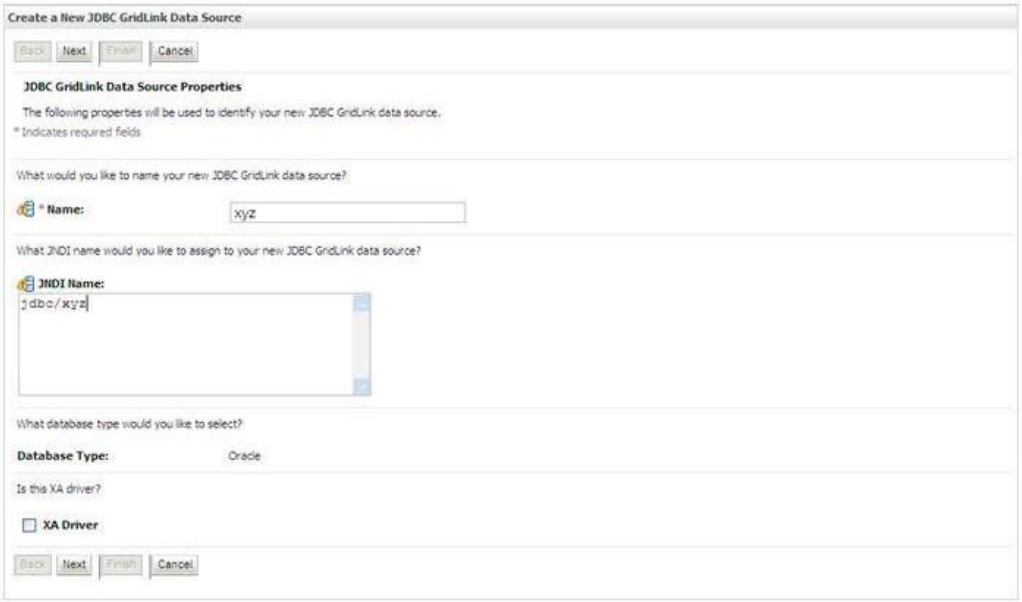
13. Select the new Data Source and click the **Targets** tab.

Select Targets

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

8.2.2 Creating GridLink Data Source

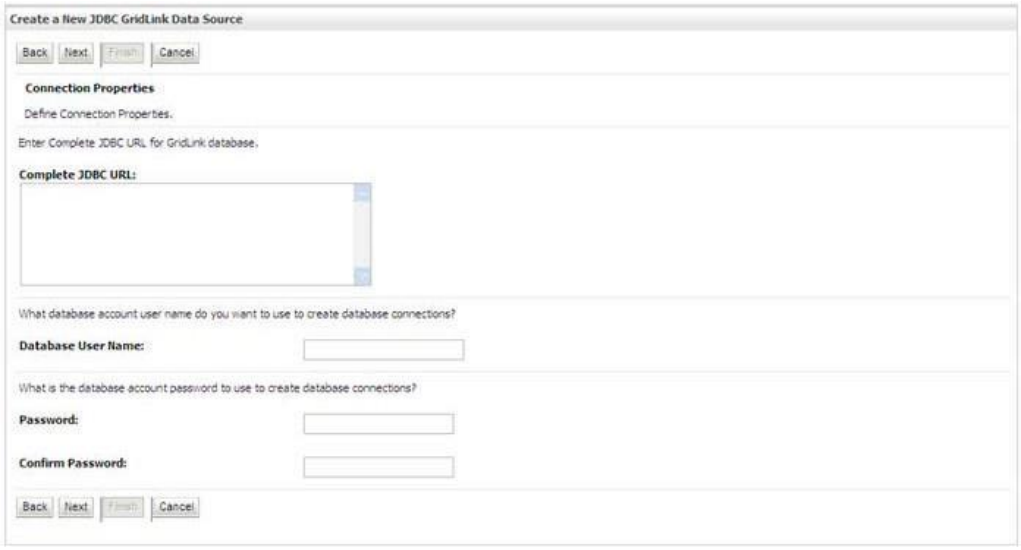
If you have selected the option, **New → GridLink Data Source** while creating the "Data Source", you can directly specify the JDBC URL as indicated.



Create a New JDBC GridLinkData Source

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

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



JDBC GridLinkData Source- Connection Properties

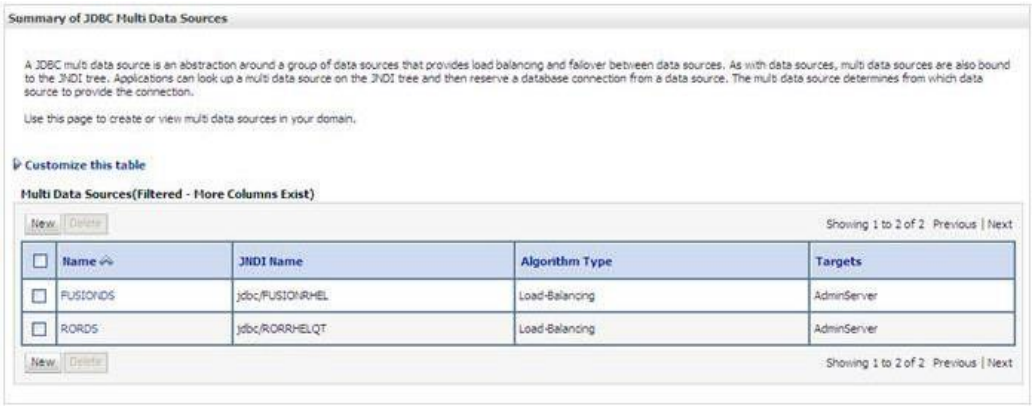
2. Specify Complete **JDBC URL**, **Database User Name**, and **Password**. Click **Finish**. The created "Data Source" is displayed in the list of Data Sources.

8.2.3 Configuring Multi Data Sources

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

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

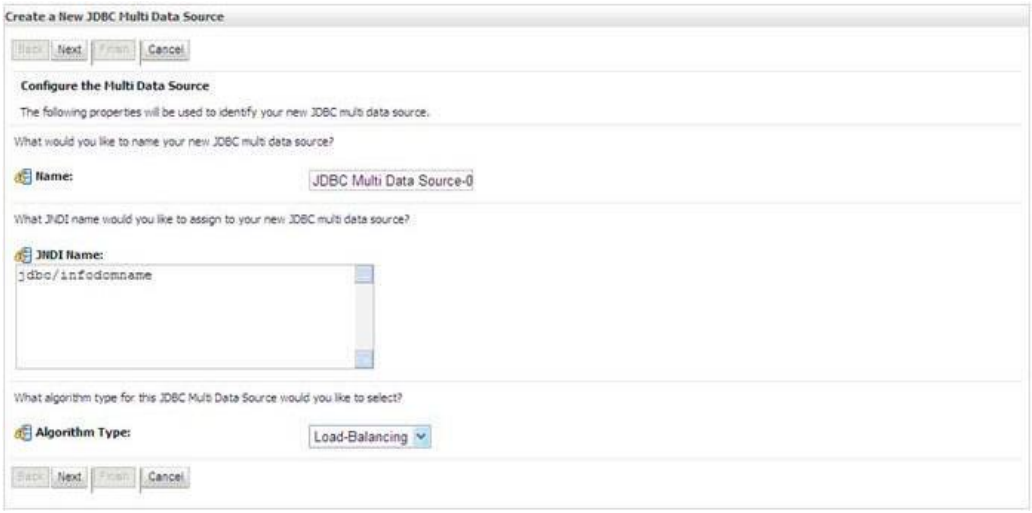
1. Open WebLogic Admin Console in the browser window: `http://<ipaddress>:<administrative console port>/console`. (https, if SSL is enabled). The Login window is displayed.
2. Login with the "User ID" that has admin rights.
3. In the LHS menu (Domain Structure), select **Services → JDBC → Multi Data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



Summary of JDBC Multi Data Sources

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

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



Configure the Multi Data Source

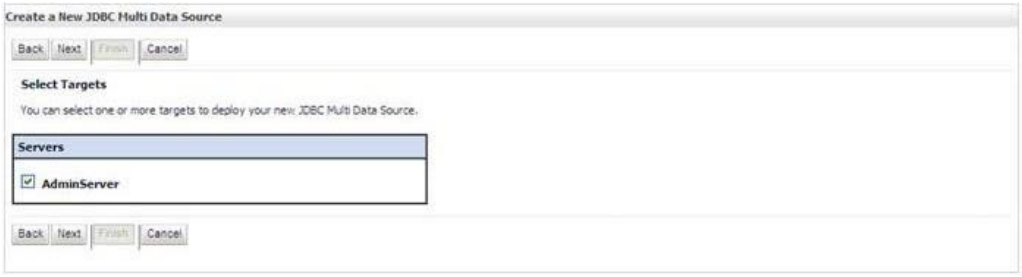
5. Enter the JDBC Source **Name**, **JNDI name**, and select the **Algorithm Type** from the drop-down list. Click **Next**.

NOTE: The JNDI Name has to be specified in the format jdbc/infodomname.
JNDI Name of the Data Sources that will be added to new JDBC Multi data source should be different from the JNDI name specified during Multi Data Source.

Same steps needs to be followed to create a mandatory data source pointing to the "configuration schema" of infrastructure with jdbc/FICMASTER as JNDI name for Data Source.

JNDI Name provided in multi data source should be the same name that will be mentioned in the web.xml file of OFSAAI Application.

You can select the Algorithm Type as Load-Balancing.

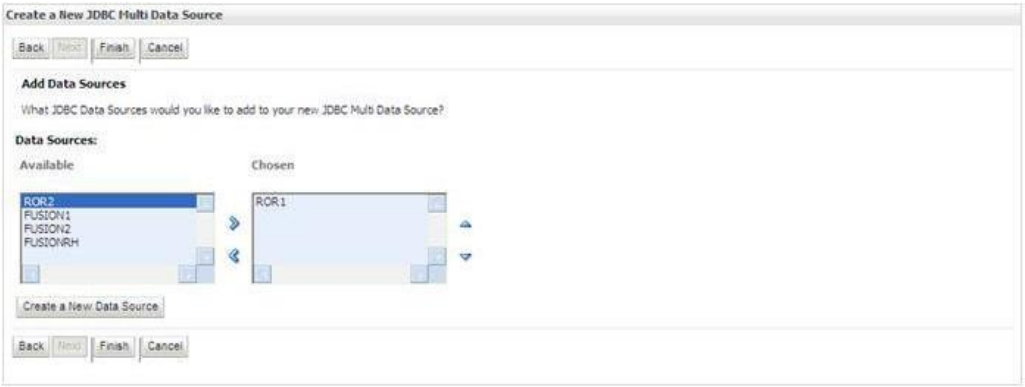


Select Targets

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

Select Data Source Type

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



Add Data Sources

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

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

8.2.4 Advanced Settings for Data Source

1. Click the new **Data Source** from the *Summary of JDBC Data Sources* window. The *Settings for <Data Source Name>* window is displayed.
2. Select the **Connection Pooling** tab given under Configuration.
3. Go to the **Advanced** option at the bottom of the page, and check the **Test Connection of Reserve** checkbox (enables WebLogic Server to test a connection before giving it to a client).
4. To verify if the data source is valid, select "Data Source name". For example, FICMASTER.

Settings for <Data Source Name>

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

   If not, follow the steps given above to recreate the data source.

8.2.5 Creating JDBC Connection Pooling

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

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

8.3 Configuring Resource Reference in Tomcat Application Server

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

This section includes the following topics:

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

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

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

8.3.1 Creating Data Source

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

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

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

```
crossContext="true">
   <Resource auth="Container"
      name="jdbc/FICMASTER"
      type="javax.sql.DataSource"
      driverClassName="oracle.jdbc.driver.OracleDriver"
      username="<user id for the configuration schema>"
      password="<password for the above user id>"
      url="jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"
      maxActive="100"
      maxIdle="30" maxWait="10000"/>
   <Resource auth="Container"
      name="jdbc/<INFORMATION DOMAIN NAME >"
      type="javax.sql.DataSource"
      driverClassName="oracle.jdbc.driver.OracleDriver"
      username="<user id for the atomic schema>"
      password="<password for the above user id>"
      url="jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"
      maxActive="100"
      maxIdle="30" maxWait="10000"/>
   <Resource auth="Container"
      name=" jdbc/<HIVE INFORMATION DOMAIN NAME >"
      type="javax.sql.DataSource"
      driverClassName="oracle.jdbc.driver.OracleDriver"
      username="<user id for atomic schema of HIVE INFORMATION DOMAIN>"
      password="<password for the above user id>"
      url=" jdbc:oracle:thin:@<DB engine IP address>:<DB Port>:<SID>"
      maxActive="100"
      maxIdle="30" maxWait="10000"/>
</Context>
```

For example:

```
<Context path ="/FSDF806"
docBase="/scratch/ofsaa/apache-tomcat-8.0.21/webapps/FSDF806"
debug="0"
reloadable="true"
crossContext="true">
   <Resource auth="Container"
```

```
            name="jdbc/FICMASTER"
            type="javax.sql.DataSource"
            driverClassName="oracle.jdbc.driver.OracleDriver"
            username=" FSDFHIVECONF"
            password="password123"
            url="jdbc:oracle:thin:@10.184.155.78:1521:FSDFDB12C"
            maxActive="100"
            maxIdle="30" maxWaitMillis="10000"/>
        <Resource auth="Container"
            name="jdbc/FSDFINFO"
            type="javax.sql.DataSource"
            driverClassName="oracle.jdbc.driver.OracleDriver"
            username=" FSDFHIVEMETA"
            password="password123"
            url="jdbc:oracle:thin:@10.184.155.78:1521:FSDFDB12C"
            maxActive="100"
            maxIdle="30" maxWait="10000"/>
        <Resource auth="Container"
            name="jdbc/FSDFHVINFO"
            type="javax.sql.DataSource"
            driverClassName="oracle.jdbc.driver.OracleDriver"
            username="BSZBDSATM806"
            password="password123"
            url=" jdbc:oracle:thin:@10.184.155.78:1521:FSDFDB12C "
            maxActive="100"
            maxIdle="30" maxWait="10000"/>
    </Context>
```

NOTE: The `<Resource>` tag must be repeated for each Information Domain created. After the above configuration, the "WAR" file must be created and deployed in Tomcat.

8.3.2 Creating JDBC Connection Pooling

To define the JDBC connection pooling, do the following:

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

NOTE: Refer Appendix O for identifying the correct `ojdbc<version>.jar` version to be

copied.

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

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

Note the following:

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

In the event, Oracle Wallet is configured in OFSAA server to store the database passwords, edit the `server.xml` present under the path `$TOMCAT_DIRECTORY/conf/`

with the following changes, which is required for connection pooling.

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

Note the following:

- `$APP_DEPLOYED_PATH$` should be replaced by OFSAAI application deployed path.
- `$INFODOM_NAME$` should be replaced by Infodom Name.
- `$ATOMICSCHEMA_USERNAME$` should be replaced by Atomic schema database user name.
- `$ATOMICSCHEMA_PASSWORD$` should be replaced by Atomic schema database password.
- `$JDBC_CONNECTION_URL` should be replaced by JDBC connection string `jdbc:Oracle:thin:/@<TNS STRING>`.

  For example:

  `jdbc:oracle:thin:/@CONFIG`

  Note: If you use Oracle Wallet for database password configuration, see Creation of Oracle Wallet on OFSAA Server.

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

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

8.3.3 Configuring Class Loader for Apache Tomcat

1. Edit the `server.xml` available in $`TOMCAT_HOME/conf/ folder`.
2. Add tag `<Loader delegate="true" />` within the `<Context>` tag, above the

`<Resource>` tag. This is applicable only when the web application server is Apache Tomcat 8.

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

9 Appendix C: Creating and Deploying EAR/ WAR File

This appendix includes the following topics:

- Creating EAR/WAR File
- Deploying EAR/WAR File

9.1 Creating EAR/WAR File

To create EAR/WAR File, follow these steps:

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

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

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

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

BUILD SUCCESSFUL
Total time: 2 minutes 8 seconds
/scratch/ofsaaweb/OFSA80/ficweb>
```

4. The EAR/ WAR file - `<contextname>.ear/.war` - is created.

NOTE: The <contextname> is the name given during installation.
This process overwrites any existing version of EAR file that exists in the path.
In case of OFSAA configured on Tomcat installation, `<contextname>.war` will be created.

9.2 Deploying EAR/WAR File

This section includes the following topics:

- Deploying WebSphere EAR/WAR Files
- Deploying WebLogic EAR/WAR Files
- Deploying Tomcat WAR Files

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

9.2.1 Deploying EAR/WAR Files on WebSphere

To deploy WebSphere EAR/WAR File, follow these steps:

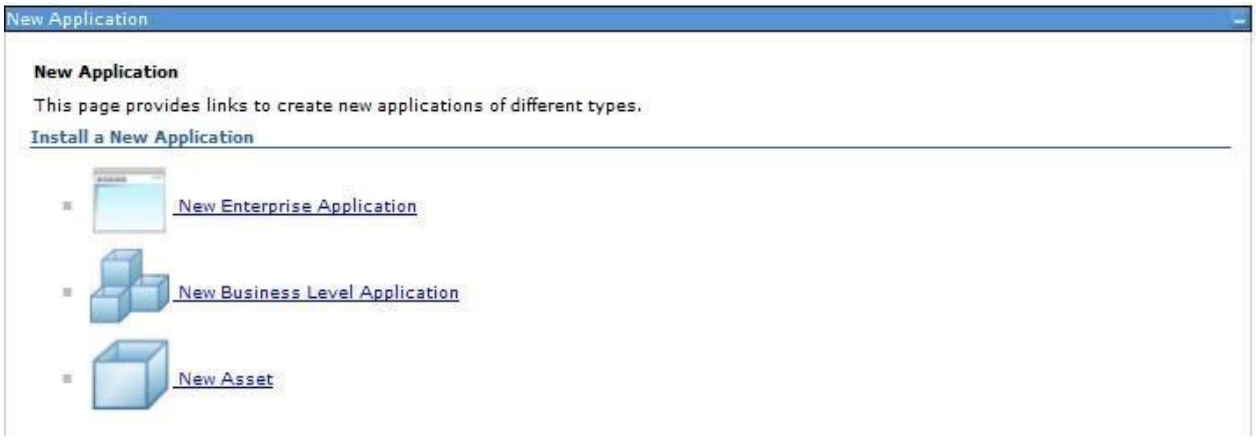
1. Start WebSphere Profile by navigating to the path `/<Websphere_Installation_Directory>/IBM/WebSphere/AppServer/profiles/<Profile_Name>/bin/` and execute the command:

   `./startServer.sh server1`

2. Open the following URL in the browser: `http://<ipaddress>:<Administrative Console Port>/ibm/`console. (https, if SSL is enabled). The login screen is displayed.

Login Window

3. Enter the user credentials with admin privileges and click **Log In**.
4. From the LHS menu, select **Applications** and click **New Application**. The *New Application* window is displayed.

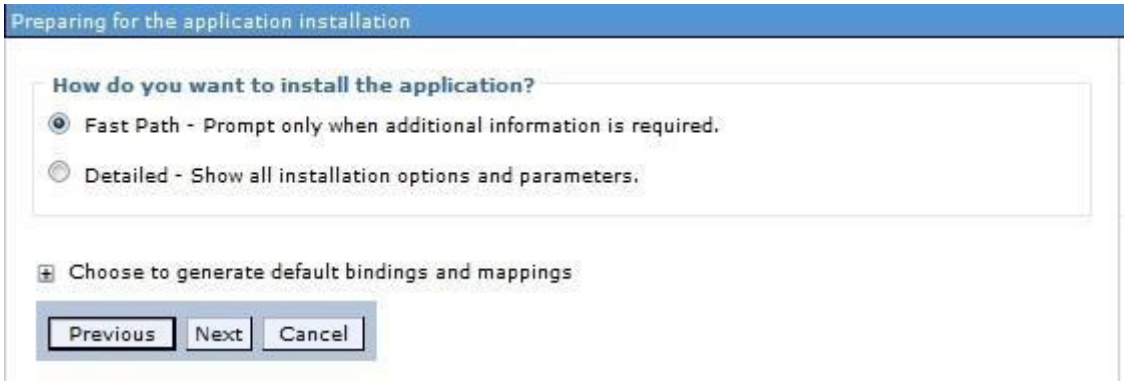


New Application

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

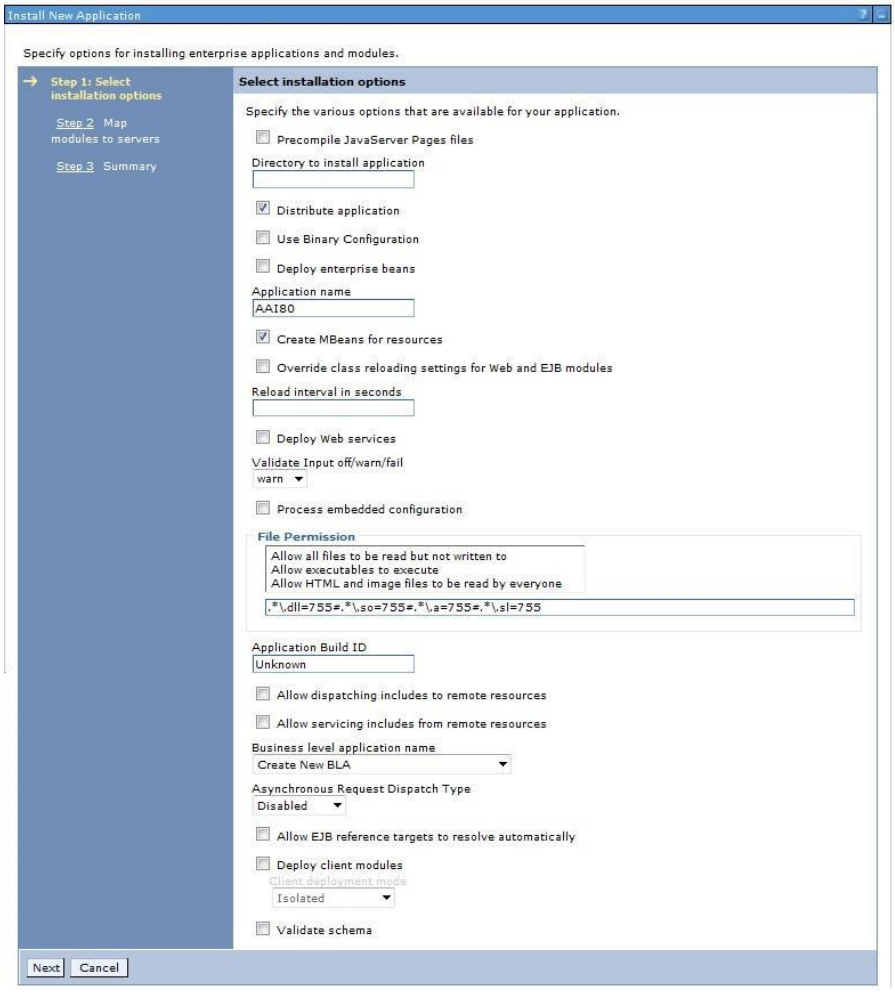
Preparing for the Application Installation

6. Select **Remote File System** and click **Browse**. Select the EAR file generated for OFSAA to upload and install. Click **Next**.



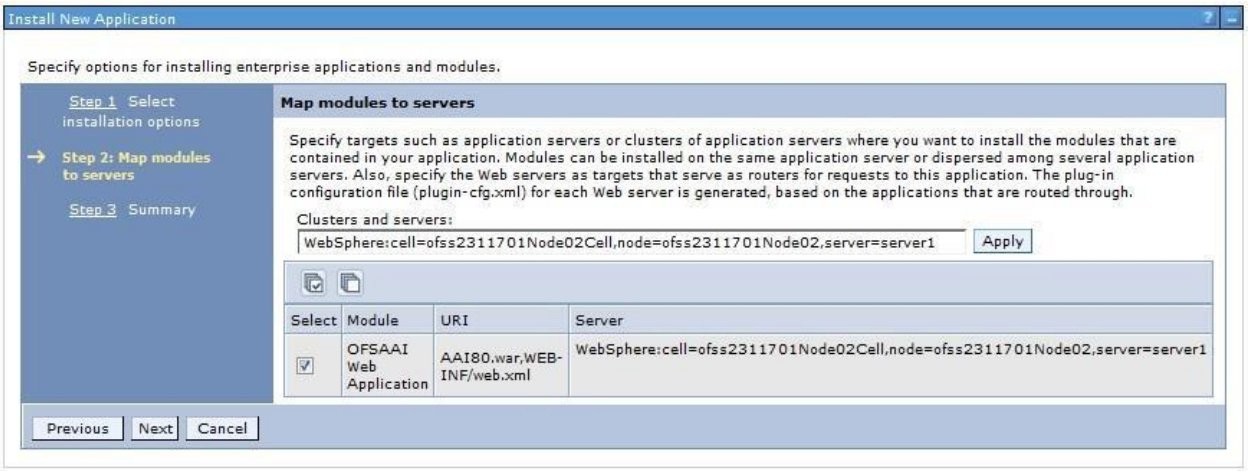
Installation Options

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



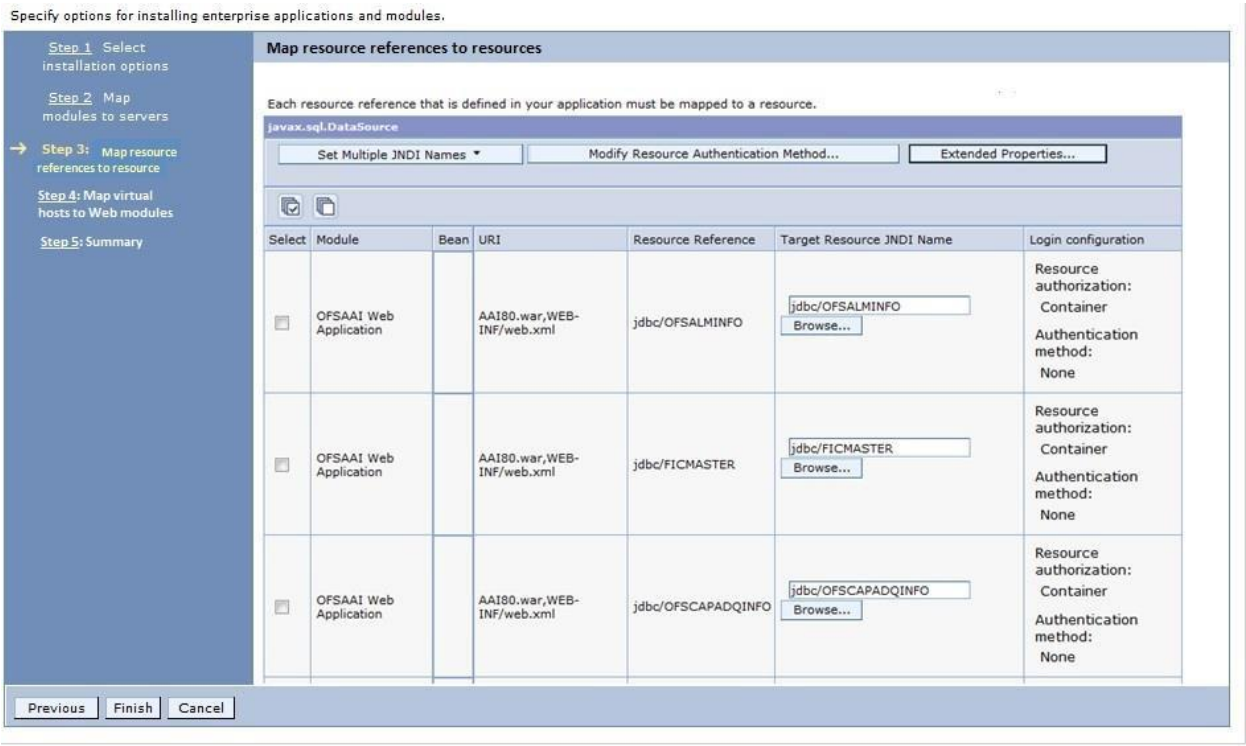
Install New Application

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



Map Modules to Servers

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



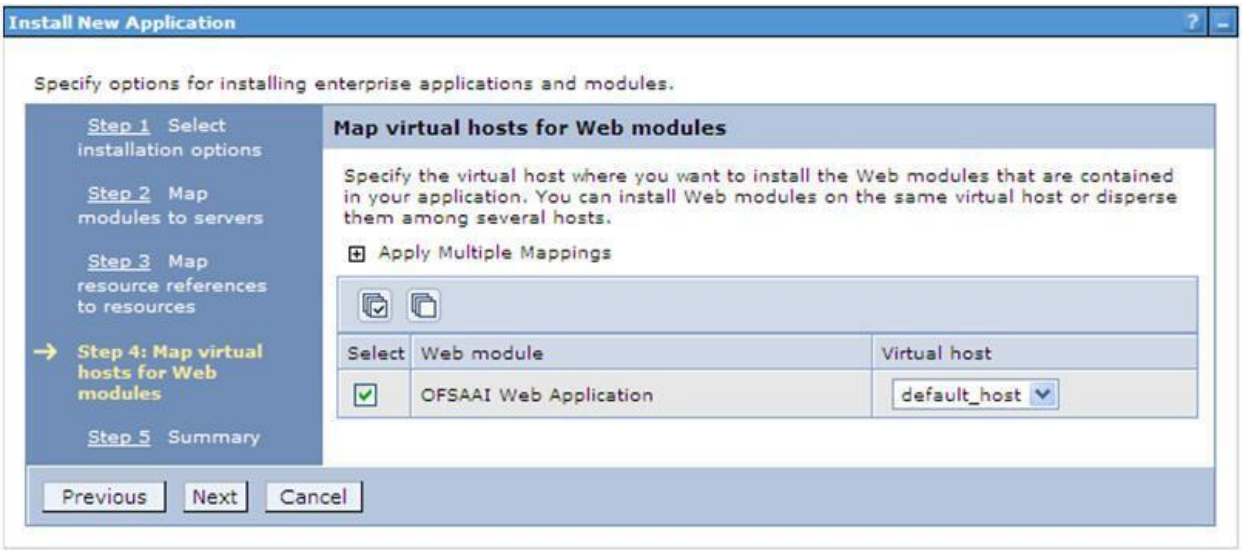
Map Resource References to Resources

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

11. Click **Modify Resource Authentication Method** and specify the authentication method created earlier.

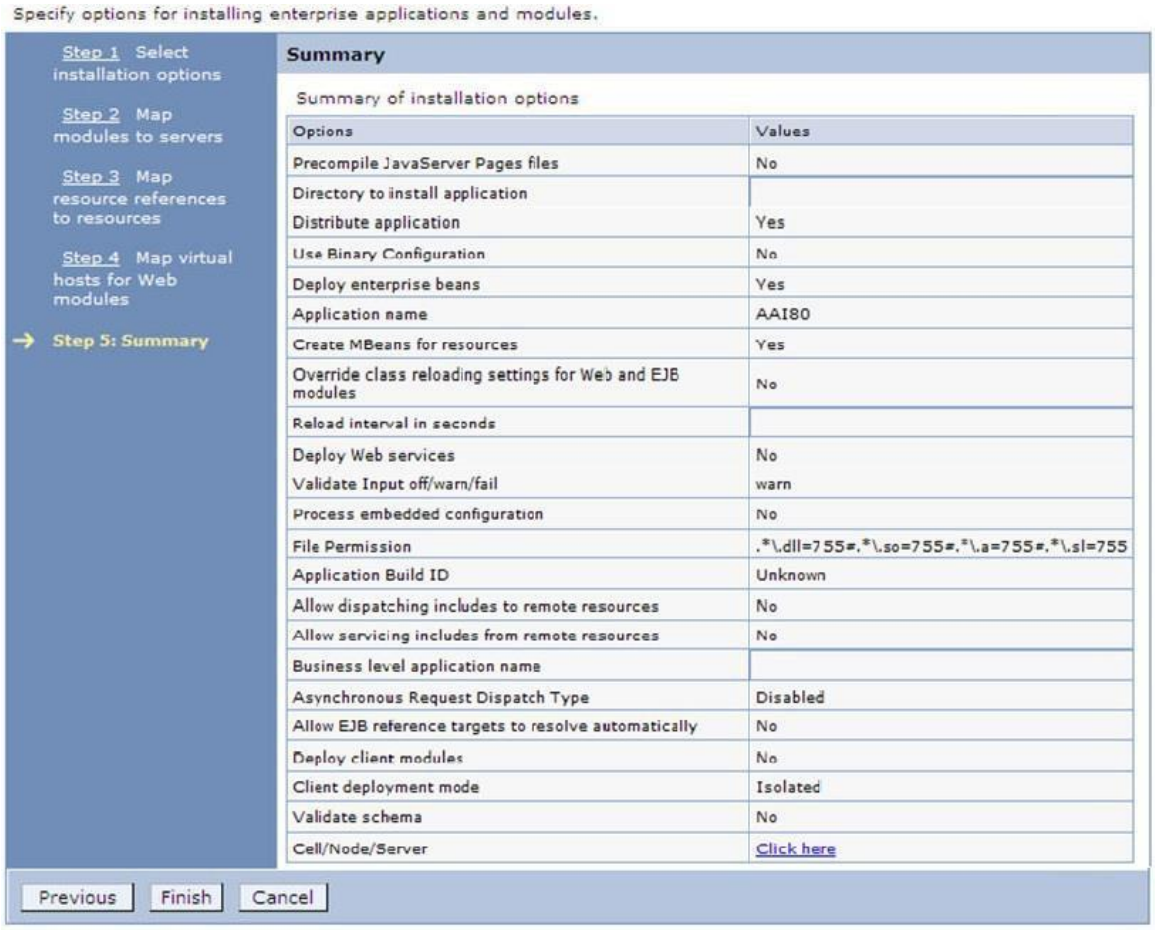
    You can specify "config" for FICMASTER resource or "atomic" for atomic resource as the authentication method.

12. Select the **OFSAAI Web Application** check box and click **Next**. The *Map Virtual hosts for Web Modules* window is displayed.



Map Virtual Host for Web Modules

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

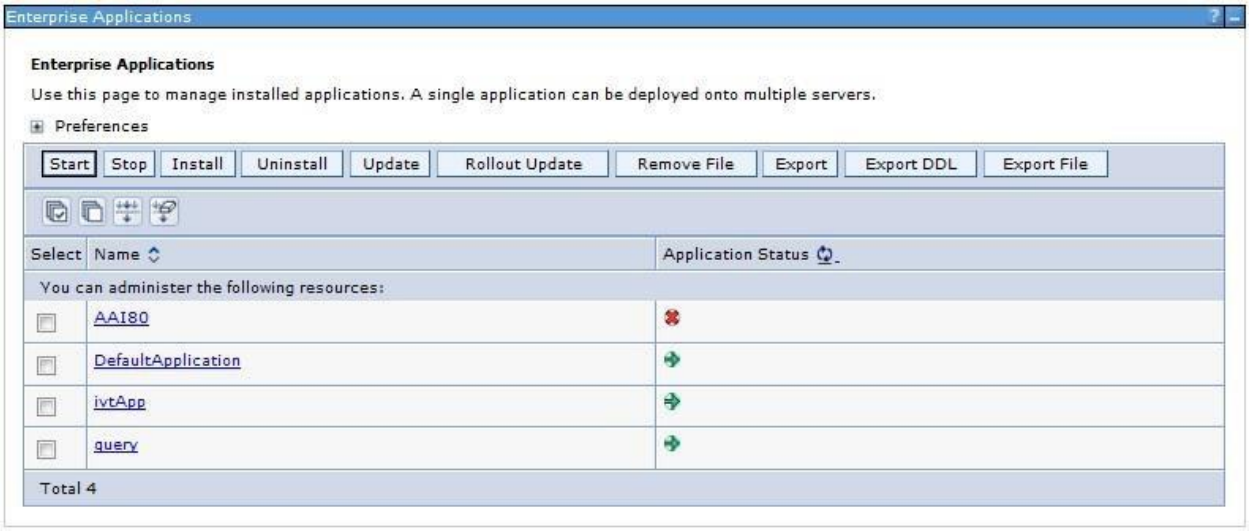


Summary

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

9.2.1.1 To start the application

1. Expand **Applications → Application Type → WebSphere Enterprise Applications**. The *Enterprise Applications* window is displayed.



Enterprise Applications

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

NOTE: <profile name> is the profile name given while creating the WebSphere profile.
<cell name> is the cell name given during profile creation
<contextname> is the context name given during installation.

9.2.2 Deploying EAR / WAR File on WebLogic

Following are the steps for deploying Infrastructure application that would be created during installation:

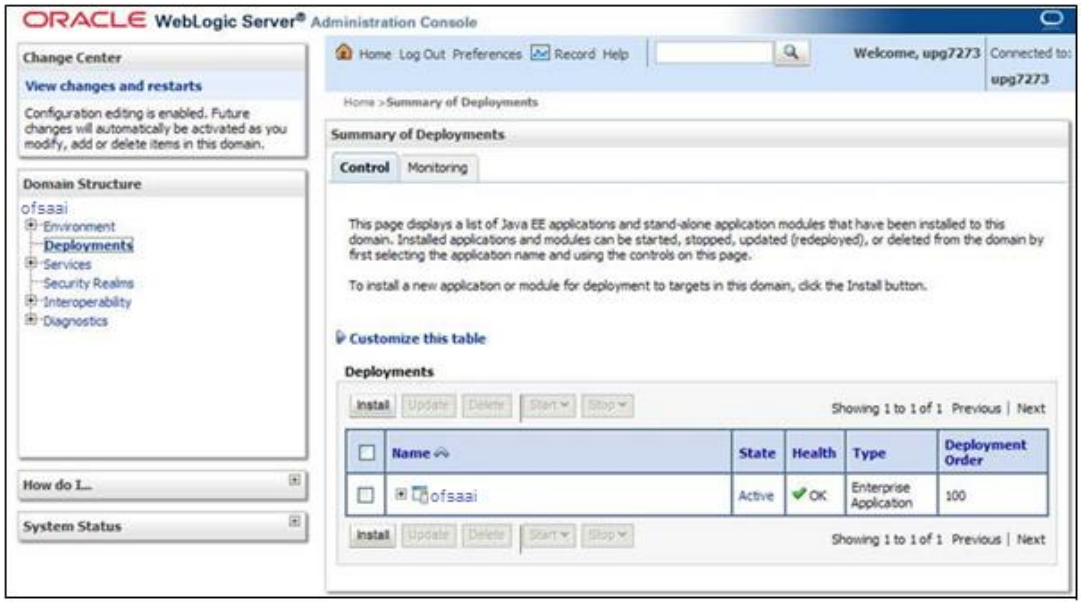
1. Navigate to the path `<WebLogic Installation directory>/user_projects/domains/<domain name>/bin` in the machine in which WebLogic is installed.
2. Start WebLogic by executing the command:

   `./startWebLogic.sh -d64` file
3. Open the URL in the browser window: `http://<ipaddress>:<admin server port>/console`. (https, if SSL is enabled). The Sign in window of the WebLogic Server Administration Console is displayed.

NOTE: Ensure that you have started Infrastructure Server by executing "`./reveleusstartup.sh`" as mentioned in Start Infrastructure section

4. Log on to the WebLogic Server by entering the user credentials having privileges to deploy the EAR file.

5. From the **Domain Structure** LHS menu, click **Deployments**. The *Summary of Deployments* window is displayed.



Summary of Deployments

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

9.2.2.1 Exploding EAR

To explode EAR, follow the below steps:

1. Create the "applications" folder under domain name. For example, `/Bea/user_projects/domains/ <Domain _name>/applications`.
2. Create `<context_name>.ear` folder under "applications" folder.
3. Copy the `<$FIC_WEB_HOME/<context_name>.ear file to <WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_ name>.ear.`
4. Explode the `<context_name>.ear` file by executing the command:

   ```
   jar -xvf <context_name>.ear
   ```

5. Delete the `<context>.ear and < context >.war` files (recently created) `<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_name>.ear.`

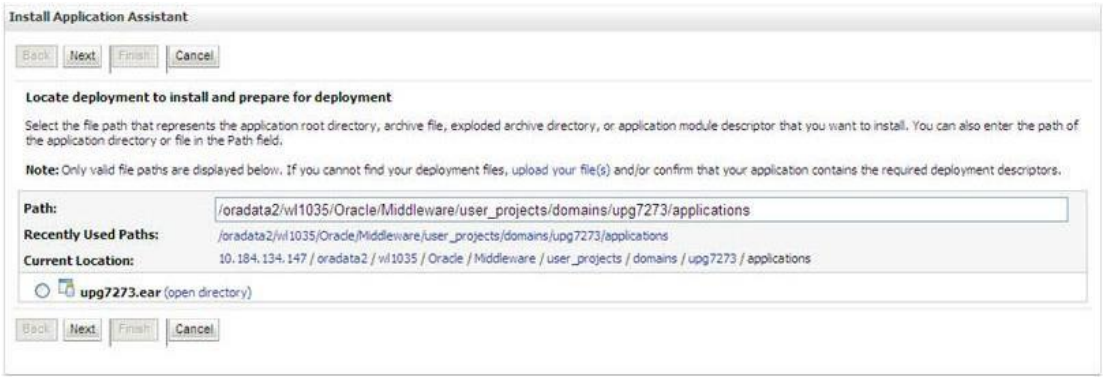
6. Create a directory `<context_name>.war under <WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_ name>.ear`
7. Copy `<$FIC_WEB_HOME/<context_name>.war` file to `<WEBLOGIC_INSTALL_DIR>/Bea/user_projects/domains/<DOMAIN_NAME>/applications/<context_ name>.ear/<context_name>.war.`
8. Explode the `<context_name>.war` file by executing the following command to get the directory structure:

```
jar -xvf <context_name>.war
```

9.2.2.2 Installing Application

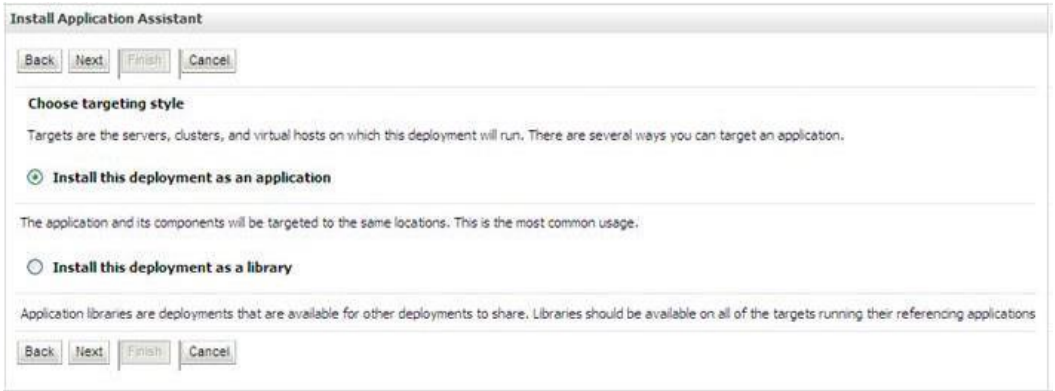
To install Application:

1. Open the Install Application Assistant.



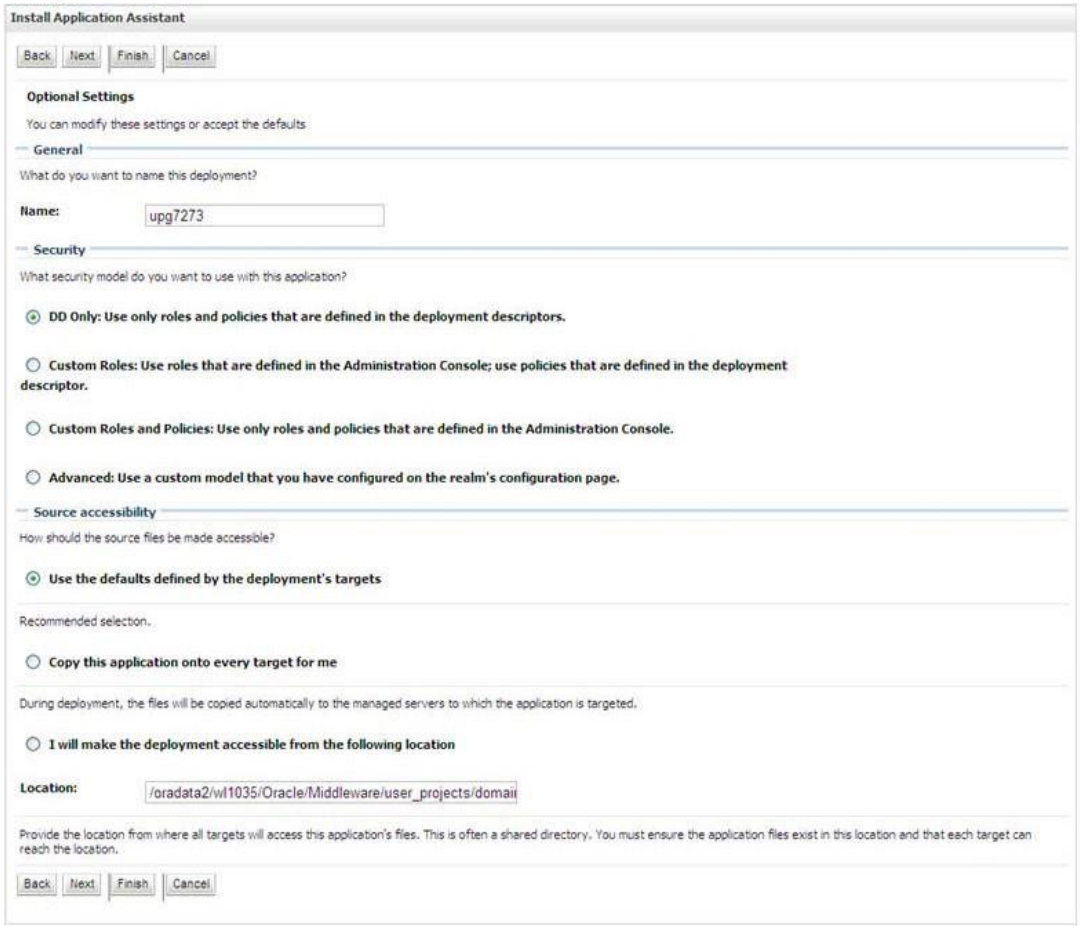
2. Click **Next**.

Install Application Assistant



Install Application Assistant

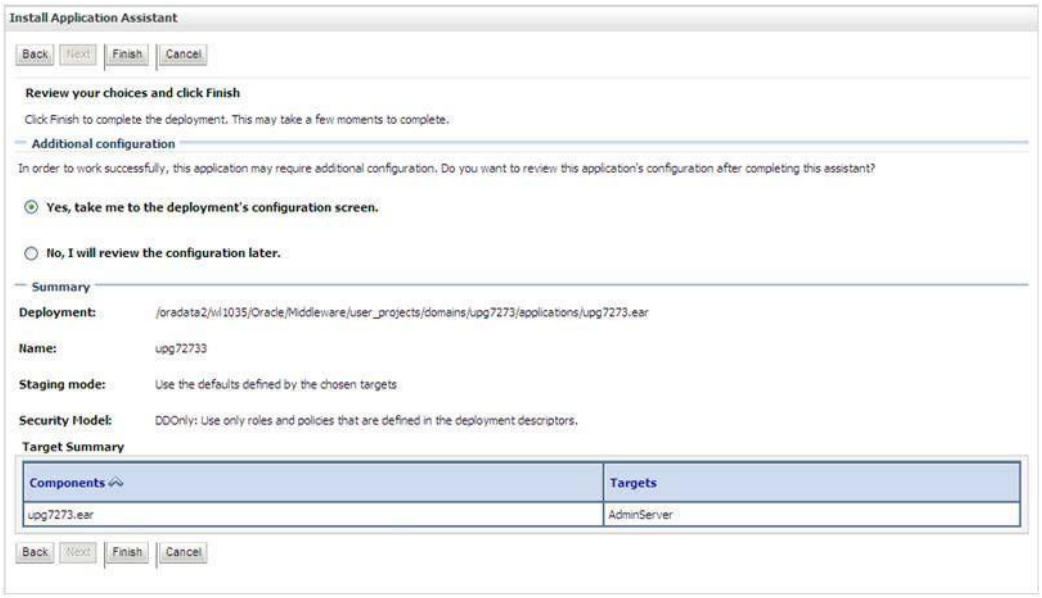
3. From the *Choose targeting style* section, select the **Install this deployment as an application** option and click **Next**. The *Optional Settings* window is displayed.



Optional Settings

4. Enter a **Name** for the deployment if required.
5. Under the Security section, select the **DD only** option to specify that only roles and policies that are defined in the deployment descriptors should be used.
6. Select the "**I will make the deployment available from the following location**" option under the Source accessibility section.
7. Click **Next** to continue.

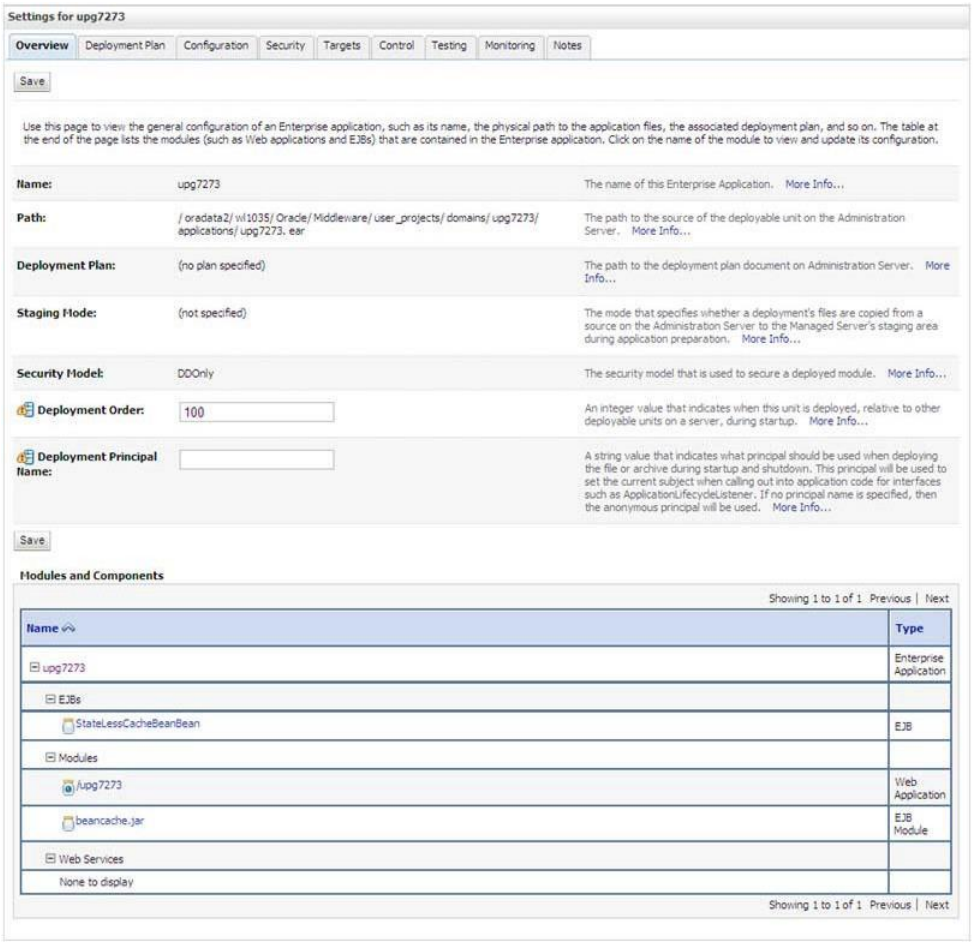
The Deployment Summary window is displayed.



Deployment Summary

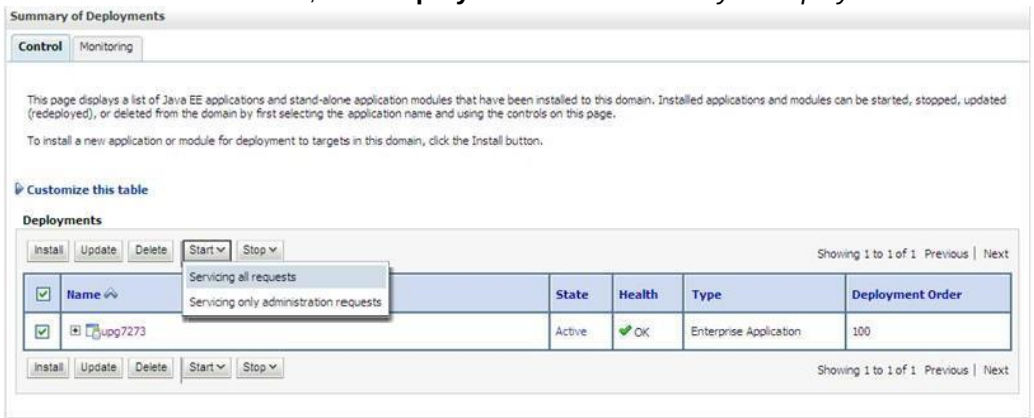
8. Select the **Yes, take me to the deployment's configuration screen** option and click **Finish**.

   The *Settings for <Deployment Name>* window is displayed.



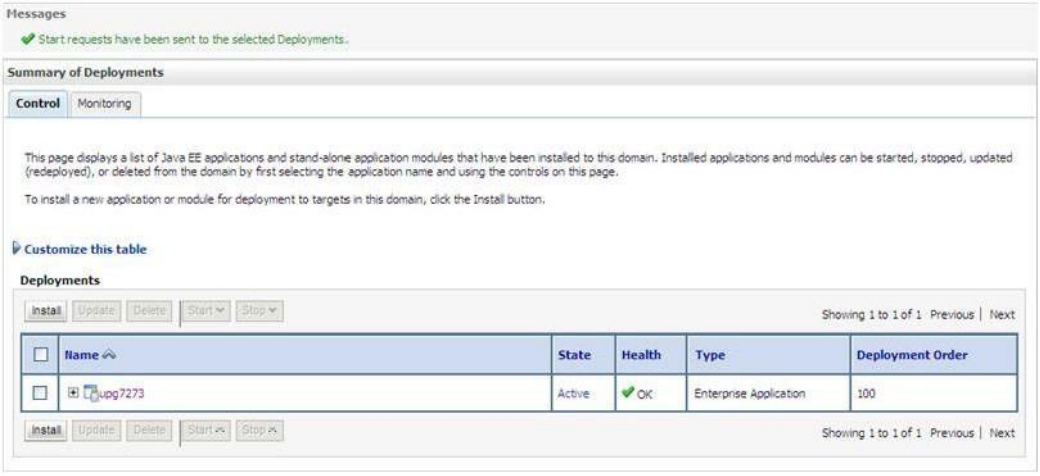
Settings for <Deployment Name>

9. Review the general configuration details of the deployment. You can also update the configuration of the deployment in this window. In the *Overview* tab you can view the complete deployment configuration.
10. Click **Save** to update the changes, if any.
11. From the LHS menu, click **Deployments**. The *Summary of Deployments* window is displayed.



Summary of Deployments

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



Summary of Deployments

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

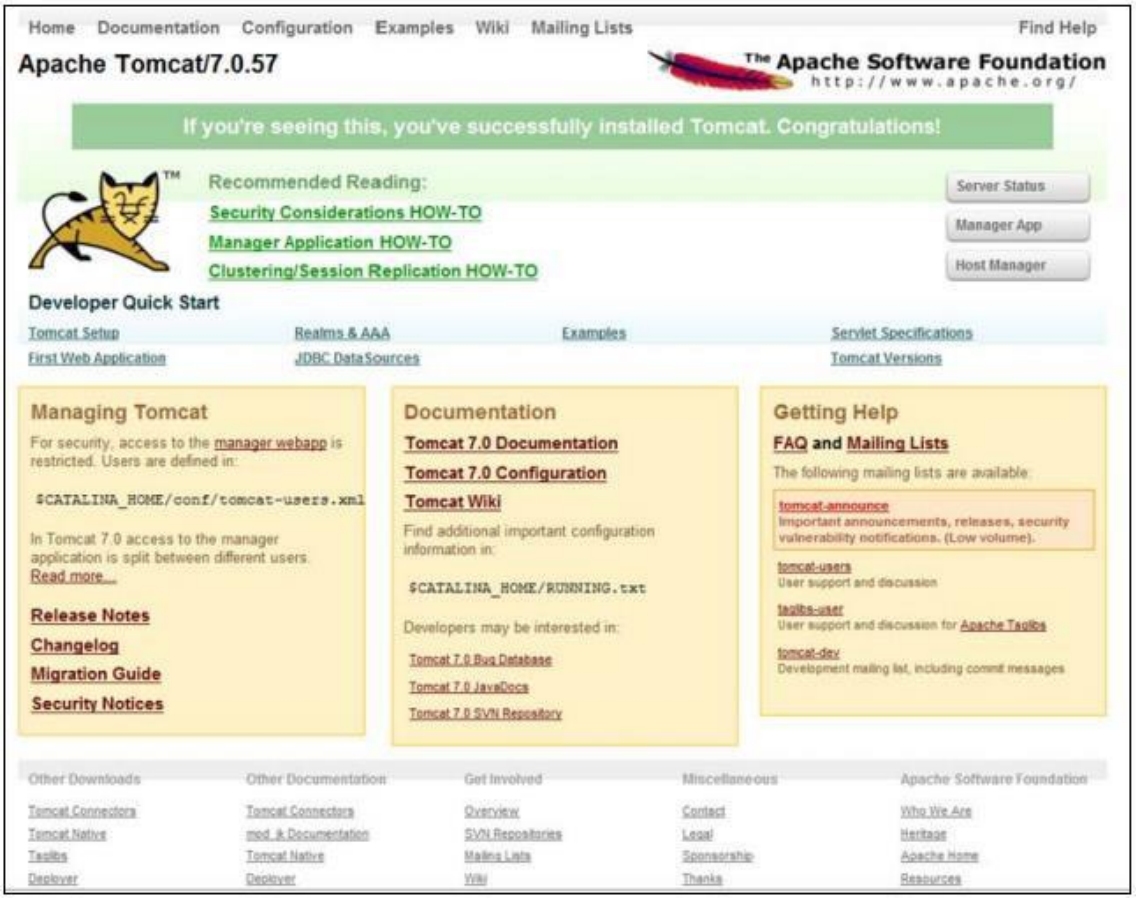
9.2.3 Deploying WAR Files on Tomcat

Before deploying the WAR files, ensure that the previously deployed applications of Infrastructure are uninstalled. See *Uninstalling Previously Deployed WAR Files in Tomcat* for the procedure to uninstall the previously deployed Infrastructure war files.

On the machine that hosts Tomcat, follow the below steps outlined to deploy Infrastructure application:

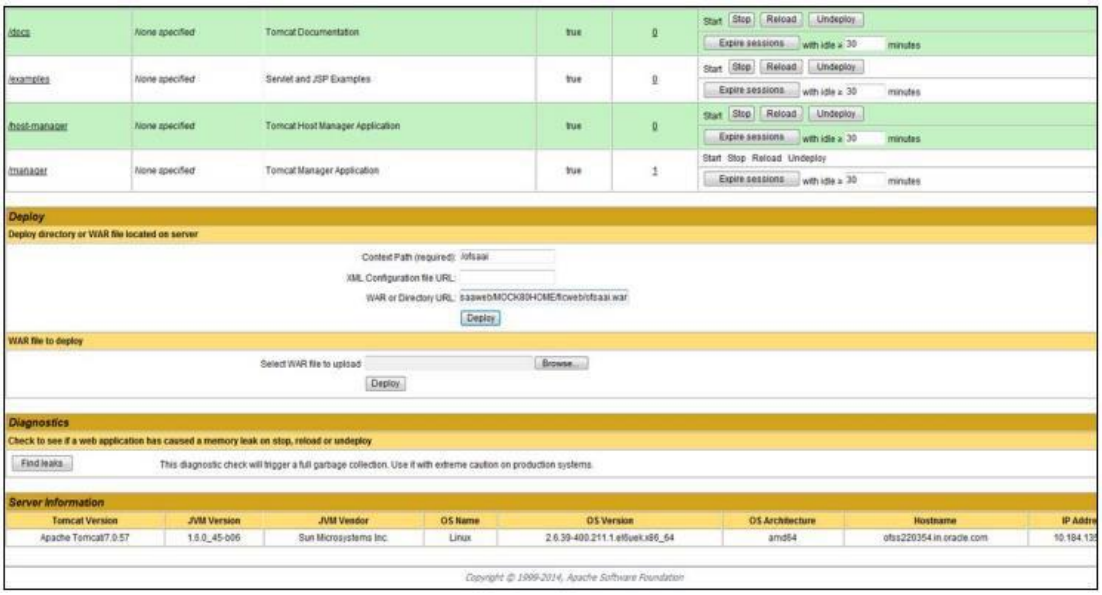
14. Copy the `<context-name>.war` from `$FIC_WEB_HOME/ <context-name.war>` to

<Tomcat Installation Directory>/webapps/ directory. Copy the <context-name>.war from $FIC_WEB_HOME/<context-name.war> to <Tomcat Installation Directory>/webapps/ directory.



Tomcat Home Page

15. Click **Manager App**. The Connect to dialog box is displayed.
16. Enter the **User Id** and **Password** that has admin rights and click **OK**. (For user creation in Tomcat, see Tomcat User Administration. The Tomcat Web Application Manager window is displayed with the list of all the applications deployed.



Tomcat Web Application Manager

17. In the Deploy section, enter the **Context Path** provided during the installation as "`/<context-name>`".
18. Enter the path where the `<context-name>.war` file resides (by default "`$FIC_WEB_HOME/<context-name>.war`") in the **WAR or Directory URL** field and click **Deploy**.
19. On successful application deployment, a confirmation message is displayed. Start the Tomcat server. Refer Starting Web Application Servers for more details.

10 Appendix D: Configuring SILENT.template file

This Appendix includes the following sections:

- Silent.template
- Silent_upgrade_8041-806.template
- Silent_upgrade_805-806.template
- Silent.BIGDATA.template for Stage and Results on Hive
- Silent_Hybrid.template for Stage on Hive and Results on RDBMS

10.1 Silent.template

This section is for fresh OFSDF 806 installation. Add values for parameters in the *Silent.template* file. The following table lists all the properties that must be specified.

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	0 = Debug 1= General	# Optional; Default: 0
SEGMENT_1_CODE	Segment Code	Example: BFNDSEG	# Mandatory Segment Code should not exceed 10 characters and there should not be special characters or extra spaces
APPFTP_LOG_PATH	Information Domain Maintenance log path(to be created) for the new Information Domain for App Layer	Example: /ftpshare/<INFODOM_NAME>/logs	# Mandatory if this an App Layer Installation and want to create a new Information Domain
DBFTP_LOG_PATH	Information Domain Maintenance log path(to be created) for the new Information Domain for DB Layer	Example: /ftpshare/<INFODOM_NAME>/logs	# Mandatory if this an App Layer Installation and want to create a new Information Domain
UPLOAD_MODEL	Whether you want to perform Model Upload	0 = No 1 = yes	# Mandatory
MODEL_TYPE	Released data model or Customized data model	0 = released 1 = customized	# Mandatory only in the case of UPLOAD_MODEL=1

Property Name	Description of Property	Permissible values	Comments
DATAMODEL	The file name for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
DM_DIRECTORY	The path for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
ETL_APPSRC_TYPE	The ETL application name	0=New Pair 1=Existing	# Mandatory
ETL_SRC_1_NAME	ETL FSDF Staging Source Name	Example: STAGING	# Mandatory
ETL_SRC_2_NAME	ETL FSDF CAP ADQ Pack Integration Source Name	Example: FSDF_CAP_SRC	# Mandatory
ETL_SRC_3_NAME	ETL FSDF TR Pack Integration Source Name	Example: FSDF_TR_SRC	# Mandatory
ETL_SRC_4_NAME	ETL FSDF IFRS Pack Integration Source Name	Example: FSDF_IFRS_SRC	# Mandatory
ETL_SRC_1_DESC	ETL FSDF Staging Source Description	Example: STAGING	# Mandatory
ETL_SRC_2_DESC	ETL FSDF CAP ADQ Pack Integration Source Description	Example: FSDF_CAP_SRC	# Mandatory
ETL_SRC_3_DESC	ETL FSDF TR Pack Integration Source Description	Example: FSDF_TR_SRC	# Mandatory
ETL_SRC_4_DESC	ETL FSDF IFRS Pack Integration Source Description	Example: FSDF_IFRS_SRC	# Mandatory

10.2 Silent.template for Upgrade

This section is for upgrade. There are two types of upgrade. They are:

- Upgrade from versions earlier than OFSDF 805 to OFSDF 806
- Upgrade from OFSDF 805/8051 to OFSDF 806

10.2.1 Silent_upgrade_8041-806.template

This SILENT template is for upgrade from versions earlier than OFSDF 805 to OFSDF 806. Add values for these parameters in the *Silent_upgrade_8041-806.template* file:

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	0 = Debug 1= General	# Optional; Default: 0
SEGMENT_1_CODE	Segment Code	Example: BFNDSEG	# Mandatory Segment Code must be same as the code that is used during the first FSDF installation (Base Pack)
APPFTP_LOG_PATH	Information Domain Maintenance log path (to be created) for the new Information Domain for App Layer	Example: /ftpshare/<INFODOM_NAME>/logs	# Mandatory Information Domain Maintenance log path must be same as the log path that is used during the first FSDF installation (Base Pack)
DBFTP_LOG_PATH	Information Domain Maintenance log path (to be created) for the new Information Domain for DB Layer	Example: /ftpshare/<INFODOM_NAME>/logs	# Mandatory Information Domain Maintenance log path must be same as the log path that is used during the first FSDF installation (Base Pack)
UPLOAD_MODEL	Whether you want to perform Model Upload	0 = No 1 = yes	# Mandatory
MODEL_TYPE	Released data model or Customized data model	0 = released 1 = customized	# Mandatory only in the case of UPLOAD_MODEL=1
DATAMODEL	The file name for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1

DM_DIRECTORY	The path for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
ETL_APPSRC_TYPE	The ETL application name	0=New Pair 1=Existing	# Mandatory
ETL_NEW_SRCS_REQUIRED	Whether ETL new sources are required	Y	# Mandatory
NO_OF_NEW_SRCS	Number of new sources	3	# Mandatory
ETL_SRC_2_NAME	ETL FSDF CAP ADQ Pack Integration Source Name	Example: FSDF_CAP_SRC	# Mandatory
ETL_SRC_3_NAME	ETL FSDF TR Pack Integration Source Name	Example: FSDF_TR_SRC	# Mandatory
ETL_SRC_4_NAME	ETL FSDF IFRS Pack Integration Source Name	Example: FSDF_IFRS_SRC	# Mandatory
ETL_SRC_2_DESC	ETL FSDF CAP ADQ Pack Integration Source Description	Example: FSDF_CAP_SRC	# Mandatory
ETL_SRC_3_DESC	ETL FSDF TR Pack Integration Source Description	Example: FSDF_TR_SRC	# Mandatory
ETL_SRC_4_DESC	ETL FSDF IFRS Pack Integration Source Description	Example: FSDF_IFRS_SRC	# Mandatory

10.2.2 Silent_upgrade_805-806.template

This SILENT template is for upgrade from OFSDF 805/8051 to OFSDF 806. Add values for these parameters in the *Silent_upgrade_805-806.template* file:

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	0 = Debug 1= General	# Optional; Default: 0
SEGMENT_1_CODE	Segment Code	Example: BFNDSEG	# Mandatory Segment Code must be same as the code that is used during the first FSDF installation (Base Pack)
APPFTP_LOG_PATH	Information Domain Maintenance log path (to be created) for the new Information Domain for App Layer	Example: /ftpshare/<INFODOM_NAME>/logs	# Mandatory Information Domain Maintenance log path must be same as the log path that is used during the

			first FSDF installation (Base Pack)
DBFTP_LOG_PATH	Information Domain Maintenance log path (to be created) for the new Information Domain for DB Layer	Example: /ftpshare/<INFODOM_NAME>/logs	# Mandatory Information Domain Maintenance log path must be same as the log path that is used during the first FSDF installation (Base Pack)
UPLOAD_MODEL	Whether you want to perform Model Upload	0 = No 1 = yes	# Mandatory
MODEL_TYPE	Released data model or Customized data model	0 = released 1 = customized	# Mandatory only in the case of UPLOAD_MODEL=1
DATAMODEL	The file name for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
DM_DIRECTORY	The path for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
ETL_APPSRC_TYPE	The ETL application name	0=New Pair 1=Existing	# Mandatory
ETL_NEW_SRCS_REQUIRED	Whether ETL new sources are required	N	# Mandatory

10.3 Silent.BIGDATA.template for Stage and Results on Hive

This section is for Big Data installation (Stage and Results on Hive). Add values for parameters in the *Silent.BIGDATA.template* file. The following table lists all the properties that must be specified.

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	0 = Debug 1= General	# Optional; Default: 0
SEGMENT_1_CODE	Segment Code	Example: FSDFSEG	# Mandatory Segment Code should not exceed 10 characters and there should not be special characters or extra spaces
HIVE_APPFTP_LOG_PATH	Infodom Maintenance log path(to be created) for the new Infodom	Example: /scratch/ofsaa/ftpshare/FSDFINFO/logs	# Mandatory to create a new Information Domain
HIVE_DBFTP_LOG_PATH	Information Domain Maintenance log path(to be created) for the new Information Domain for DB Layer	Example: /scratch/ofsaa/ftpshare/FSDFINFO/logs	# Mandatory to create a new Information Domain
HIVE_UPLOAD_MODEL	Whether you want to perform Model Upload on hive infodom	0 = No 1 = yes	# Mandatory
HIVE_MODEL_TYPE	Released data model or Customized data model for model upload process	0 = released 1 = customized	# Option selected for HIVE_MODEL_TYPE=0
DATAMODEL_HIVE	The file name for the customized data model in Hive	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for HIVE_MODEL_TYPE= 1
DM_DIRECTORY	The path for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for HIVE_MODEL_TYPE=1

Property Name	Description of Property	Permissible values	Comments
ETL_APPSRC_TYPE	The ETL application name	0=New Pair 1=Existing	# Mandatory
ETL_SRC_5_NAME	ETL FSDF HIVE Staging Source Name	Example: STAGING	# Mandatory
ETL_SRC_5_DESC	ETL FSDF HIVE Staging Source description	Example: STAGING	# Mandatory

10.4 Silent_Hybrid.template for Stage on Hive and Results on RDBMS

This section is for Big Data installation (Stage on Hive and Results on RDBMS). Add values for parameters in the *Silent_Hybrid.template* file. The following table lists all the properties that must be specified.

Property Name	Description of Property	Permissible values	Comments
LOG_MODE	Mode for logging	1 = Debug 0 = General	# Optional; Default: 0
SEGMENT_1_CODE	Segment Code	Example: FSDFSEG	# Mandatory Segment Code should not exceed 10 characters and there should not be special characters or extra spaces
APPFTP_LOG_PATH	Infodom Maintenance log path(to be created) for the new Infodom	Example: /scratch/ofsaa/ftpshare/FSDFINFO/logs	# Mandatory to create a new Information Domain
DBFTP_LOG_PATH	Information Domain Maintenance log path(to be created) for the new Information Domain for DB Layer	Example: /scratch/ofsaa/ftpshare/FSDFINFO/logs	# Mandatory to create a new Information Domain
HIVE_APPFTP_LOG_PATH	Infodom Maintenance log path(to be created) for the new Hive Infodom	Example: /scratch/ofsaa/ftpshare/FSDFHVINFO/logs	# Mandatory to create a new Hive Information Domain
HIVE_DBFTP_LOG_PATH	Information Domain Maintenance log path(to be created) for the new Hive Information Domain for DB Layer	Example: /scratch/ofsaa/ftpshare/FSDFHVINFO/logs	# Mandatory to create a new Hive Information Domain
UPLOAD_MODEL	Whether you want to perform Model Upload	0 = No 1 = yes	# Mandatory

Property Name	Description of Property	Permissible values	Comments
MODEL_TYPE	To use released data model or customized data model for model upload process	0 = released 1 = customized	# Option selected for MODEL_TYPE=0
DATAMODEL	The file name for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
DM_DIRECTORY	The path for the customized data model	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for MODEL_TYPE=1
HIVE_UPLOAD_MODEL	Whether you want to perform Model Upload on hive infodom	0 = No 1 = Yes	# Mandatory
HIVE_MODEL_TYPE	To use released data model or customized data model for model upload process	0 = released 1 = customized	# Option selected for HIVE_MODEL_TYPE=0
DATAMODEL_HIVE	The file name for the customized data model for Hive	Not Applicable	# Mandatory only in the case of uploading the customized data model for Hive # Option selected for HIVE_MODEL_TYPE=1
DM_DIRECTORY	The path for the customized data model for Hive	Not Applicable	# Mandatory only in the case of uploading the customized data model # Option selected for HIVE_MODEL_TYPE=1
ETL_APPSRC_TYPE	The ETL application name	0 = New Pair 1 = Existing	# Mandatory
ETL_SRC_1_NAME	ETL FSDF Staging Source Name	Example: STAGING	# Mandatory
ETL_SRC_2_NAME	ETL FSDF CAP ADQ Pack Integration Source Name	Example: FSDF_CAP_SRC	# Mandatory

Property Name	Description of Property	Permissible values	Comments
ETL_SRC_3_NAME	ETL FSDF TR Pack Integration Source Name	Example: FSDF_TR_SRC	# Mandatory
ETL_SRC_4_NAME	ETL FSDF IFRS Pack Integration Source Name	Example: FSDF_IFRS_SRC	# Mandatory
ETL_SRC_1_DESC	ETL FSDF Staging Source Description	Example: STAGING	# Mandatory only in the case of creating new ETL source # Option selected for ETL_APPSRC_TYPE=0
ETL_SRC_2_DESC	ETL FSDF CAP ADQ Pack Integration Source Description	Example: FSDF_CAP_SRC	# Mandatory only in the case of creating new ETL source # Option selected for ETL_APPSRC_TYPE=0
ETL_SRC_3_DESC	ETL FSDF TR Pack Integration Source Description	Example: FSDF_TR_SRC	# Mandatory only in the case of creating new ETL source # Option selected for ETL_APPSRC_TYPE=0
ETL_SRC_4_DESC	ETL FSDF IFRS Pack Integration Source Description	Example: FSDF_IFRS_SRC	# Mandatory only in the case of creating new ETL source # Option selected for ETL_APPSRC_TYPE=0
ETL_SRC_5_NAME	ETL FSDF HIVE Staging Source Name	Example: NOT_USED	
ETL_SRC_5_DESC	ETL FSDF HIVE Staging Source description	Example: NOT_USED_SOURCE	

11 Appendix E: Starting / Stopping Services

11.1 Start/Stop OFSAA Infrastructure Services

This chapter details on how to start and stop OFSAA Infrastructure services. This chapter includes the following sections:

- Starting Infrastructure services
- Starting Web Application Servers
- Stopping Infrastructure Services

11.1.1 Starting Infrastructure Services

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

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

   ```
   ./startofsaai.sh
   ```

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

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

     ```
     ./iccserver.sh
     ```

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

3. To start Back-end Services:

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

     ```
     ./agentstartup.sh
     ```

     Or

   - Start Back-end services using the command:

     ```
     nohup ./agentstartup.sh &
     ```

NOTE: This agent internally starts the Router, Message Server, OLAP data server and AM services.

11.1.2 Starting Web Application Servers

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

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

11.1.3 Stopping Infrastructure Services

To stop Infrastructure services:

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

   ```
   ./stopofsaai.sh
   ```

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

   ```
   ./iccservershutdown.sh
   ```

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

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

   ```
   ./agentshutdown.sh
   ```

12 Appendix F: Accessing OFSAA Application

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

12.1 Accessing the OFSAA Application

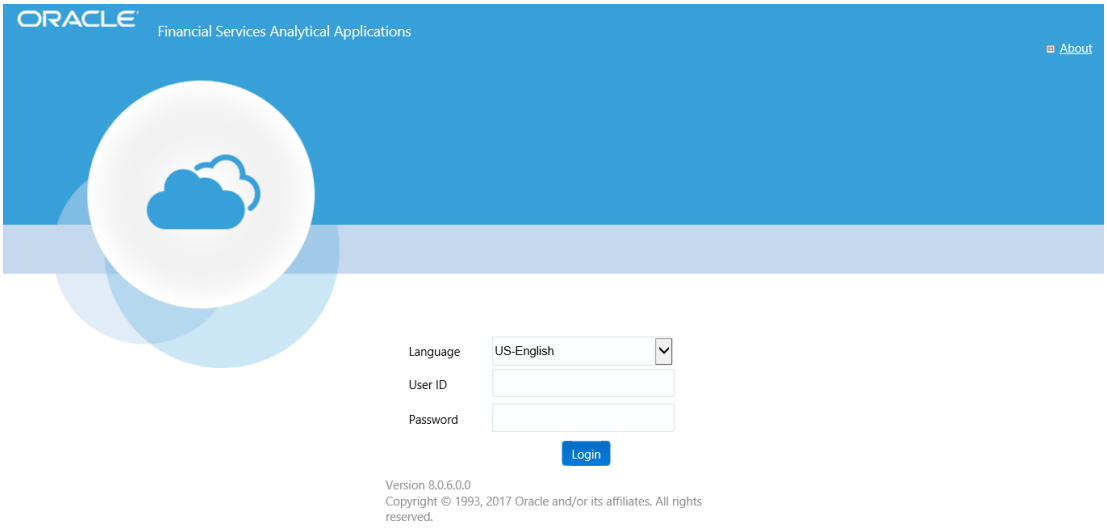
Perform the following steps to access the OFSAA application:

1. From a your desktop, open the browser and enter the URL in below format:

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

   For example, `https://192.0.2.2:8080/ofsaa/login.jsp`

   The OFSAA login window is displayed as below:



OFSAA Login window

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

   - SYSADMN – System Administrator
   - SYSAUTH – System Authorizer

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

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

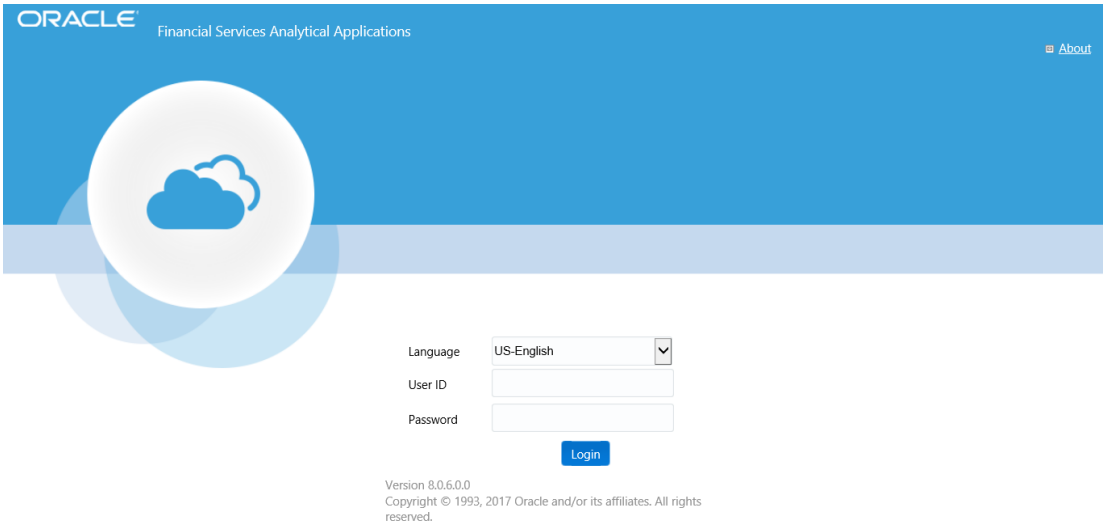
   Once you have logged into the Infrastructure system, you need to perform the following additional configurations to setup the OFSAAI environment:

   - Define Server Details for Database, Application and Web servers.

- Add Database Details.
- Create an Information Domain.
- Create a Segment.
- Create / Add User with access to all permissions.

NOTE: Each new file that is created in the ftpshare folder of any installation layer should be granted specific / explicit permission. If you encounter any problems during setup, please contact Infrastructure Support.

12.2 OFSAAI Login



While accessing Oracle Financial Services Analytical Applications Infrastructure, the Splash screen is as displayed:

You can select the required language from the **Language** drop-down list. The language options displayed in the drop down are based on the license. Based on the selection of Language, the appropriate language login screen is displayed.

Enter the User ID and Password provided by the System Administrator and click Login. You will be prompted to change your password on your first login. Alternatively, you can also choose to change your password any time.

In the *Change Password* screen, enter a new password, confirm it and click **OK** to view the Splash screen. Refer to the following guidelines for Password Creation:

- Passwords are displayed as asterisks (stars) while you enter. This is to ensure that the password is not revealed to other users.
- Ensure that the entered password is at least six characters long.
- The password must be alphanumeric with a combination of numbers and characters.
- The password should not contain spaces.
- Passwords are case sensitive and ensure that the Caps Lock is not turned ON.
- By default the currently used password is checked for validity if password history is not set.
- New password should be different from previously used passwords based on the password history which can be configured.
- If you encounter any of the following problems, contact the System Administrator:
    - Your user ID and password are not recognized.
    - Your user ID is locked after three consecutive unsuccessful attempts.
    - Your user ID has been disabled.
    - Guest user cannot change the password.

13 Appendix G: Post Deployment Configurations

This chapter includes the following sections:

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

13.1 Deploying the Application

This section explains steps to deploy the application. Web Layer deployment is required and for more information, see Appendix A.

13.2 Logging as System Administrator

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

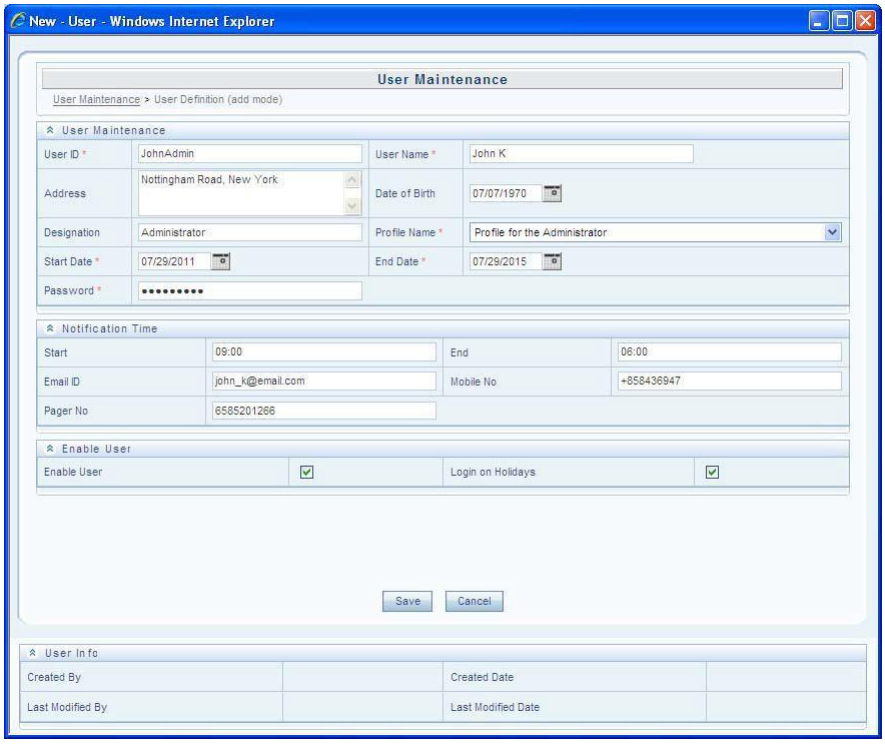
13.3 Creating Users

User Maintenance facilitates you to create user definitions, view, manage, modify, and delete user information. You can access User Maintenance by expanding User Administrator section within the tree structure of LHS menu.

The User Maintenance screen displays user details such as User ID, Name, Profile Name, Start and End dates. You can also identify the user status if enabled to access the Infrastructure system.

To add a user in the User Maintenance screen:

1. Select add button from the User Maintenance tool bar. Add button is disabled if you have selected any User ID in the grid. The New User screen is displayed.



2. Enter the user details as tabulated.

Field	Description
Fields marked in red asterisk (*) are mandatory.	
User ID	Enter a unique user id. Ensure that there are no special characters and extra spaces in the id entered.
User Name	Enter the user name. The user name specified here is displayed on the Infrastructure splash screen. Ensure that the User Name does not contain any special characters or spaces except ”–“, “”. and “.”.
Contact Address	Enter the contact address of the user. It can be the physical location from where the user is accessing the system. Ensure that Contact Address does not contain any special characters except ".", "#", "-", ",".
Date Of Birth	Specify the date of birth. You can use the popup calendar to enter the date.
Designation	Enter the user designation. Ensure that Designation does not contain any special characters except “_, “:” and "-".
Profile Name	Select the profile name by clicking on the drop down list.
User Start Date	Specify the user start date based on the day slot the user is enabled to access the system. Ensure that User Start Date is greater than today’s date. You can use the popup calendar to enter the date.
User End Date	Specify the user end date based on month and year when the user Id expires. Ensure that user End Date is greater than User Start Date. You can use the popup calendar to enter the date.

Password	Enter the default password for the user for the initial login. User needs to change the default password during the first login. A user is denied access in case the user has forgotten the password or enters the wrong password for the specified number of attempts (as defined in the *Configuration* screen). To enable access, enter a new password here.
Notification Time	(Optional) Specify the notification start and end time within which the user can be notified with alerts.
E-mail ID	Enter the e-mail address of the user.
Mobile No	(Optional) Enter the mobile number of the user.
Pager No	(Optional) Enter the pager number of the user.
Enable User	Select the checkbox to allow user to access the system. A deselected checkbox denies access to the user.

3. Click **Save** to upload the user details.

   The new User details are populated in the User Authorization screen which has to be authorized by System Authorizers. Once authorized, the User details are displayed in User Maintenance screen and can then be mapped to the required user group in the User UserGroup Map screen.

13.4 Mapping the Application User(s) to User Group

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

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

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

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

Table 4: Seeded User Groups

Name	Description
FSDF Admin	User mapped to this group will have access to all the menu items for entire FSDF Application. The exclusive menu's which are available only to this group users are *Application Preference* and *Global Preference* under *Settings* Menu.

Name	Description
FSDF Data Modeler	User mapped to this group will have access only for *Data Model Management* and *Metadata Browser Menus.*
FSDF Analyst	User mapped to this group will have access for *Data Management Framework, Dimension Management* and *Metadata Browser Menus.*
FSDF Operator	User mapped to this group will have access for *Rule Run Framework* and *Operations Menus.*

13.5 Changing ICC Batch Ownership

All the seeded Batches in OFSDF Applications Pack will be automatically assigned to SYSADMN user during Installation. If one user who wants to see the Batches in *Batch Maintenance* Menu, He needs to execute the following Queries in Config Schema of the Database.

Syntax:

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

Where from User indicates the user who currently owns the batch, to User indicated the user to which the ownership has to be transferred. Infodom is optional parameter, if specified the ownership of batches pertaining to that Infodom will be changed.

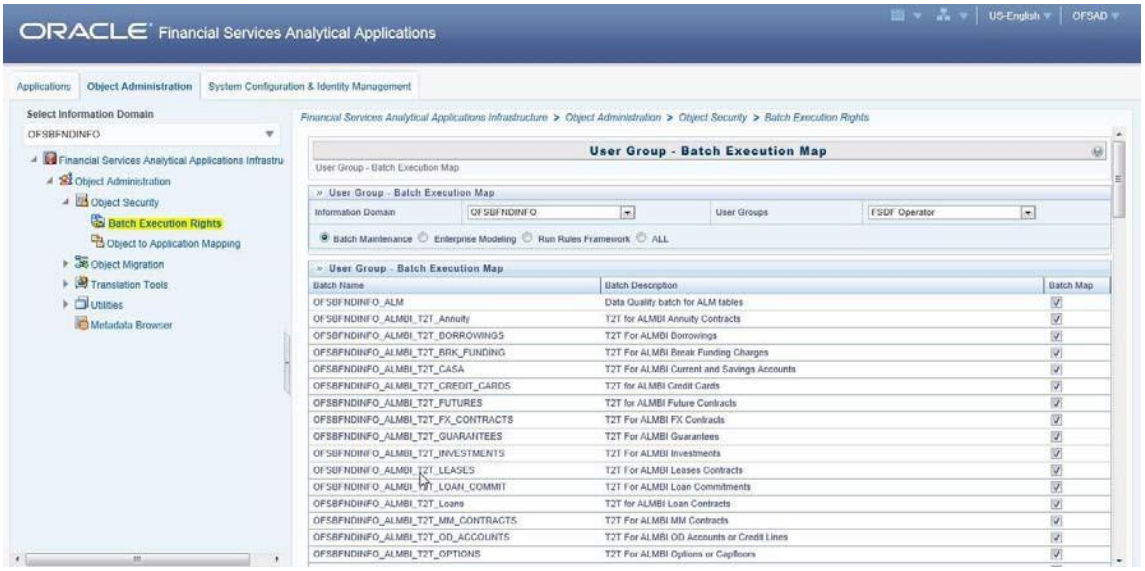
Example:

```
begin
AAI_OBJECT_ADMIN.TRANSFER_BATCH_OWNERSHIP
('SYSADMN','FSDFOP','OFSBFNDINFO');
end;
```

13.6 Mapping ICC Batch Execution Rights to Users

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

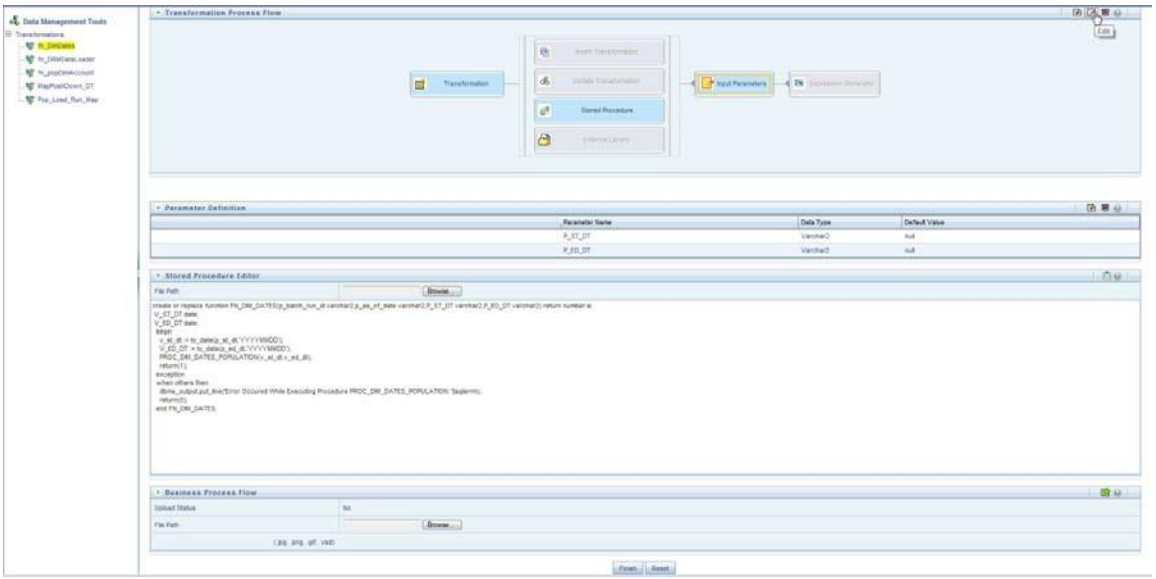
NOTE: Any user who is mapped under FSDF Admin User Group will have the access to map the Batch execution rights menu.



13.7 Saving Post-Load Change Transformations

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

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



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

14 Appendix H: Cloning OFSAA Instance

There is a consistent need for a faster and effective approach of replicating an existing OFSAA instance for further project developments, that is, setting up OFSAA instances that are exact copies of the current OFSAA instance. For more information on cloning, refer OFSAA Cloning Reference Guide

15 Appendix I: OFSAA Landing Page

This appendix includes the following topics:

- Installation Checklist
- OFSAA Landing Page for OFSDF Administrator
- Enabling a Product within an Application Pack

15.1 Installation Checklist

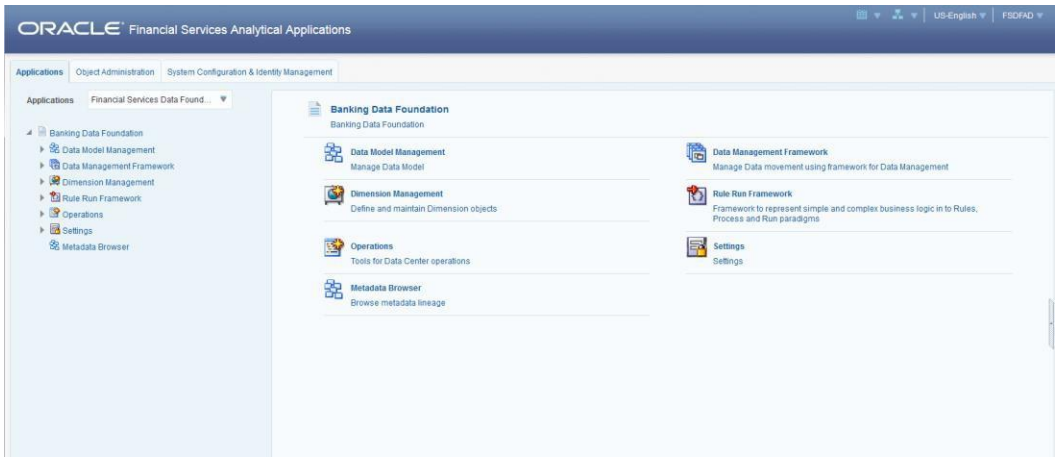
This section provides you a list of topics that you must check while installing the application.

It is recommended to take a print out of the checklist and follow the checklist step by step.

Table with (General, Pre-Install, Install, and Post Install) Checklist

Step No.	Task	Done
General		
1	Check the OFSDF Release Notes and Read Me document for any additional steps to be performed on OFSDF Pack or OFSAAI. **Note**: For more details, contact Oracle support.	☐
OFSDF Pack Pre Installation + During Installation		
2	Prior to installation, ensure that sufficient free temp space (minimum 1 GB free) is available in /tmp directory of Unix server hosting OFSAAI.	☐
OFSDF Pack Post Installation		
3	Perform post-installation steps. For more information, refer to *Chapter Post Installation.*	☐

15.2 OFSAA Landing Page for OFSDF Administrator



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

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

The following tabs are available in the Landing Page:

- Applications Tab
- Object Administration Tab
- System Configuration and Identity Management Tab

15.2.1 Applications Tab

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

15.2.2 Object Administration Tab

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

15.2.3 System Configuration and Identity Management Tab

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

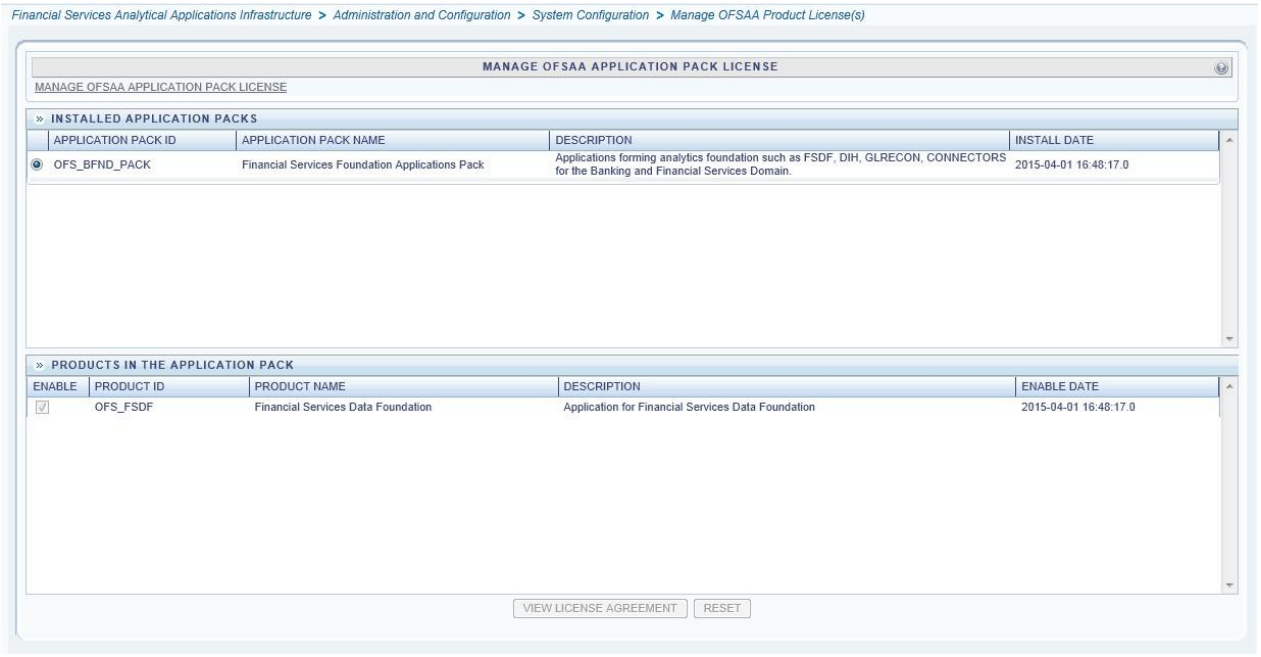
NOTE: Refer the User Manual for more details on how to operate on each tab.

15.3 Enabling a Product within an Application Pack

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

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

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



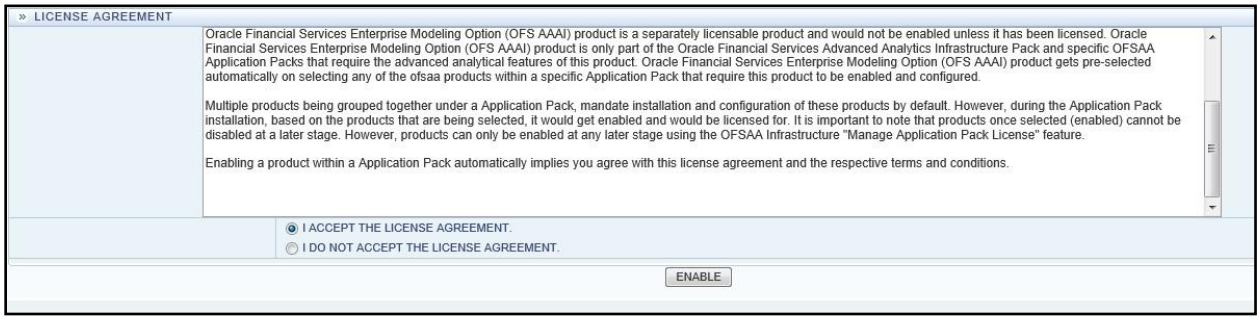
4. Select an Application pack to view the products in it. The products are displayed in the **Products in the Application Pack** section. The following fields are displayed in the INSTALLED APPLICATION PACKS section:

Field	Description
Application Pack ID	Displays a unique Application Pack ID related to the application pack. Select the appropriate Pack id using the radio button. The Products in the application pack is displayed below in the *PRODUCTS IN THE APPLICATION PACKS* section.
Application Pack Name	Displays the name of the Application Pack.
Description	Displays the description of the Application Pack.
Install Date	Displays the date when the Application Pack was installed.

5. The following fields are displayed in the PRODUCTS IN THE APPLICATION PACK section:

Field	Description
Enable	Select the checkbox to enable a product within an Application Pack.
Product ID	Displays a unique product id for the product.
Product Name	Displays the name of the Product
Description	Displays the description of the product.
Enable Date	Displays the date when the product was enabled.

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



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

NOTE: To use the newly enabled product, you need to map your application users to the appropriate product specific User_Group(s) and subsequently, authorize the actions by logging in as System Authorizer.

NOTE: For more information refer to *Mapping/Unmapping Users* section in the *Oracle Financial Services Analytical Applications Infrastructure User Guide 8.0 (OHC)*.
To identify the newly enabled product specific User Groups/ Application Pack specific User_Groups, refer to the respective Application Pack specific Installation and Configuration Guide/ User Manual.

16 Appendix J: Additional Information

This section includes the following topics:

- FTP/ SFTP Configuration for File Transfer
- Configure Infrastructure Server Memory
- Internet Explorer Settings
- Retrieving Patch Information
- OLAP Data Server Configuration
- OFSAAI Setup Information Fetching Tool
- Encryption Changer
- Infrastructure LDAP Configuration
- Configuring OFSAAI Web Services
- Deploying OFSAAI Web Services
- Configuration to Enable Parallel Execution of DML statements
- Configure Message Details in Forms Designer
- Clearing Application Cache
- Configuring Password changes
- Configure Internal Service (Document Upload/ Download)

16.1 FTP/ SFTP Configuration for File Transfer

This section details about the configurations required for FTP/SFTP.
In OFSAA, certain modules require transfer of files from the web application server to the OFSAA server over SSH.

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

1. Login to the web application server.
2. Type `sftp <user>@<OFSAA Server>`
3. Specify **Yes** when prompted for permission.

   Are you sure you want to continue connecting (Yes/No)?
4. This will add an entry into the "known_hosts" file.
5. A confirmation message is displayed:

   Permanently added <OFSAA Server> RSA) to the list of known hosts.

16.1.1 Setting Up SFTP Private Key

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

To generate private key, enter the commands as shown:

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

In case, you are generating SFTP Private key for Hive server, append the content of `/home/ofsaapp/.ssh/id_rsa.pub` to Hiveserver authorized_keys file located at `$HOME_DIR_HIVE/.ssh` folder.

Ensure the following permissions exist for the given folders:

- Permission of `.ssh` should be `700`
- Permission of `.ssh/authorized_keys` should be `640`
- Permission of `.ssh/id_rsa` should be `400`
- Permission of Unix user created should be `755`

16.2 Configuring Infrastructure Server Memory

The memory settings for Infrastructure Application Server, Tomcat, WebSphere, and WebLogic can be edited for customizing memory settings and garbage collector settings depending on the available hardware configuration as explained below. These settings are base minimum and have to be incremented considering the deployment metrics into account. The increments are usually handled in multiples of 128mb for heap and 64mb for stack.

16.2.1 Setting Infrastructure Server Memory

You can configure the Infrastructure Application Memory settings as follows:

1. Locate the `.profile` file.
2. Edit `X_ARGS` field in this file for customizing memory settings and garbage collector settings depends on the hardware configuration.

   This has a default value `X_ARGS_APP ="-Xms200m"`

   `X_ARGS_APP =" "$X_ARGS" $DELIM -Xmx2048m"`

NOTE: You need to modify `X_ARGS_APP` variable in the `.profile` file to customize Java Memory Settings for Model Upload based on the Data Model size.
For Run and Rule executions, the following value is recommended:

X_ARGS_RNEXE="-Xms1g -Xmx1g -XX:+UseAdaptiveSizePolicy -XX:MaxPermSize=512M -XX:+UseParallelOldGC -XX:+DisableExplicitGC"

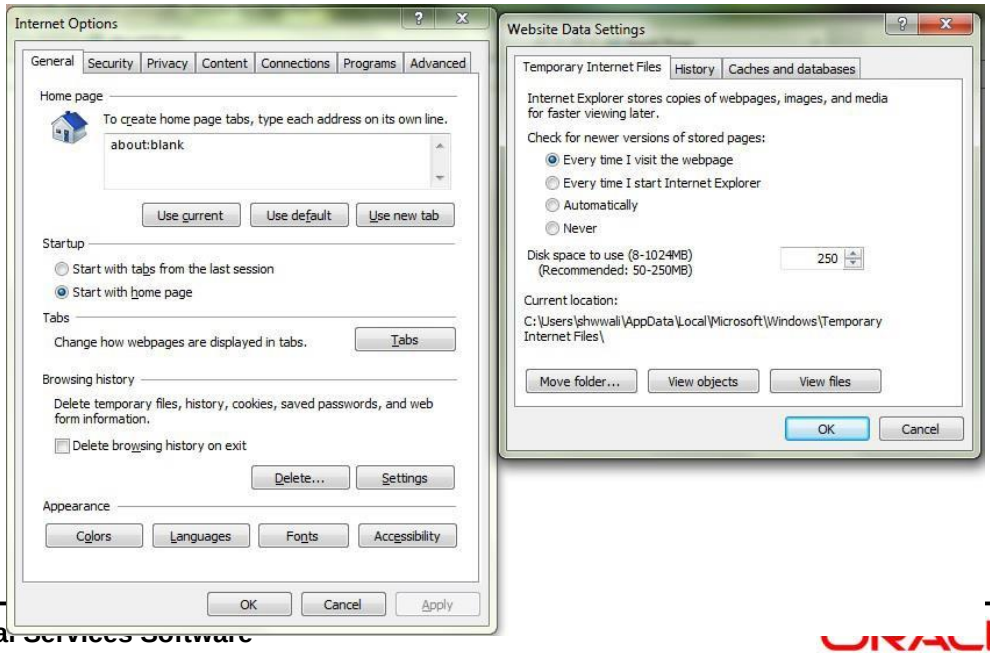
X_ARGS_RLEXE="-Xms1g -Xmx1g -XX:+UseAdaptiveSizePolicy -XX:MaxPermSize=512M -XX:+UseParallelOl3dGC -XX:+DisableExplicitGC"

16.3 Setting Internet Explorer

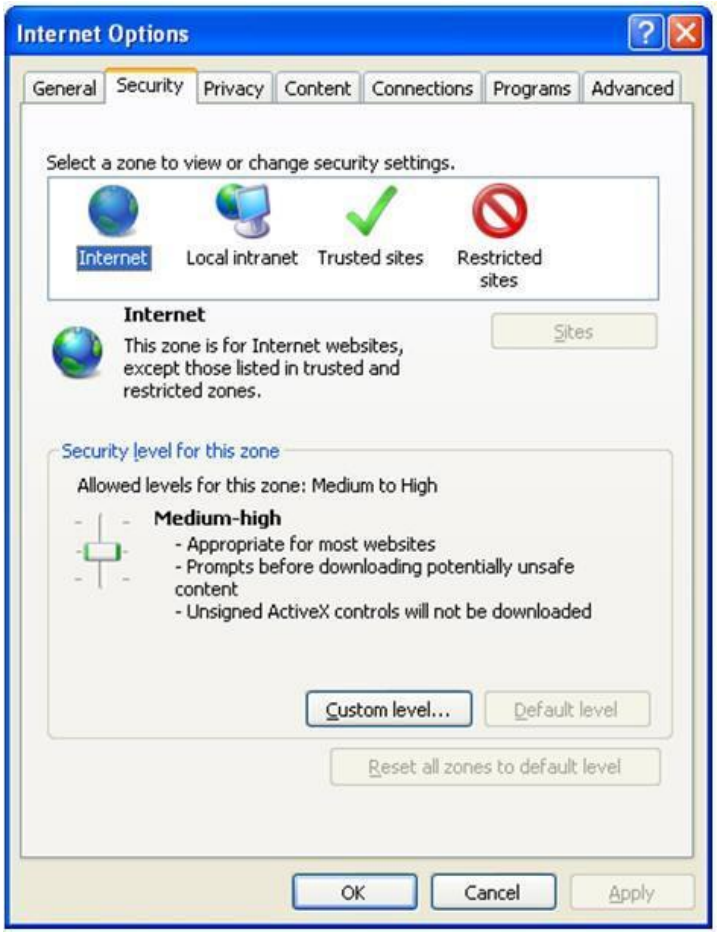
NOTE: OFSAAI supports only default zoom setting in Internet Explorer, that is, 100%. Cookies should be enabled.

The following browser settings have to be specified at every client machine prior to accessing the Infrastructure application.

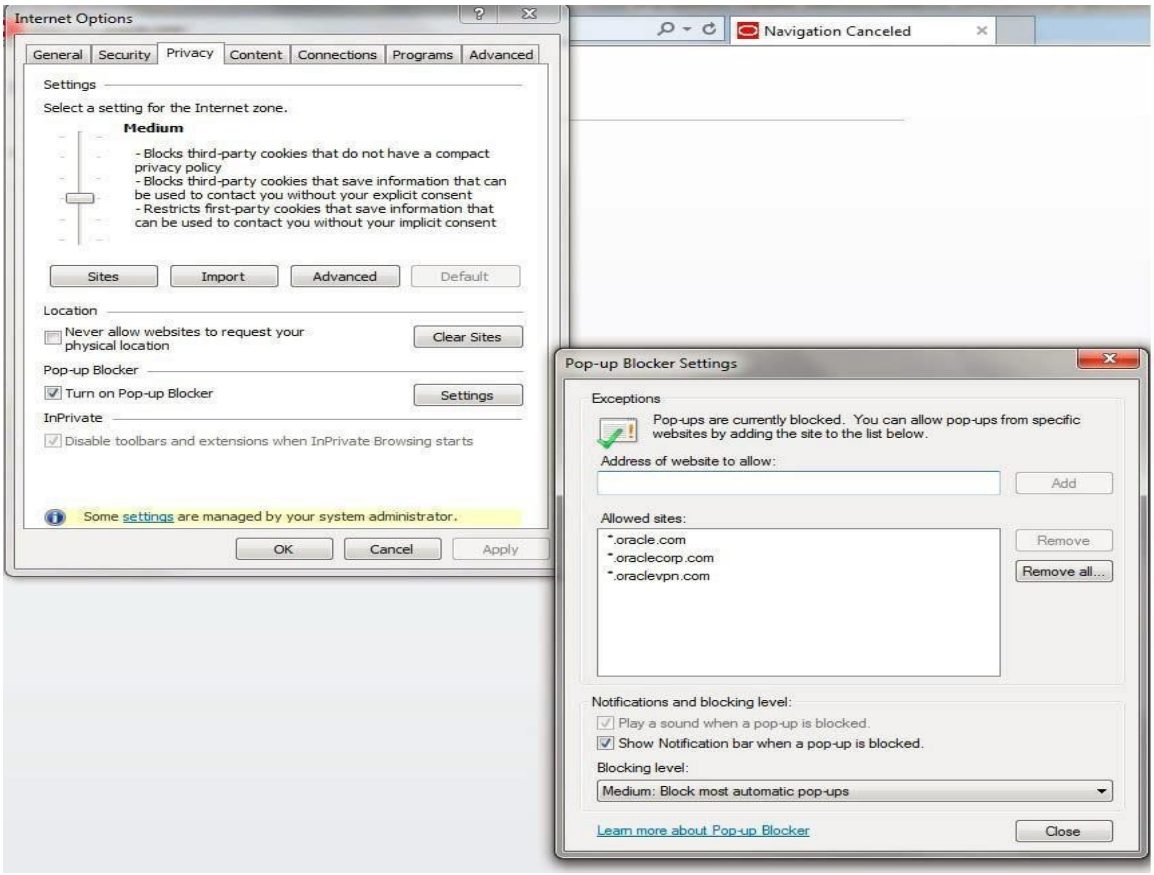
1. Open **Internet Explorer**. Select **Tools** → **Internet Options**. The Internet Options window is displayed.
2. Click the **Settings** button. The Settings window is displayed.
3. Select the option **Every time I visit the webpage** and click **OK**.



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



6. Click **OK** to save.
7. Click **Internet Explorer** >> **Tools** >> **Compatibility View Settings**.
8. Enter the OFSAA setup URL in the **Add this website** field.
9. Click **Add**.
10. Ensure the URL is listed under **Websites you've added to Compatibility View**.
11. In the Internet Options window, select the **Privacy** tab and select the **Turn on Pop-up Blocker** option under **Pop-up Blocker** settings.



12. Click **Settings**. The Pop-up Blocker Settings window is displayed.
13. Enter the URL of the OFSAA Application in the **Address of Website to Allow:** field.
14. Click **Add**. The OFSAA URL is displayed in the **Allowed Sites** section.
15. Click **Close**.
16. Click **OK** in the Internet Options window.

16.4 Retrieving Patch Information

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

1. Login to the OFSAA application as a user with Object AdminAdvanced Role.
2. Navigate to Object Administration tab.
3. Click System Utilities.
4. Click Patch Information.
5. The page displays the list of patches installed on the OFSAA setup across Applications/ Platform.

16.5 Configuring OLAP Data Server

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

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

Example:

- Process Memory Limit
- Max Thread Stack Size
- Max Number of Threads per Process

Sort Buffer settings: This must be set at the Essbase application level appropriate to the anticipated load.

Shutdown and Restart: During shutdown of OFSAAI Server that has an instance of Data Services that is communicating with an OLAP Data Server, it is imperative to ensure that the cleanup of the old instance is completed on the OLAP Data Server before restarting the OFSAAI Server. Pause for a period of time based on the load the system was subjected to, before restarting the Data Services subsystem.

16.6 Configuring Infrastructure Ports

The Port Changer utility can be used to change IP/ Hostname, Ports, and Deployed paths of the OFSAA instance.

Prerequisite

You should have minimum version as OFSAAI 8.0.

How to run Port Changer utility

1. Navigate to $FIC_HOME folder on Target.
2. Execute java -jar PortC.jar DMP.

   A file with the name DefaultPorts.properties will be created under $FIC_HOME directory which contains the ports, IPs and paths currently being used.

   Make the necessary changes to those ports, IPs, and paths in the DefaultPorts.properties file as per the Target environment. Save the changes.
3. Run the PortC.jar utility using the command:

   java -jar PortC.jar UPD

This will change the ports, IPs and paths in .profile (under home directory), all files under `$FIC_HOME` directory, and tables in the database according to the values mentioned in `DefaultPorts.properties` file.

16.7 Executing OFSAAI Setup Information Fetching Tool

Executing the `SetupInfo.jar` file available in the `FIC_HOME` path will help you retrieve the related information about the OFSAAI Set up such as Operating System Name and version, Database Type and Version, OFSAAI architecture, Log file locations and so on.

To execute `SetupInfo.jar`" in console:

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

```
java -jar SetupInfo.jar
```

After execution, the output file location is displayed in the console.

16.8 Executing Encryption Changer

For more information on Encryption Changer, see Key Management section in OFSAAI Administration Guide.

16.9 Configuring Infrastructure LDAP

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

16.10 Configuring Enable Parallel Execution of DML statements

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

As of now, the `OracleDB.conf` file has only one parameter namely `CNF_DEGREE_OF_PARALLELISM`. This parameter indicates the degree of parallelism to be used for a DML operation if parallel DML is explicitly enabled in the session with the `ENABLE PARALLEL DML` clause of the `ALTER SESSION` statement. The default mode of a session is `DISABLE PARALLEL DML`. If `CNF_DEGREE_OF_PARALLELISM` is not set, then the default degree, as decided by Oracle will be used.

16.11 Configuring Message Details in Forms Designer

You can configure the Message Details in Forms Designer under Data Entry Forms and Queries module by updating the details of mail server in the "`NotificationConfig.cfg`" file which resides in the path `$FIC_APP_HOME/common/FICServer/conf`.

Ensure that the "authorized User details" for whom you need to configure the Message details are included in **Administration → Security Management → User Administrator → User**

Maintenance window.

Update the following parameters in the "NotificationConfig.cfg" file:

NotificationConfig.cfg File

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

Ensure that the authorized User details are included in ***Administration → Security Management → User Administrator → User Maintenance*** window.

16.12 Clearing Application Cache

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

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

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

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

WebSphere: <Websphere installation directory>/AppServer/profiles/<Profile name>/temp/<Node

name>/server1/<Application name>/<.war file name>

16.13 Configuring Password Changes

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

16.13.1 Changing OFSAA Infrastructure Config Schema Password

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

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

   ```
   cd $FIC_APP_HOME/common/FICServer/bin
   ./ reveleusshutdown.sh
   ```

2. Start the Infrastructure Server in foreground directly on the server or through X-Windows software using the command:

   ```
   ./ reveleusstartup.sh
   ```

   At the prompt, enter System Password. Enter the "new Config schema" password. The service will start and initialize itself if it is able to successfully connect to the DB.

4. Post successful startup of the service, if required, the Infrastructure server may be shut down and restarted in the background using nohup mode.

16.13.2 Configuring Java Virtual Machine

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

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

16.13.3 Changing OFSAA Infrastructure Atomic Schema Password

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

1. Change the Atomic schema User Password in the database.
2. Login to the application from the browser using SYSADMN account or any user id, which has System Administrator role mapped.
3. Navigate to System Configuration → Database Details window. Select the appropriate connection and edit the password.
4. Navigate to Unified Metadata Manager → Technical Metadata → Data Integrator → Define Sources window. Update the appropriate Source details.
5. If you are using Apache Tomcat as Web server, update the `<Context> ->`

`Resource` tag details in `Server.xml` file from the $CATALINA_HOME/conf folder. (In case of Tomcat only Atomic <Resource> will exist).

6. If you are using WebSphere as Web server:
    a. Login to the WebSphere Administration Console, from the left side menu.
    b. Navigate to Resources >JDBC >Data Sources. A list of data sources will be populated on the right side.
    c. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources will need to be modified).

    If you are using WebLogic as Web server:
    d. Login to the WebLogic Administration Console, from the left side menu
    e. Under Domain Structure list box, expand the appropriate Domain and navigate to *Services* → *JDBC >Data Sources*. A list of data sources will be populated on the right side.
    f. Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
7. Restart the OFSAAI services.

16.14 Configuring Internal Service (Document Upload/ Download)

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

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

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

1. Create the folders download, upload, TempDocument and Temp in the local path of Web application server and provide Read/Write permission.
    - To find the exact location, execute the following query in CONFIG schema:
      `select localpath from web_server_info`
    - To create folders with Read/Write permission, execute the command:
      `mkdir -m 777 download upload TempDocument Temp`
2. Create DocStorage folder in the FTPSHARE location of APP tier and provide Read/Write permission.
    - To find the exact location, execute the query in CONFIG schema:
      `select ftpdrive from app_server_info`
    - To create folder with Read/Write permission, execute the command:
      `mkdir -m 777 DocStorage`

17 Appendix K: Patching FSDF Pack Installation

Oracle strongly recommends installing the latest available patch set so as to be up to date with the various releases of the OFSAA products.

Refer http://support.oracle.com for more information on latest releases.

18 Appendix L: Grants for Atomic/ Config Schema

This appendix includes the following sections:

- Grants for Atomic Schema
- Grants for Config Schema
- Grants for Config Schema Entities for Atomic Users

18.1 Grants for Atomic Schema

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

The following are the Grants for Atomic Schema:

```
grant create SESSION to &database_username
/
grant create PROCEDURE to &database_username
/
grant create SEQUENCE to &database_username
/
grant create TABLE to &database_username
/
grant create TRIGGER to &database_username
/
grant create VIEW to &database_username
/
grant create MATERIALIZED VIEW to &database_username
/
grant select on SYS.V_$PARAMETER to &database_username
/
grant create SYNONYM to &database_username
/
```

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

18.2 Grants for Config Schema

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

The following are the Grants for Config Schema:

```
grant create SESSION to &database_username
/
grant create PROCEDURE to &database_username
/
grant create SEQUENCE to &database_username
/
```

```
grant create TABLE to &database_username
/
grant create TRIGGER to &database_username
/
grant create VIEW to &database_username
/
grant create MATERIALIZED VIEW to &database_username
/
grant select on SYS.V_$PARAMETER to &database_username
/
grant create SYNONYM to &database_username

/
```

18.3 Grants on Config Schema Entities for Atomic Users

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

19 Appendix M: Configuring FSDF Pack XML Files

19.1 Configuring OFS_BFND_PACK.XML file

The `OFS_BFND_PACK.xml` file holds details on the various OFSAA products that are packaged in a particular Application Pack.

In the `<INSTALLER_DIRECTORY>/OFS_BFND_PACK/conf`:

1. For:
   - RDBMS installation, rename OFS_BFND_PACK.xml to OFS_BFND_PACK.xml.template
   - Big Data installation:
     - For Stage and Results on Hive, rename OFS_BFND_PACK.xml.BIGDATA.template to OFS_BFND_PACK.xml
     - For Stage on Hive and Results on RDBMS, rename OFS_BFND_PACK.XML.HYBRID.TEMPLATE to OFS_BFND_PACK.xml

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

NOTE: If you are installing in the GUI mode, then this file need not be updated.

OFS_BFND_PACK.XML Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/ N)	Default Value/ Permissible Value	Comments
APP_PACK_ID	Unique Application Pack Identifier	Y	Unique Seeded Value	DO NOT modify this value.
APP_PACK_NAME	Unique Application Pack Name	Y	Unique Seeded Value	DO NOT modify this value.
APP_PACK_DESCRIPTION	Unique Application Pack Description	Y	Unique Seeded Value	DO NOT modify this value.
VERSION	Unique release version	Y	Unique Seeded Value	DO NOT modify this value.
APP	Unique Application Entries	Y	Unique Seeded Value	DO NOT remove these tags.
APP_ID	Unique Application Identifier	Y	Unique Seeded Value	DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory (Y/ N)	Default Value/ Permissible Value	Comments
APP_ID/ PREREQ	Prerequisite Application/ Product	Y	Unique Seeded Value	For most applications Infrastructure would be the prerequisite set. For certain other applications, an appropriate Application ID would be set. DO NOT modify this value.
APP_ID/ DEF_SEL_FLAG	Default Selected Flag	Y	Default - YES	In all Application Packs, Infrastructure would have this value set to “YES”. DO NOT modify this value.
APP_ID/ ENABLE	Enable Application/ Product	YES if installing in SILENT mode.	Default – YES for Infrastructure NO for Others Permissible - YES or NO	Set this attribute-value to YES against every APP_ID which is licensed and should be enabled for use. **Note**: Application/ Product once enabled cannot be disabled. However, Application/ Product not enabled during installation can be enabled later through the Administration UI.
APP_NAME	Unique Application/ Product Name	Y	Unique Seeded Value	DO NOT modify this value.
APP_DESCRIPTION	Unique Application/ Product Name	Y	Unique Seeded Value	DO NOT modify this value.

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.

19.2 Configuring OFS_BFND_SCHEMA_IN.XML File

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

NOTE: This file must be configured only in case of OFSDF Application Pack installation for *RDBMS ONLY* target. This file is not required to be configured for an *HDFS ONLY* target installation.

The following table gives details about the various tags/ parameters available in the file and the values that need to be updated. Prior to executing the schema creator utility, it is mandatory to update this file.

OFS_BFND_SCHEMA_IN.XML Parameters

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<APP_PACK_ID>	Unique Application Pack Identifier	Y	Unique Seeded Value Example: OFS_BFND_PACK	DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<JDBC_URL>	Enter the JDBC URL. **Note**: You can enter RAC and NON-RAC enabled database connectivity URL.	Y	Example, jdbc:oracle:thin:@<HOST>:<PORT>:<SID> or jdbc:oracle:thin:@//[HOST][:PORT]/SERVICE or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(port=[PORT]))(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(PORT=[PORT]))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=[SERVICE]))) For example, jdbc:oracle:thin:@//dbhost.server.com:1521/service1 or jdbc:oracle:thin:@//dbshost.server.com:1521/scan-1 or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost1.server.com)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost2.server.com)(PORT=1521))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=service1)))	Ensure to add an entry (with SID/ SERVICE NAME) in the tnsnames.ora file on the OFSAA server. The entry should match with the SID/ SERVICE NAME used in the JDBC URL.
<JDBC_DRIVER>	By default this driver name is seeded. **Note**: Do not edit this attribute value.	Y	Example: oracle.jdbc.driver.OracleDriver	Only JDBC Thin Driver is supported. DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<HOST>	Enter the Hostname/ IP Address of the system on which you are installing the OFSAA components.	Y	Host Name/ IP Address	
<SETUPINFO>/ NAME	Enter the acronym for the type of implementation. This information is displayed in the OFSAA Home Page. **Note**: On executing the schema creator utility, this value will be prefixed with each schema name. For example: dev_ofsaaconf, uat_ofsaaatm.	Y	Accepts strings with a minimum length of two and maximum of four. Example, DEV, SIT, PROD	This name would appear in the OFSAA Landing Page as "Connected To: xxxx" The schemas being created would get this prefix. For E.g. dev_ofsaaconf, uat_ofsaaconf etc.
<SETUPINFO>/ PREFIX_SCHEMA_NAME	Identifies if the value specified in <SETUPINFO>/ NAME attribute should be prefixed to the schema name.	N	YES or NO	Default value is YES.
<PASSWORD>/ APPLYSAMEFORALL	Enter as Y if you want to apply the password specified in DEFAULT attribute for all the schemas. If you enter as N, you need to provide individual passwords for all schemas. **Note**: In case you have	Y	Default – N Permissible – Y or N	**Note**: Setting this attribute value is mandatory, If DEFAULT attribute is set.

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
	entered Y in APPLYSAMEFORALL attribute and also have specified individual passwords for all the schemas, then the specified individual passwords will take precedence.			
<PASSWORD>/ DEFAULT*	Enter the password if you want to set a default password for all schemas. **Note**: You also need to set APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<SCHEMA>/ TYPE	The different types of schemas that are supported in this release are ATOMIC, CONFIG, SANDBOX, and ADDON. By default, the schemas types are seeded based on the Application Pack. **Note**: Do not edit this attribute value.	Y	ATOMIC/CONFIG/SANDBOX/ADDON **Note**: SANDBOX AND ADDON schemas are not applicable for OFS AAAI Application Pack.	Only One CONFIG schema can exist in the file. This schema identifies as the CONFIGURATION schema that holds the OFSAA setup details and other metadata information. Multiple ATOMIC/ SANDBOX/ ADDON schemas can exist in the file. ATOMIC schema refers to the Information Domain schema. SANDBOX schema refers to the SANDBOX schema. ADDON schema refers to other miscellaneous schema (not applicable for this Application Pack).

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

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<SCHEMA>/ APP_ID	By default, the Application ID is seeded based on the Application Pack. **Note**: Do not edit this attribute value.	Y	Unique Seeded Value Example: For CONFIG schema, OFS_AAI For ATOMIC schema, OFS_FSDF	Identifies the Application/ Product for which the schema is being created. DO NOT modify this value.
<SCHEMA>/ DEFAULTTABLESPACE	Enter the available default tablespace for DB User. **Note**: If this attribute is left blank, then USERS is set as the default tablespace.	N	Default – USERS Permissible – Any existing valid tablespace name. Example: ##OFS_BFND_DATA_TBSP##	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ TEMPTABLESPACE	Enter the available temporary tablespace for the DB User. **Note**: If this attribute is left blank, then TEMP is set as the default tablespace.	N	Default – TEMP Permissible – Any existing valid temporary tablespace name. Example: ##OFS_BFND_DATA_TBSP##	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ QUOTA	Enter the quota to be set on DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace	N	Example, 600M/m 20G/g UNLIMITED/unlimited	Modify this value to grant the specified quota on the mentioned tablespace to the user.

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute.	N (Optional for Atomic and mandatory for sandbox)	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed.	Enter this field in UPPERCASE.
<ADV_SEC_ OPTIONS>	Parent tag to hold Advance Security Options.	N		Uncomment the tag and edit if you want to add security options. For example, TDE and Data Redact. For details, see the example following the table.
<ADV_SEC_ OPTIONS>/ TDE	Tag to enable/disable TDE.	N	Default is FALSE. To enable TDE, set this to TRUE.	Ensure this tag is not commented if you have uncommented <ADV_SEC_OPTIONS>/
<ADV_SEC_ OPTIONS>/ DATA_REDACT	Tag to enable/disable Data Redaction feature.	N	Default is FALSE. To enable DATA_REDACT, set this to TRUE	Ensure this tag is not commented if you have uncommented <ADV_SEC_OPTIONS>/

Tag Name/ Attribute Name	Description	Mandatory / Optional	Default Value/ Permissible Value	Comments
<TABLESPACES>	Parent tag to hold <TABLESPACE> elements	N	NA	Uncomment the tag and edit. ONLY if tablespaces are to be created as part of the installation. For details, see the example following the table. **Note**: When TDE is TRUE in ADV_SEC_OPTIONS, then it is mandatory for the <TABLESPACES> tag to be present in the xml file.
<TABLESPACE>/ NAME	Logical Name of tablespace to be created.	Y		Name if specified should be referred in the <SCHEMA DEFAULTTABLESPACE= "##NAME##"> attribute. **Note** the ## syntax.
<TABLESPACE>/ VALUE	Physical Name of the tablespace to be created	Y	NA	Value if specified will be the actual name of the TABLESPACE.
<TABLESPACE>/ DATAFILE	Specifies the location of the data file on the server	Y	NA	Enter the absolute path of the file to be created.
<TABLESPACE>/ AUTOEXTEND	Specifies if the tablespace should be extensible or have a hard limit	Y	ON or OFF	Set to ON to ensure that the tablespace does not run out of space when full.
<TABLESPACE>/ ENCRYPT	Specifies if the tablespace(s) should be encrypted using TDE.	Y	ON or OFF	Set to ON to ensure that the tablespaces when created are encrypted using TDE.

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

Example: (The following snippet shows that TDE is enabled and hence the tablespace has been shown with encryption **ON**.)

```
<ADV_SEC_OPTIONS>
          <OPTION NAME="TDE" VALUE="FALSE"/>
          <OPTION NAME="DATA_REDACT" VALUE="FALSE" />
```

```
    </ADV_SEC_OPTIONS>
<TABLESPACES>
      <TABLESPACE NAME="OFS_AAI_TBSP_1" VALUE="TS_USERS1"
      DATAFILE="/scratch/ora12c/app/oracle/oradata/OFSPQA12CDB/ts_users1
      .dbf" SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />
      <TABLESPACE NAME="OFS_AAI_TBSP_2" VALUE="TS_USERS2"
      DATAFILE="/scratch/ora12c/app/oracle/oradata/OFSPQA12CDB/ts_users2
      .dbf" SIZE="500M" AUTOEXTEND="ON" ENCRYPT="ON" />
</TABLESPACES>

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

19.3 Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml file for Stage and Results on Hive

Creating Hive schemas, objects within the schemas are the primary steps in the installation process of OFSAA Applications. The `OFS_BFND_SCHEMA_ BIGDATA_IN.xml` file contains details on the various application schemas that must be created/ referred prior to the Application Pack installation.

Note: This file should be configured only in case of OFS AAAI Application Pack installation for *HDFS ONLY* target. This file is not required to be configured for an *RDBMS ONLY* target installation.

The following table provides details about the various tags/ parameters available in the file and the values that have to be updated.

Prior to executing the schema creator utility, it is mandatory to update this file.

In the location `<INSTALLER_DIR>/OFS_BFND_PACK/schema_creator/conf`:

a. Rename OFS_BFND_SCHEMA_BIGDATA_IN.xml.template to OFS_BFND_SCHEMA_BIGDATA_IN.xml
b. Rename OFS_BFND_SCHEMA_IN.xml to OFS_BFND_SCHEMA_IN.xml.template

Table OFS_BFND_SCHEMA_BIGDATA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<?xml version="1.0" encoding="UTF-8" standalone="no" ?> <APPPACKSCHEMA>		Y		
<APP_PACK_ID>	Seeded unique ID for the OFSAA Application Pack	Y	Seeded	DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<JDBC_URL>	Enter the JDBC URL **Note**: You can enter RAC/ NON-RAC enabled database connectivity URL.	Y	Example, jdbc:oracle:thin:@<HOST/ IP>:<PORT>:<SID> or jdbc:oracle:thin:@//[HOST][:PORT]/SERVICE or jdbc:oracle:thin:@(DESCRI PTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(port=[PORT]))(ADDRESS=(PROTOCOL=TCP) (HOST=[HOST])(PORT=[PORT]))(LOAD_ BALANCE=yes)(FAILOVER=yes))(CONNECT_ DATA=(SERVICE_ NAME=[SERVICE]))) For example, jdbc:oracle:thin:@//dbhost.server.com:1521/service1 or jdbc:oracle:thin:@//dbshost.server.com:1521/scan-1 or jdbc:oracle:thin:@(DESCRI PTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost1.server.com)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost2.server.com)(PORT=1521))(LOAD_ BALANCE=yes)(FAILOVER=yes))(CONNECT_ DATA=(SERVICE_ NAME=service1)))	In case of an HDFS ONLY target installation, this URL should be of the RDBMS instance that hosts the Application's METADOM.
<JDBC_DRIVER>	By default this driver name is seeded. **Note**: Do not edit this attribute value.	Y	Example, oracle.jdbc.driver.OracleDriver	Only JDBC Thin Driver is supported. DO NOT modify this value.
<HOST>	Enter the Hostname/ IP Address of the system on which you are installing the OFSAA components.	Y	Host Name/ IP Address	
<IS_HYBRID>/VALUE	Tag to enable/disable HYBRID installation (Stage on Hive and Results on RDBMS)	N	Default value is FALSE	Default value is FALSE for Hive

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SETUPINFO>/ PREFIX_ SCHEMA_ NAME	Identifies if the value specified in <SETUPINFO>/ NAME attribute should be prefixed to the schema name.	N	YES or NO	Default value is YES.
<SETUPINFO>/ NAME	Enter the acronym for the type of implementation. This information will be displayed in the OFSAA Home Page. **Note:** On executing the schema creator utility, this value will be prefixed with each schema name. For example: dev_ ofsaaconf, uat_ofsaaatm.	Y	Accepts strings with a minimum length of two and maximum of four. Example, BFND	This name would appear in the OFSAA Landing Page as "Connected To: xxxx" The schemas being created would get this prefix. For example, dev_ ofsaaconf, uat_ofsaaconf etc.
<PASSWORD>/ DEFAULT*	Enter the password if you want to set a default password for all schemas. **Note:** You also need to set APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	Applies only to the RDBMS type METADOM schema(s).
<PASSWORD>/ APPLYSAMEFORALL	Enter as Y if you want to apply the password specified in DEFAULT attribute for all the schemas. If you enter as N, you need to provide individual passwords for all schemas. **Note:** In case you have entered Y in APPLYSAMEFORALL attribute and also have specified individual passwords for all the schemas, then the specified individual passwords will take precedence.	Y	Default - N Permissible - Y or N	**Note:** Setting this attribute value is mandatory, If DEFAULT attribute is set. Applies only to the RDBMS type METADOM schema(s).
<SCHEMAS>/ TYPE=RDBMS	Identifies the RDBMS schema details.	Y	Default names for schemas within the pack would be derived in absence of any value specified.	In an HDFS ONLY target installation, the Application's METADOM (that hosts the metadata) for an application is stored in RDBMS schema and the data model entities of the application are stored in the DATADOM (which would be on Hive).

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

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ DEFAULTTABLESPACE	Enter the available default tablespace for DB User. **Note:** If this attribute is left blank, then USERS is set as the default tablespace.	N	Default - USERS Permissible - Any existing valid tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ TEMPTABLESPACE	Enter the available temporary tablespace for the DB User. **Note:** If this attribute is left blank, then TEMP is set as the default tablespace.	N	Default - TEMP Permissible - Any existing valid temporary tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ QUOTA	Enter the quota to be set on DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace	N	Example: 600M/m 20G/g UNLIMITED/unlimited	Modify this value to grant the specified quota on the mentioned tablespace to the user.
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute.	N	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed. ##INFODOM_NAME## Example: FSDFINFO	
<SCHEMAS>/ TYPE=HDFS	Type of schemas being created.	Y		Refers to the DATADOM of the Application Pack being installed.
<HIVE_SERVER_HOST>	IP/HostName of the server where HIVE is installed	Y		
<HIVE_LIB_PATH>	Folder path where HIVE related drivers/jar files are copied	Y		Should contain the list of jars mentioned in the section Copying Jars to OFSAA Installation Folder and `krb5.conf`, `keytab` files. Manually copy the preceding listed files from CDH distribution to this identified folder. **NOTE**: The Cloudera administrator will provide these two files krb5.conf and keytab.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ NAME	By default, the schemas names are seeded based on the Application Pack. You can edit the schema names if required. Note: The Schema Name will have a prefix of the SETUPINFO/ NAME attribute.	Y	The permissible length is 20 characters and only alphanumeric characters allowed. Example: HIVEHYBDATADOM	Schema Name should not be the same as Schema Name specified for Schema Type ATOMIC.
<SCHEMA>/ TYPE	Identifies the type of schema where the data model entities would reside.	Y	By default, the TYPE attribute in this tag is set to DATADOM.	DO NOT modify this value.
<SCHEMA>/ APP_ID	By default, the Application ID is seeded based on the Application Pack.	Y	The supported value is OFS_FSDF	
<SCHEMA>/ DB TYPE	Identifies the type of driver to be used for connection.	Y	By default, the only supported type is HIVE in this release.	In the upcoming releases, the type value can be HIVE/ IMPALA etc.
<SCHEMA_PROPERTIES>/<PROPERTY>/COMMENT	COMMENTS for HIVE schema	N		
<SCHEMA_PROPERTIES>/<PROPERTY>/LOCATION	You can optionally specify a location for the table data	N	hdfs://##HIVE_SERVER_HOST_NAME_OR_IP##:NamenodePort/user/hive/warehouse/<<PREFIX>>__<<SCHEMA_NAME>>/ **NOTE**: <<PREFIX>> Prefix is applicable only if the <PREFIX_SCHEMA_NAME> tag is "Y" in <SETUPINFO> tag. For example, when <SETUPINFO NAME="BFND" PREFIX_SCHEMA_NAME="Y"/>. <<SCHEMA_NAME>> is the DATADOM schema name. Example: hdfs://whf00bsy.in.oracle.com:8020/user/hive/warehouse/BFND_ BSYDATADOM/	

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<CONNECTION_PROPERTIES>/<PROPERTY>/JDBC_DRIVER	HIVE JDBC driver details	Y	`com.cloudera.hive.jdbc4.HS2Driver`	The default cloudera HiveServer 2 driver name.
<CONNECTION_PROPERTIES>/<PROPERTY>/JDBC_URL	Enter HIVE JDBC URL	Y	Valid Hive JDBC URL to be specified. jdbc:hive2://##HIVE_SERVER_HOST_NAME_OR_IP##:10000/<<PREFIX>>__<<SCHEMA_NAME>>;AuthMech=1;KrbServiceName=hive;KrbHostFQDN=##HIVE_SERVER_HOST_NAME_OR_IP##;KrbRealm=##REALM## **NOTE**: <<PREFIX>> Prefix is applicable only if the <PREFIX_SCHEMA_NAME> tag is "Y" in <SETUPINFO> tag. For example, when <SETUPINFO NAME="BFND" PREFIX_SCHEMA_NAME="Y"/>. <<SCHEMA_NAME>> is the DATADOM schema name. For example: jdbc:hive2://whf00bsy.in.oracle.com:10000/BFND_BSYDATADOM;AuthMech=1;KrbServiceName=hive;KrbHostFQDN=whf00bsy.in.oracle.com;KrbRealm=WHFBSY.ORACLE.COM	Specify the Hive JDBC URL to connect to the Hive Server.
<CONNECTION_PROPERTIES>/<PROPERTY>/AUTH_TYPE	Authentication Type	Y	Permissible values: KERBEROS_WITH_KEYTAB	Only “Kerberos with keytab” based authentication supported in this release.
<CONNECTION_PROPERTIES>/<PROPERTY>/AUTH_ALIAS	Alias name for authentication credentials	Y		An Alias name mapping to a principal and password combination specified in the following tags.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<CONNECTION_PROPERTIES>/<PROPERTY>/PRINCIPAL	Authentication principal name	Y		Principal name used in authentication to connect to the Hive Server.
<CONNECTION_PROPERTIES>/<PROPERTY>/PASSWORD	Authentication password	Y		Password used in authentication to connect to the Hive Server.
<CONNECTION_PROPERTIES>/<PROPERTY>/KRB_GSSJAAS_FILE_NAME	A keytab file containing pairs of Kerberos principals and an encrypted copy of that principal's key.	Y		This file should be copied to the location specified in <HIVE_LIB_PATH>
<CONNECTION_PROPERTIES>/<PROPERTY>/KRB_REALM_FILE_NAME	REALM configuration file	Y		This file should be copied to the location specified in <HIVE_LIB_PATH>

19.4 Configuring OFS_BFND_SCHEMA_BIGDATA_IN.xml.HYBRID file for Stage on Hive and Results on RDBMS

Prior to executing the schema creator utility, it is mandatory to update this file.

In the location `<INSTALLER_DIR>/OFS_BFND_PACK/schema_creator/conf`:

1. Rename OFS_BFND_SCHEMA_IN.xml to OFS_BFND_SCHEMA_IN.xml.template
2. Rename OFS_BFND_SCHEMA_BIGDATA_IN.xml.HYBRID.template to OFS_BFND_SCHEMA_BIGDATA_IN.xml
3. Rename OFS_BFND_APP_CFG.dat to OFS_BFND_APP_CFG.dat.template
4. Rename OFS_BFND_CFG.dat.HYBRID.template to OFS_BFND_APP_CFG.dat

Table: OFS_BFND_SCHEMA_BIGDATA_IN.xml Parameters

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<?xml version="1.0" encoding="UTF-8" standalone="no"?> <APPPACKSCHEMA>		Y		
<APP_PACK_ ID>	Seeded unique ID for the OFSAA Application Pack	Y	Seeded	DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<JDBC_URL>	Enter the JDBC URL **Note**: You can enter RAC/ NON-RAC enabled database connectivity URL.	Y	Example, jdbc:oracle:thin:@##DB_SERVER_HOST_NAME_OR_IP##:1521:##SID_NAME## or jdbc:oracle:thin:@<HOST/ IP>:<PORT>:<SID> or jdbc:oracle:thin:@//[HOST][:PORT]/SERVICE or jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(port=[PORT]))(ADDRESS=(PROTOCOL=TCP)(HOST=[HOST])(PORT=[PORT]))(LOAD_BALANCE=yes)(FAILOV ER=yes))(CONNECT_DATA=(SERVICE_NAME=[SERVICE]))) For example, jdbc:oracle:thin:@//dbhost.server.com:1521/service 1 or jdbc:oracle:thin:@//dbshost.server.com:1521/scan-1 or jdbc:oracle:thin:@(DESCRI PTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost1.server.com)(port=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost2.server.com)(PORT=1521))(LOAD_BALANCE=yes)(FAILOVER=yes))(CONNECT_DATA=(SERVICE_NAME=service1)))	In case of an HDFS ONLY target installation, this URL should be of the RDBMS instance that hosts the Application's METADOM.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<JDBC_DRIVER>	By default this driver name is seeded. **Note**: Do not edit this attribute value.	Y	Example, oracle.jdbc.driver.OracleD river	Only JDBC Thin Driver is supported. DO NOT modify this value.
<HOST>	Enter the Hostname/ IP Address of the system on which you are installing the OFSAA components.	Y	Host Name/ IP Address Example: ##OFSA_HOST_SERVER_NAME_OR_IP##	
<IS_HYBRID>/VALUE	Tag to enable/disable HYBRID installation (Stage on Hive and Results on RDBMS)	Y	Default value is TRUE	
<SETUPINFO>/ PREFIX_ SCHEMA_ NAME	Identifies if the value specified in <SETUPINFO>/ NAME attribute should be prefixed to the schema name.	N	YES or NO	Default value is YES.
<SETUPINFO>/ NAME	Enter the acronym for the type of implementation. This information will be displayed in the OFSAA Home Page. **Note:** On executing the schema creator utility, this value will be prefixed with each schema name. For example: dev_ ofsaaconf, uat_ofsaaatm.	Y	Accepts strings with a minimum length of two and maximum of four. Example: BFND	This name would appear in the OFSAA Landing Page as "Connected To: xxxx" The schemas being created would get this prefix. For example, dev_ ofsaaconf, uat_ofsaaconf etc.
<PASSWORD>/ DEFAULT*	Enter the password if you want to set a default password for all schemas. **Note:** You also need to set APPLYSAMEFORALL attribute as Y to apply the default password for all the schemas.	N	The maximum length allowed is 30 characters. Special characters are not allowed. Example: ##CONFIG_META_SCHEMA_PASSWORD##	Applies only to the RDBMS type METADOM schema(s).
<PASSWORD>/ APPLYSAMEFORALL	Enter as Y if you want to apply the password specified in DEFAULT attribute for all the schemas. If you enter as N, you need to provide individual passwords for all schemas. **Note:** In case you have entered Y in APPLYSAMEFORALL attribute and also have specified individual passwords for all the schemas, then the specified individual passwords will take	Y	Default - Y Permissible - Y or N	**Note:** Setting this attribute value is mandatory, If DEFAULT attribute is set. Applies only to the RDBMS type METADOM schema(s).

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

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ NAME	By default, the schemas names are seeded based on the Application Pack. You can edit the schema names if required. There are one Config User Name (Example: ##CONFIG_USER_NAME##), one Atomic User Name for RDBMS part (Example: ##ATOMIC_USER_NAME##, which is ##META_USER_NAME##), and one Atomic User Name for Hive part (Example: ##ATOMIC_USER2_NAME_FSDFHV##). **Note:** The Schema Name will have a prefix of the SETUPINFO/ NAME attribute. SCHEMA NAME must be same for all the ATOMIC Schemas of applications within an Application Pack.	Y	The permissible length is 15 characters and only alphanumeric characters allowed. No special characters allowed except underscore '_'.	SETUPINFO/ NAME attribute value would be prefixed to the schema name being created. For example, if name is set as 'ofsaaatm' and setupinfo as 'uat' then schema being created would be 'uat_ofsaaatm'. NAME should be same where APP_GRP=1 for all SCHEMA tags (Not applicable for this Application Pack).
<SCHEMA>/ PASSWORD	Enter the password of the schema to be created. **Note:** If this attribute is left blank, then the password specified in the <PASSWORD>/DEFAULT attribute is applied as the Schema Password.	N	The maximum length allowed is 30 characters. Special characters are not allowed.	**Note**: You need to mandatorily enter the password if you have set the <PASSWORD>/ APPLYSAMEFORALL attribute as N.
<SCHEMA>/ APP_ID	By default, the Application ID is seeded based on the Application Pack. **Note:** Do not edit this attribute value. There are one Config related APP_ID (Value is OFS_AAI), one Atomic APP_ID for RDBMS part (Value is OFS_FSDF), and one Atomic APP_ID for Hive part (Value is OFS_FSDFHV).	Y	Unique Seeded Value. There are one Config related APP_ID (Value is OFS_AAI), one Atomic APP_ID for RDBMS part (Value is OFS_FSDF), and one Atomic APP_ID for Hive part (Value is OFS_FSDFHV).	Identifies the Application/ Product for which the schema is being created. DO NOT modify this value.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA>/ DEFAULTTABLESPACE	Enter the available default tablespace for DB User. **Note:** If this attribute is left blank, then USERS is set as the default tablespace.	N	Default - USERS Permissible - Any existing valid tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ TEMPTABLESPACE	Enter the available temporary tablespace for the DB User. **Note:** If this attribute is left blank, then TEMP is set as the default tablespace.	N	Default - TEMP Permissible - Any existing valid temporary tablespace name.	Modify this value to associate any valid tablespace with the schema.
<SCHEMA>/ QUOTA	Enter the quota to be set on DEFAULTTABLESPACE attribute for the schema/ user. By default, the quota size is set to 500M. Minimum: 500M or Unlimited on default Tablespace	N	Example: 500M/m 10G/g UNLIMITED/unlimited	Modify this value to grant the specified quota on the mentioned tablespace to the user.
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute. There are two information domains for Stage on Hive and Results on RDBMS. One is for RDBMS and another for Hive.	N	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed. There are two information domains for Stage on Hive and Results on RDBMS installation. One is for RDBMS and another for Hive. ##INFODOM_NAME## Example for RDBMS part in Stage on Hive and Results on RDBMS: FSDFINFO Example for Hive part in Stage on Hive and Results on RDBMS (Staging): FSDFHVINFO	
<SCHEMAS>/ TYPE=HDFS	Type of schemas being created.	Y		Refers to the DATADOM of the Application Pack being installed.
<HIVE_SERVER_HOST>	IP/HostName of the server where HIVE is installed	Y		

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<HIVE_LIB_ PATH>	Folder path where HIVE related drivers/jar files are copied	Y		Should contain the list of jars mentioned in the section Copying Jars to OFSAA Installation Folder and `krb5.conf`, `keytab` files. Manually copy the preceding listed files from CDH distribution to this identified folder. **NOTE**: The Cloudera administrator will provide these two files krb5.conf and keytab.
<SCHEMA>/ NAME	By default, the schemas names are seeded based on the Application Pack. You can edit the schema names if required. Note: The Schema Name will have a prefix of the SETUPINFO/ NAME attribute.	Y	The permissible length is 20 characters and only alphanumeric characters allowed.	Schema Name should not be the same as Schema Name specified for Schema Type ATOMIC.
<SCHEMA>/ TYPE	Identifies the type of schema where the data model entities would reside.	Y	By default, the TYPE attribute in this tag is set to DATADOM.	DO NOT modify this value.
<SCHEMA>/AP P_ID	By default, the Application ID is seeded based on the Application Pack. **Note:** Edit this attribute value.	Y	The supported value is OFS_FSDFHV	
<SCHEMA>/ DB_TYPE	Identifies the type of driver to be used for connection.	Y	By default, the only supported type is HIVE in this release.	In the upcoming releases, the type value can be HIVE/ IMPALA etc.
<SCHEMA>/ INFODOM	Enter the name of the Information Domain to associate this schema. The schema creator utility automatically derives an Information Domain Name based on the Application Pack if no value is specified for this attribute.	N	Permissible length is 16 characters and only alphanumeric characters allowed. No special characters allowed. ##INFODOM_NAME## For Hive part in Stage on Hive and Results on RDBMS Example: FSDFHVINFO	
<SCHEMA_PROP ERTIES>/<P ROPERTY>/CO MMENT	COMMENTS for HIVE schema	N		

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
<SCHEMA_PROPERTIES>/<PROPERTY>/LOCATION	You can optionally specify a location for the table data	N	hdfs://##HIVE_SERVER_HOST_NAME_OR_IP##:NamenodePort/user/hive/warehouse/<<PREFIX>>__<<SCHEMA_NAME>>/ **NOTE**: <<PREFIX>> Prefix is applicable only if the <PREFIX_SCHEMA_NAME> tag is "Y" in <SETUPINFO> tag. For example, when <SETUPINFO NAME="BFND" PREFIX_SCHEMA_NAME="Y"/>. <<SCHEMA_NAME>> is the DATADOM schema name. Example: hdfs://whf00bsy.in.oracle.com:8020/user/hive/warehouse/BFND_BSYDATADOM/	
<CONNECTION_PROPERTIES>/<PROPERTY>/JDBC_DRIVER	HIVE JDBC driver details	Y	`com.cloudera.hive.jdbc4.HS2Driver`	The default cloudera HiveServer 2 driver name.
<CONNECTION_PROPERTIES>/<PROPERTY>/JDBC_URL	Enter HIVE JDBC URL	Y	Valid Hive JDBC URL to be specified. jdbc:hive2://##HIVE_SERVER_HOST_NAME_OR_IP##:10000/<<PREFIX>>__<<SCHEMA_NAME>>;AuthMech=1;KrbServiceName=hive;KrbHostFQDN=##HIVE_SERVER_HOST_NAME_OR_IP##;KrbRealm=##REALM## **NOTE**: <<PREFIX>> Prefix is applicable only if the <PREFIX_SCHEMA_NAME> tag is "Y" in <SETUPINFO> tag. For example, when <SETUPINFO NAME="BFND" PREFIX_SCHEMA_NAME="Y"/>.	Specify the Hive JDBC URL to connect to the Hive Server.

Tag Name/ Attribute Name	Description	Mandatory (Y/N)	Default Value/ Permissible Value	Comments
			<<SCHEMA_NAME>> is the DATADOM schema name. For example: jdbc:hive2://whf00bsy.in.oracle.com:10000/BFND_BSYDATADOM;AuthMech=1;KrbServiceName=hive;KrbHostFQDN=whf00bsy.in.oracle.com;KrbRealm=WHFBSY.ORACLE.COM	
<CONNECTION_PROPERTIES>/<PROPERTY>/AUTH_TYPE	Authentication Type	Y	Permissible values: KERBEROS_WITH_ KEYTAB	Only “Kerberos with keytab” based authentication supported in this release.
<CONNECTION_PROPERTIES>/<PROPERTY>/AUTH_ALIAS	Alias name for authentication credentials	Y		An Alias name mapping to a principal and password combination specified in the following tags.
<CONNECTION_PROPERTIES>/<PROPERTY>/PRINCIPAL	Authentication principal name	Y		Principal name used in authentication to connect to the Hive Server.
<CONNECTION_PROPERTIES>/<PROPERTY>/PASSWORD	Authentication password	Y		Password used in authentication to connect to the Hive Server.
<CONNECTION_PROPERTIES>/<PROPERTY>/KRB_GSSJAAS_FILE_NAME	A keytab file containing pairs of Kerberos principals and an encrypted copy of that principal's key.	Y		This file should be copied to the location specified in <HIVE_LIB_PATH>
<CONNECTION_PROPERTIES>/<PROPERTY>/KRB_REALM_FILE_NAME	REALM configuration file	Y		This file should be copied to the location specified in <HIVE_LIB_PATH>

20 Appendix N: Configuring OFSAAI_InstallConfig.xml File

1. Navigate to `OFS_BFND_PACK/OFS_AAI/conf` directory.
2. Open the `OFSAAI_InstallConfig.xml` file in text editor.
3. Configure the `OFSAAI_InstallConfig.xml` file as mentioned in the below table:
4. You need to manually set the InteractionVariable parameter values as mentioned in the table. If a value is not applicable, enter **NA** and ensure that the value is not entered as NULL.

InstallConfig.xml Parameters

InteractionVariable Name	Significance and Expected Value	Mandatory Y/N
InteractionGroup name="WebServerType"		
WEBAPPSERVERTYPE	Identifies the web application server on which the OFSAA Infrastructure web components would be deployed. The below numeric value should be set depending on the type: Apache Tomcat = 1 IBM WebSphere Application Server = 2 Oracle WebLogic Server = 3 For example, <InteractionVariable name="WEBAPPSERVERTYPE">3</InteractionVariable>	Yes
InteractionGroup name="OFSAA Infrastructure Server Details"		
DBSERVER_IP	Identifies the hostname or IP address of the system on which the Database Engine is hosted. Note: For RAC Database, the value should be NA. For example, <InteractionVariable name="DBSERVER_IP">14.15.16.17</InteractionVariable> or <InteractionVariable name="DBSERVER_IP">dbhost.server.com</InteractionVariable>	Yes
InteractionGroup name="Database Details"		
ORACLE_SID/SERVICE_NAME	Identifies the Oracle DB Instance SID or SERVICE_NAME Note: The Oracle_SID value should be exactly the same as it is mentioned in JDBC_URL. For example, <InteractionVariable name="ORACLE_SID/SERVICE_NAME">ofsaser</InteractionVariable>	Yes
ABS_DRIVER_PATH	Identifies the directory where the JDBC driver (ojdbc<version>.jar) exists. This would typically be the $ORACLE_HOME/jdbc/lib For example, <InteractionVariable name="ABS_DRIVER_PATH">">/oradata6/revwb7/oracle </InteractionVariable> **Note**: Refer Appendix P for identifying the correct `ojdbc<version>.jar` version to be copied.	Yes
InteractionGroup name="OLAP Detail"		

InteractionVariable Name	Significance and Expected Value	Mandatory Y/N
OLAP_SERVER_ IMPLEMENTATION	Identifies if the OFSAA Infrastructure OLAP component needs to be configured depending on whether you intend to use the OLAP feature. The below numeric value should be set depending on the choice: YES - 1 NO - 0	No
Note: If value for `OLAP_SERVER_IMPLEMENTATION` is set to 1, it checks for following environment variables are set in `.profile`: `ARBORPATH, HYPERION_HOME and ESSBASEPATH.`		
InteractionGroup name="SFTP Details"		
SFTP_ENABLE	Identifies if the SFTP (Secure File Transfer Protocol) feature is to be enabled. The below numeric value should be set depending on the choice: ▪ For SFTP, set this field to 1 or -1. ▪ For FTP, set this field to 0	Yes
Note: The default value for SFTP_ENABLE is 1, which signifies that SFTP will be used. Oracle recommends using SFTP instead of FTP because SFTP is considered more secure. However, a client may choose to ignore this recommendation and to use FTP by setting SFTP_ENABLE to 0. You can change this selection later by using the OFSAAI administration interface For example, <InteractionVariablename="SFTP_ENABLE">0</InteractionVariable> Set SFTP_ENABLE to -1 to configure ftpshare and weblocal path as local path mounted for OFSAAI server		
FILE_TRANSFER_PORT	Identifies the port used for the file transfer service. The default value specified is **22** (SFTP). Specify default value as **21** (FTP) if **SFTP_ENABLE** is **0**. Alternatively, this value can be any Port configured by System Administrators to support SFTP/FTP For example, <InteractionVariable name="FILE_TRANSFER_ PORT">21</InteractionVariable>	Yes
InteractionGroup name="Locale Detail"		
LOCALE	Identifies the locale information to be used during the installation. This release of the OFSAA Infrastructure supports only US English. For example, <InteractionVariable name="LOCALE">en_US</InteractionVariable>	Yes
InteractionGroup name="OFSAA Infrastructure Communicating ports" **Note**: The below ports are used internally by the various OFSAA Infrastructure services. The default values mentioned below are set in the installation. If you intend to specify a different value, update the parameter value accordingly and ensure this port value is in the range of 1025 to 65535 and the respective port is enabled.		
JAVAPORT	2280	Yes
NATIVEPORT	2281	Yes
AGENTPORT	2282	Yes
ICCPORT	2283	Yes
ICCNATIVEPORT	2284	Yes
OLAPPORT	2285	Yes
MSGPORT	2286	Yes

ROUTERPORT	2287	Yes
AMPORT	2288	Yes
InteractionGroup name="Web Details" **Note**: If value for HTTPS_ENABLE is set to 1, ensure you have a valid certificate available from a trusted CA and the same is configured on your web application server.		
HTTPS_ENABLE	Identifies if the UI should be accessed using HTTP or HTTPS scheme. The default value set is 0. The below numeric value should be set depending on the choice: YES - 1 NO - 0 For example, <InteractionVariable name="HTTPS_ENABLE">0 </InteractionVariable>	Yes
WEB_SERVER_IP	Identifies the HTTP Server IP/ Hostname or Web Application Server IP/ Hostname, to be used for accessing the UI. This IP would typically be the HTTP Server IP. If no separate HTTP Server is available, the value should be Web Application Server IP/Hostname. For example, <InteractionVariable name="WEB_SERVER_ IP">10.11.12.13</InteractionVariable> or <InteractionVariable name="WEB_SERVER_IP"> myweb.server.com</InteractionVariable>	No
WEB_SERVER_PORT	Identifies the Web Server Port. This would typically be 80 for non SSL and 443 for SSL. If no separate HTTP Server exists, the value should be the port configured for Web Application Server. **Note**: The port value will not be accepted as 80 if HTTPS_ENABLE is 1 and as 443, if HTTPS_ENABLE is 0. For example, `<InteractionVariable name="WEB_SERVER_PORT">2289</InteractionVariable>`	Yes

CONTEXT_NAME	Identifies the web application context name, which will be used to build the URL to access the OFSAA applications. The context name can be identified from a URL as below:
	`<scheme>://<host>:<port>/<context-name>/login.jsp`
	Sample URL:
	`https://myweb:443/ofsaadev/login.jsp`
	For example, `<InteractionVariable name="CONTEXT_ NAME">ofsaadev</InteractionVariable>`
		Yes

WEBAPP_CONTEXT_PATH	Identifies the absolute path of the exploded .ear file on the web application server. For Tomcat, specify the Tomcat directory path till /webapps, such as /oradata6/revwb7/tomcat/webapps/. For WebSphere, enter the WebSphere path as <WebSphere profile directory>/installedApps/ <NodeCellName>. For example, /data2/test/WebSphere/AppServer/profiles/ <Profile_ Name>/installedApps/aix-imfNode01Cell. Where aix-imf is Host name. For WebLogic, provide the WebLogic home directory path as /<WebLogic home directory path>/bea/wlserver_10.3	Yes
WEB_LOCAL_PATH	Identifies the absolute path to any directory on the web application server that can hold temporary files being uploaded as part of the applications usage. **Note**: In case of a clustered deployment, ensure this path and directory is same on all the nodes.	Yes
InteractionGroup name="Weblogic Setup Details"		
WEBLOGIC_DOMAIN_HOME	Identifies the WebLogic Domain Home. For example, <InteractionVariable name="WEBLOGIC_DOMAIN_ HOME">/home/weblogic/bea/user_ projects/domains/mydomain </InteractionVariable>	Yes Specify the value only if WEBSERVERTYPE is set as 3
InteractionGroup name="OFSAAI FTP Details"		
OFSAAI_FTPSHARE_PATH	Identifies the absolute path to the directory identified as file system stage area. Note: 1. The directory should exist on the same system on which the OFSAA Infrastructure is being installed (can be on a separate mount). 2. The user mentioned in APP_SFTP_USER_ID parameter below should have RWX permission on the directory. For example, <InteractionVariable name="APP_FTPSHARE_PATH">">/oradata6/revwb7/ftpshare</InteractionVariable>	Yes
OFSAAI_SFTP_USER_ID	Identifies the user who has RWX permissions on the directory identified under parameter APP_FTPSHARE_PATH above.	Yes
OFSAAI_SFTP_PRIVATE_KEY	Identifies the SFTP private key for OFSAAI. For example, <InteractionVariable name="OFSAAI_SFTP_PRIVATE_KEY">/home/ofsaapp/.ssh/id_rsa</InteractionVariable> By default, the value is NA, which indicates password will be prompted for the user <OFSAAI_SFTP_USER_ ID> for authentication. For more information on generating SFTP Private key, see the Setting Up SFTP Private Key section.	No

OFSAAI_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for OFSAAI. For example, InteractionVariable name="OFSAAI_SFTP_PASSPHRASE">enter a pass phrase here</InteractionVariable> By default, the value is NA. If OFSAAI_SFTP_PRIVATE_KEY value is given and this is kept as NA, then it is assumed as empty passphrase.	No
InteractionGroup name="Hive Details" The default value set for the interaction variables under this group is set as NA. These are required only for Hive Configuration.		
HIVE_SERVER_PORT	Identifies the port used for the file transfer service. The default value set is 22 (SFTP). Set this value as 21 for FTP. For example, InteractionVariable name="HIVE_SERVER_PORT">22</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SERVER_FTPDRIVE	Identifies the absolute path to the directory identified as file system stage area of HIVE server. For example, InteractionVariable name="HIVE_SERVER_FTPDRIVE">/scratch/ofsaa/ftpshare</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SERVER_FTP_USERID	Identifies the user who has RWX permissions on the directory identified under the preceding parameter HIVE_SERVER_FTPDRIVE. For example, InteractionVariable name="HIVE_SERVER_FTP_USERID">ofsaa</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SERVER_FTP_PROTOCOL	If the HIVE_SERVER_PORT is 21, then set value as FTP, else set it as SFTP. For example, InteractionVariable name="HIVE_SERVER_FTP_PROTOCOL">SFTP</InteractionVariable>	Yes, only for HIVE Configuration
HIVE_SFTP_PRIVATE_KEY	Identifies the SFTP private key for the HIVE server. For example, <InteractionVariable name="HIVE_SFTP_PRIVATE_KEY">/scratch/testuser/.ssh/id_rsa</InteractionVariable> By default, the value is NA, which indicates password will be prompted for the user <HIVE_SERVER_FTP_USERID> for authentication. For more information on generating SFTP Private key, see the Setting Up SFTP Private Key section.	Yes, only for HIVE Configuration
HIVE_SFTP_PASSPHRASE	Identifies the passphrase for the SFTP private key for HIVE. For example, <InteractionVariable name="HIVE_SFTP_ PASSPHRASE">NA</InteractionVariable> By default, the value is NA. If HIVE_SFTP_PRIVATE_KEY value is given and this is kept as NA, then it is assumed as empty passphrase.	Yes, only for HIVE Configuration

21 Appendix O: Migration for Excel Upload

This appendix provides detailed instructions to migrate for excel upload.

21.1 Prerequisites

The prerequisites for migration are as follows:

- Data model in ATOMIC schemas should be same on the source and target setups.
- OFS AAI (platform) patch level version should be same on the source and target setups.
- PL/SQL Developer to connect and query the database.
- WinSCP to connect and access server file system.

21.2 Migration for Excel Upload

To migrate, follow these steps:

1. Open PL/SQL Developer and logon to the source setup's configuration (CONFIG) schema by entering the appropriate username and password.
2. In a new SQL window query the data of table `EXCEL_MAPPING_MASTER`.
3. Open a new session in PL/SQL developer and logon to the target setup's configuration (CONFIG) schema by entering the appropriate username and password.
4. Insert the records from Step 1 above in to this table.
5. In `V_INFODOM` column of `EXCEL_MAPPING_MASTER` table update the Information Domain name with the target Information Domain name.

NOTE: If all the mappings can work out of the single target Information Domain, update same Information Domain value across all rows. If only few mappings will work out of the target Information Domain, update the Information Domain value for selective records. Excel upload mappings will work only if the target Information Domain has same data model entities as used in the mappings defined on source setup.

6. Update `V_CREATED_BY` column with the name of any user present in the target setup that has appropriate roles to perform Excel Upload tasks.

NOTE: It is mandatory to update values for `V_INFODOM` and `V_CREATED_BY` columns.

7. Open WinSCP and login a new session by entering the host name, port number, user name and password to access the source setup.
8. Navigate to the folder referred as `FTPSHARE`.

9. Copy the excel-entity mapping xml file(s) which are located in this folder according to their folder structure on to your desktop. For example: `/ftpshare /STAGE/ExcelUpload/$SOURCE_INFODOM_NAME/$EXCEL_FILE_NAME.xml`

NOTE: Actual file name of Excel Sheet is mentioned in the `V_EXCEL_NAME` column of `EXCEL_MAPPING_MASTER` table.

10. Copy the excel templates (.xls/ .xlsx) file(s) which are located in this folder according to their folder structure on to your desktop. For example: `/ftpshare/STAGE/ExcelUpload/TEMPLATE/*.xls or *.xlsx`

NOTE: Ignore this step if files are not present at the location.

11. Login a new session in WinSCP by entering the host name, port number, user name and password to access the target setup.
12. Copy the xml file(s) from Step 3 to the below location in the target setup. For example: `/ftpshare/STAGE/ExcelUpload/$TARGET_INFODOM_NAME/$EXCEL_FILE_NAME .xml`

NOTE: `$TARGET_INFODOM_NAME` should be target setup Information Domain in which you have uploaded the appropriate data model and the name should be same as the `V_INFODOM` column value updated in `EXCEL_MAPPING_MASTER` table.

13. Copy the xls/ xlsx file(s) from Step 3 to the below location in target setup. For example: `/ftpshare/STAGE/ExcelUpload/TEMPLATE/*.xls or *.xlsx`

NOTE: Ignore this step if files are not present at the location.

22 Appendix P: JDBC Jar Files

The `ojdbc<version>.jar` file should be copied based on Database and Java version. Refer to the following table for details.

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

23 Appendix Q: Upgrading an Existing OFSAA 8.0.x Java 7 Instance to Java 8

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

- Prerequisites
- Steps for upgrading OFSAA 8.0.x Java 7 instance to Java 8
- Web Application Server Configurations
- OFSAA Generic Configurations
- OFSAA Configurations for New Web Application Server Installation

23.1 Prerequisites

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

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

NOTE: IBM WebSphere 8.5.x (Full Profile) on Java 8 is not available.

23.2 Steps for Upgrading OFSAA 8.0.x Java 7 Instance to Java 8

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

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

23.3 Configuring Web Application Server

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

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

This section consists of the following topics:

- Oracle WebLogic Server Updates
- Apache Tomcat Server Updates

23.3.1 Oracle WebLogic Server Updates

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

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

   ```
   JAVA_HOME=/usr/java/jdk1.8.0_45
   WLS_JAVA_HOME=/usr/java/jdk1.8.0_45
   JAVAHOME=/usr/java/jdk1.8.0_45
   java.vm.version=1.8.0_45
   ```

3. Navigate to `<WLS_HOME>/Middleware/Oracle_Home/user_projects/domains/<domain>/bin`. Update `SUN_JAVA_HOME`, `DEFAULT_JAVA_HOME`, `JAVA_HOME` in the `setDomainEnv.sh` file to point to the new Java path. For example,

   ```
   SUN_JAVA_HOME="/usr/java/jdk1.8.0_45"
   DEFAULT_SUN_JAVA_HOME="/usr/java/jdk1.8.0_45"
   JAVA_HOME="/usr/java/jdk1.8.0_45"
   ```

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

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

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

1. Install Oracle WebLogic Server 12.1.3.x on Java 8.
2. Perform the configurations for the newly installed WebLogic server. For more information refer Configuring Resource Reference in Weblogic Application Server.

NOTE: While creating WebLogic Domain, the Listen Port should be set same as that of the existing Domain.
Note down the new Domain path to perform OFSAA Configurations.

22.3.1 Apache Tomcat Server Updates

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

1. Login to the Apache Tomcat Server as a non-root user.
2. Edit the user `.profile`. Update the value for `JAVA_HOME` from JRE 1.7 to JRE 1.8. For Example:

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

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

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

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

1. Install Apache Tomcat Server 8 with Java 8.
2. Perform the configurations for the newly installed Tomcat server. For more information refer Configuring Resource Reference in Tomcat Application Server.

NOTE: Update the Connector Port in `/apache-tomcat-8.0.21/conf/server.xml` file to that of the existing Tomcat instance.
Note down the new deployment path to perform OFSAA Configurations.

23.4 OFSAA Generic Configurations

This section consists of the following topics:

- User .profile Settings
- Configurations for Java 8

23.4.1 User .profile Settings

Perform the following configurations:

1. Login to the OFSAA Server as a non-root user.
2. Edit the user `.profile`. Update the value for PATH variable from JRE 1.7 to JRE 1.8. For Example,

   ```
   PATH=/usr/java/jdk1.8.0_45/jre
   JAVA_BIN=/usr/java/jdk1.8.0_45/jre/bin
   LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/java/jdk1.8.0_45/jre/lib/amd64/server
   ```

23.4.2 Configurations for Java 8

Perform the configurations explained in the section Configurations for Java 8.

23.5 OFSAA Configurations for New Web Application Server Installation

This configuration is required only if you have freshly installed Oracle WebLogic 12.1.3 or Apache Tomcat Server 8.0. Follow these steps:

1. Modify the following parameters in the Configuration table present in the Config Schema with the new Domain Path in case of WebLogic or with the new deployment path in case of Tomcat:
   - `DeFiHome`
   - `REV_IMG_PATH`
   - `EMBEDDED_JSP_JS_PATH`
2. Login to the OFSAA Server as a non-root user.
3. Navigate to `$FIC_HOME/ficweb/webroot/WEB_INF` and update the following parameters in the `web.xml` file with the new Domain path in case of WebLogic or with the new deployment path in case of Tomcat:
   - `FIC_PHYSICAL_HOME_LOC`
   - `FIC_HOME`
   - `ICC_SERVLET_LOG_FILE`
4. Navigate to `$FIC_HOME/ficweb/webroot/conf` and update the Domain path in case of WebLogic or with the new deployment path in case of Tomcat:
   - `OFSAALogger.xml`
   - `MDBLogger.xml`
   - `RevLog4jConfig.xml`
   - `RFDLogger.xml`
   - `ExportLog4jConfig.xml`
   - `RFDLogger.xml`
   - `PR2Logger.xml`

24 Appendix R: Removing OFSAA

This chapter includes the following sections:

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

24.1 Uninstalling OFSAA Infrastructure

This section will guide you through the necessary steps to uninstall the OFSAA Infrastructure product.

Before you start the uninstallation process, ensure that no open connections exist to the OFSAA Infrastructure Config and Atomic Schemas and Infrastructure services are brought down.

To uninstall OFSAA Infrastructure:

1. Log in to the system as non-root user.
2. Navigate to the `$FIC_HOME` directory and execute the command:

   ```
   ./Uninstall.sh
   ```

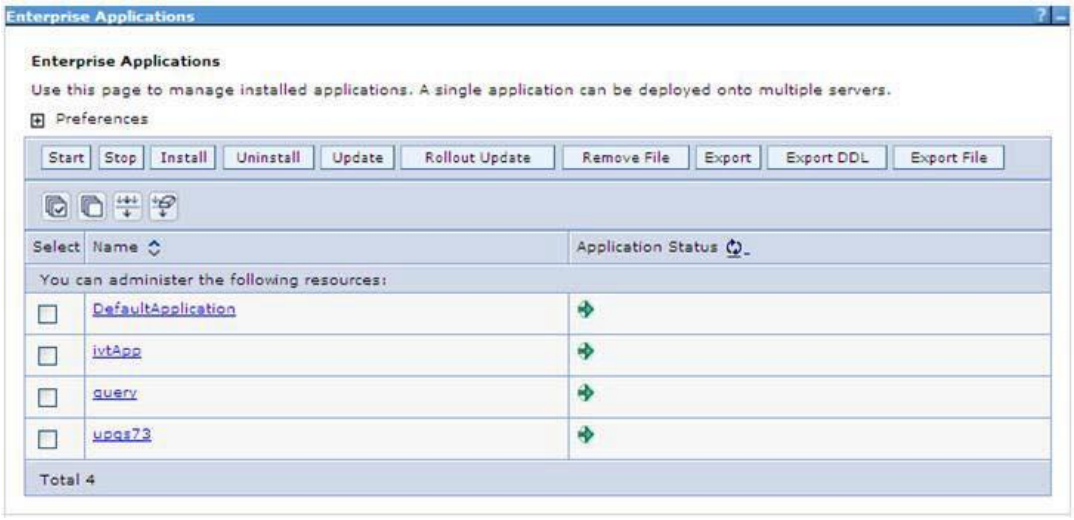
3. Enter the password for OFSAAI Configuration Schema when prompted as shown in the following figure.

NOTE: Uninstallation does not remove the Infrastructure application from the Web Application Server. This has to be done manually.
The entries in the `.profile` file must be removed manually.
The files/ folders under the file system staging area (ftpshare) must be deleted manually.
All the Database objects from Atomic Schemas have to be dropped manually.

24.2 Uninstalling EAR Files in WebSphere

Following are the steps to uninstall any previously deployed application:

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



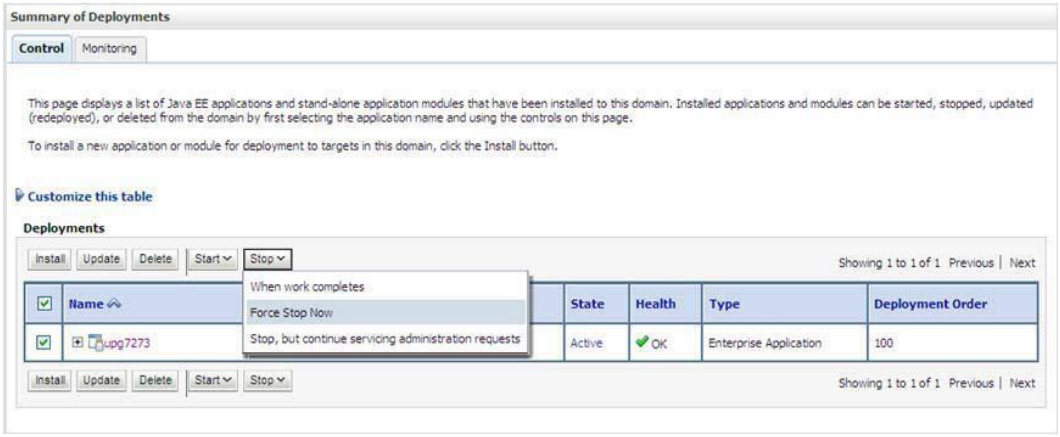
4. Select the checkbox adjacent to the application to be uninstalled and click **Stop**.
5. Click **Uninstall**. The Uninstall Application window is displayed.

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

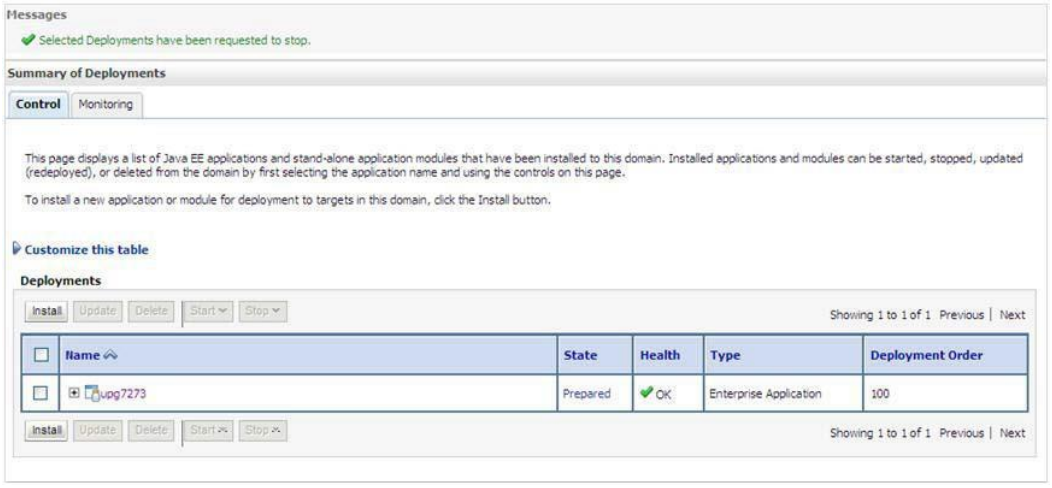
24.3 Uninstalling EAR Files in WebLogic

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

1. Open the URL in the browser window: `http://<ipaddress>:<admin server port>/console` (https, if SSL is enabled). The Login window of the WebLogic Server Administration Console is displayed.
2. Login with the WebLogic user credentials having administrator privileges.
3. From the **Domain Structure** LHS menu, click **Deployments**. The Summary of Deployments screen is displayed



4. Select the checkbox adjacent to the application to be uninstalled and click Stop> **Force Stop Now**.
5. Click **Yes** in the confirmation dialog to stop the selected deployment.



6. Select the checkbox adjacent to the application and click **Delete** to delete the selected deployment.
7. Click **Yes** in the confirmation dialog to remove the selected deployment from the domain configuration.

24.4 Uninstalling WAR Files in Tomcat

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

1. Comment out Context path section from server.xml file in $CATALINA_HOME/conf directory to avoid conflict during undeploy and re-deploy of the WAR file.

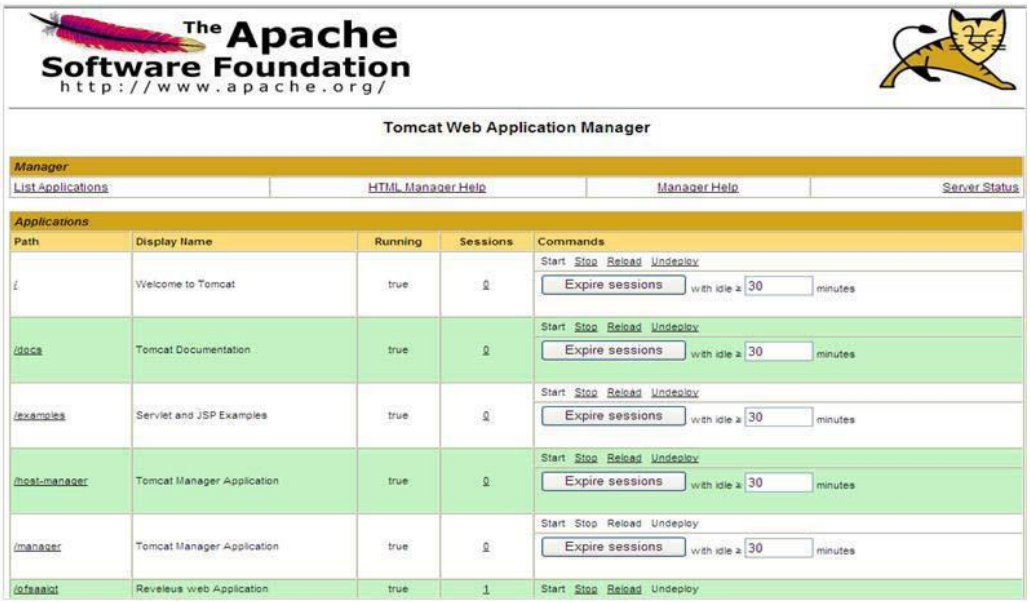
   ```
   Place comment <!-- --> in between the context path section. For example:

   <!--

   <Context path ="/pr2test" docBase="/home/perfuser/tomcat-7.0.19/webapps/pr2test" debug="0" reloadable="true" crossContext="true">

   <Resource auth="Container"

   name="jdbc/PR2ATM"

   type="javax.sql.DataSource"

   driverClassName="oracle.jdbc.driver.OracleDriver"

   username="pr2atm"

   password="pr2atm"

   url="jdbc:oracle:thin:@10.184.74.99:1521:PERFTEST"

   maxActive="100"

   maxIdle="30"

   maxWait="10000"/>

   </Context>

   -->
   ```

   Restart the Tomcat service by doing the following:

   a. Login to the "Unix server" through a terminal emulator.
   b. Navigate to $catalina_home/bin directory.
   c. Stop the tomcat services using the command `./shutdown.sh`

d. Start the tomcat services using the command `./startup.sh`

2. Open the URL in a browser window: `http://<IP address>:<Tomcat server port>`. (https, if SSL is enabled). The Tomcat home window is displayed.
3. Click the **Manager App**. The Connect to window is displayed.
4. Login with the user credentials having admin rights. The Tomcat Web Application Manager window is displayed with the list of all applications deployed in Tomcat.



Tomcat Web Application Manager

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

25 Appendix S: Configuring Transparent Data Encryption and Data Redaction in OFSAA

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

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

25.1 Transparent Data Encryption (TDE)

Transparent Data Encryption (TDE) enables you to encrypt sensitive data, such as Personally Identifiable Information (PII), that you store in tables and tablespaces. After the data is encrypted, this data is transparently decrypted for authorized users or applications when they access this data. To prevent unauthorized decryption, TDE stores the encryption keys in a security module external to the database, called a Keystore. For more details on TDE, see the Database Advanced Security Guide. TDE tablespace encryption enables you to encrypt all of the data stored in a tablespace. To control the encryption, you use a Keystore and TDE master encryption key. Oracle Database supports both software keystores and hardware, or HSM-based, keystores. A software keystore is a container for the TDE master encryption key, and it resides in the software file system.

25.1.1 Configuring TDE during OFSDF Installation Using Full Installer

This section provides information on how to enable TDE (Transparent Data Encryption) in the database. This section consists of the following sub sections.

- Configuring Software Keystore and Encrypted Tablespace Creation
- Running the Schema Creator Utility
- Testing the Encryption

25.1.1.1 Configuring a Software Keystore and Encrypted Tablespace Creation

A software keystore is a container for the TDE master encryption key, and it resides in the software file system. You must define a location for the key in the `sqlnet.ora` file so that the database locates the keystore (one per database) by checking the keystore location in the `sqlnet.ora` file. After defining the location, create the keystore and open it. Set the TDE master key after opening it and then encrypt the data.

To find whether a wallet is already existing, check the following entries:

1. The location specified by the ENCRYPTION_WALLET_LOCATION parameter in the `sqlnet.ora` file.
2. The location specified by the WALLET_LOCATION parameter in the `sqlnet.ora` file.

Encrypted tablespaces can share the default database wallet. However, Oracle recommends that you use a separate wallet for transparent data encryption functionality by specifying the ENCRYPTION_WALLET_LOCATION parameter in the `sqlnet.ora` file.

NOTE: You should have proper privileges to perform the following actions.

For details to configure the software keystore, perform the following steps:

Step 1: Set the Software keystore location in the sqlnet.ora file

The first step is to designate a location for software keystore in the `sqlnet.ora` file. The Oracle Database will check the `sqlnet.ora` file for the directory location of the keystore to determine whether it is a software keystore or a hardware module security (HSM) keystore.

NOTE: Ensure that the directory location which you want to set for software keystore exists beforehand. Preferably, this directory should be empty.

In a multitenant environment, the keystore location is set for the entire multitenant container database (CDB), not for individual pluggable databases (PDBs).

By default, the `sqlnet.ora` file is located in the `ORACLE_HOME/network/admin` directory or in the location set by the TNS_ADMIN environment variable. Ensure that you have properly set the TNS_ADMIN environment variable to point to the correct `sqlnet.ora` file.

To create a software keystore on a regular file system, use the following format when you edit the `sqlnet.ora` file:

```
ENCRYPTION_WALLET_LOCATION=
  (SOURCE=
    (METHOD=FILE)
    (METHOD_DATA=
    (DIRECTORY=<<path to keystore>>)))
```

Examples:

For regular file system in which the database name is `orclb`:

```
ENCRYPTION_WALLET_LOCATION=
  (SOURCE=
   (METHOD=FILE)
    (METHOD_DATA=
     (DIRECTORY=/etc/ORACLE/WALLETS/orcl)))
```

When multiple databases share the sqlnet.ora file:

```
ENCRYPTION_WALLET_LOCATION=
  (SOURCE=
   (METHOD=FILE)
```

```
(METHOD_DATA=
 (DIRECTORY=/etc/ORACLE/WALLETS/orcl)))
```

When Oracle Automatic Storage Management (ASM) is configured:

```
ENCRYPTION_WALLET_LOCATION=
 (SOURCE=
  (METHOD=FILE)
   (METHOD_DATA=
    (DIRECTORY=+disk1/mydb/wallet)))
```

For ASM Diskgroup:

```
ENCRYPTION_WALLET_LOCATION=
 (SOURCE=
  (METHOD=FILE)
   (METHOD_DATA=
    (DIRECTORY=+ASM_file_path_of_the_diskgroup)))
```

Step 2: Create the Software Keystore

There are three different types of Software Keystores:

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

Perform the following steps to create a software keystore:

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

   ```
   CONN sys/password@serviceid AS SYSDBA

   ADMINISTER KEY MANAGEMENT CREATE KEYSTORE 'keystore_location'
   IDENTIFIED BY software_keystore_password;
   ```

   - `keystore_location` is the path of the keystore directory you want to create
   - `software_keystore_password` is the password of the keystore that you want to create.

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

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

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

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

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

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

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

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

Step 3: Open the Software Keystore

Depending on the type of keystore you create, you must manually open the keystore before you can use it.

You do not need to manually open auto-login or local auto-login software keystores. These keystore are automatically opened when it is required, that is, when an encryption operation must access the key. If necessary, you can explicitly close any of these types of keystores. You can check the status of whether a keystore is open, closed, open but with no master key, or open but with an unknown master key by querying the STATUS column of the V$ENCRYPTION_WALLET view.

NOTE: After you open a keystore, it remains open until you manually close it. Each time you restart a database instance, you must manually open the password keystore to re-enable encryption and decryption operations.

Perform the following steps to open the software wallet:

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

   ```
   CONN sys/password@serviceid AS SYSDBA
   ```

   ```
   ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY
   software_keystore_password [CONTAINER = ALL | CURRENT];
   ```

   - `software_keystore_password` is the same password that you used to create the keystore in "Step 2: Create the Software Keystore".
   - `CONTAINER` is for use in a multitenant environment. Enter ALL to set the keystore in all of the PDBs in this CDB, or CURRENT for the current PDB.

   NOTE: In a CDB, open the Keystore in the ROOT (CDB$ROOT) container and in all the associated PDBs, where TDE is enabled.

You do not need to manually open auto-login or local auto-login software Keystores.

Step 4: Set the Software TDE Master Encryption Key

Once the keystore is open, you can set a TDE master encryption key for it. The TDE master encryption key is stored in the keystore. This key protects the TDE table keys and tablespace encryption keys. By default, the TDE master encryption key is a key that Transparent Data Encryption (TDE) generates.

In a multitenant environment, you can create and manage the TDE master encryption key from either the root or the PDB.

Ensure that the database OPEN_MODE is set as READ WRITE. To find the status for a non-multitenant environment, query the OPEN_MODE column of the V$DATABASE dynamic view. If you are using a multitenant environment, then query the V$PDBS view. (If you cannot access these views, then connect as SYSDBA and try the query again. In order to connect as SYSKM for this type of query, you must create a password file for it. See Oracle Database Administrator's Guide for more information.)

Perform the following steps to set the encryption key:

1. Login as sysdba or user with ADMINISTER KEY MANAGEMENT or SYSKM privilege.
2. Use the following command to set the encryption key:

```
CONN sys/password@serviceid AS SYSDBA

ADMINISTER KEY MANAGEMENT SET KEY [USING TAG 'tag'] IDENTIFIED BY
password [WITH BACKUP [USING 'backup_identifier']] [CONTAINER =
ALL | CURRENT];
```

   - `tag` is the associated attributes and information that you define. Enclose this setting in single quotation marks (' ').
   - `password` is the mandatory keystore password that you created when you created the keystore in "Step 2: Create the Software Keystore".
   - `WITH BACKUP` creates a backup of the keystore. You must use this option for password-based keystores. Optionally, you can use the USING clause to add a brief description of the backup. Enclose this description in single quotation marks (' '). This identifier is appended to the named keystore file (for example, ewallet_time_stamp_emp_key_backup.p12, with emp_key_backup being the backup identifier). Follow the file naming conventions that your operating system uses.
   - `CONTAINER` is for use in a multitenant environment. Enter ALL to set the key in all of the PDBs in this CDB, or CURRENT for the current PDB.

   For example,

```
ADMINISTER KEY MANAGEMENT SET KEY IDENTIFIED BY password WITH
BACKUP USING 'emp_key_backup';
```

Step 5: Encrypting your Data

After completing the keystore configuration, encrypt the data. You can encrypt individual columns in a table or entire tablespaces. OFSAA recommends encrypting entire tablespaces and the description in this section covers encrypting entire tablespaces.

Note the following restrictions on using Transparent Data Encryption when you encrypt a tablespace:

- Transparent Data Encryption (TDE) tablespace encryption encrypts or decrypts data during read and write operations, as compared to TDE column encryption, which encrypts and decrypts data at the SQL layer. This means that most restrictions that apply to TDE column encryption, such as data type restrictions and index type restrictions, do not apply to TDE tablespace encryption.
- To perform import and export operations, use Oracle Data Pump.

Encrypting data involves the following steps:

Step 1: Setting the COMPATIBLE initialization parameter for tablespace encryption

Step 2: Setting the tablespace TDE master encryption key

Step 3: Creating the Encrypted Tablespace

Step 1: Setting the COMPATIBLE initialization parameter for tablespace encryption

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

Perform the following steps to set the `COMPATIBLE` initialization parameter:

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

   For example:

```
SHOW PARAMETER COMPATIBLE


NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------
--
compatible                           string      12.0.0.0
noncdbcompatible                     BOOLEAN     FALSE
```

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

4.2.3 Locate the initialization parameter file for the database instance.

- **UNIX systems:** This file is in the `ORACLE_HOME/dbs` directory and is named `initORACLE_SID.ora` (for example, `initmydb.ora`).

4.2.4 In SQL*Plus, connect as a user who has the **SYSDBA** administrative privilege, and then shut down the database.

For example:

```
CONNECT /AS SYSDBA

SHUTDOWN
```

4.2.5 Edit the initialization parameter file to use the correct `COMPATIBLE` setting.

For example:

```
COMPATIBLE = 12.2.0.0
```

4.2.6 In SQL*Plus, ensure that you are connected as a user who has the **SYSDBA** administrative privilege, and then start the database.

For example:

```
CONNECT /AS SYSDBA

STARTUP
```

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

```
STARTUP MOUNT;

ADMINISTER KEY MANAGEMENT SET KEYSTORE OPEN IDENTIFIED BY password;

ALTER DATABASE OPEN;
```

Step 2: Setting the tablespace TDE master encryption key

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

Step 3: Creating the Encrypted Tablespace

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

Follow the instruction given in *Running the Schema Creator Utility with Encryption* section for configuring the schema creator file to create tablespaces.

If you are enabling TDE in case of upgrade or you did not enable it during installation and want to enable at a later point of time, see the following reference link for details on manually creating encrypted tablespaces:

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

25.1.1.2 Running the Schema Creator Utility with Encryption

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

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

```
<APPPACKSCHEMA>
     <APP_PACK_ID>OFS_AAAI_PACK</APP_PACK_ID>
     <JDBC_URL>jdbc:oracle:thin:@<DB_Server_IP>:1521:<DB_NAME></JDBC_URL
>
     <JDBC_DRIVER>oracle.jdbc.driver.OracleDriver</JDBC_DRIVER>
     <HOST><OFSAA_Server_IP/HOST Name></HOST>
     <SETUPINFO NAME="<PREFIX_NAME>" PREFIX_SCHEMA_NAME="Y"/>
     <PASSWORD APPLYSAMEFORALL="Y" DEFAULT="<PASSWORD>"/>
     <TABLESPACES>
     <TABLESPACE NAME="OFS_AAI_TBSP" VALUE="TS_USERS1"
DATAFILE="<ABSOLUTE PATH to TABLESPACE>/<TABLESPACE_DATA_FILE_NAME>.dbf"
SIZE="500M" AUTOEXTEND="OFF" ENCRYPT="ON" />
     </TABLESPACES>
     <SCHEMAS>
           <SCHEMA TYPE="CONFIG" NAME="ofsaaconf" PASSWORD=""
APP_ID="OFS_AAI" DEFAULTTABLESPACE="TS_USERS1" TEMPTABLESPACE="TEMP"
QUOTA="unlimited"/>
           <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD=""
APP_ID="OFS_AAAI" DEFAULTTABLESPACE="TS_USERS1" TEMPTABLESPACE="TEMP"
QUOTA="unlimited" INFODOM="OFSAAAIINFO"/>
           <SCHEMA TYPE="ATOMIC" NAME="ofsaaatm" PASSWORD=""
APP_ID="OFS_IPE" DEFAULTTABLESPACE="TS_USERS1" TEMPTABLESPACE="TEMP"
QUOTA="unlimited" INFODOM="OFSAAAIINFO"/>
     </SCHEMAS>
  </APPPACKSCHEMA>
```

25.1.1.3 Testing the Encryption

Test the encryption by checking if a tablespace is encrypted or not. Execute the following query to check:

```
SELECT tablespace_name, encrypted FROM dba_tablespaces;
```

The following result is displayed, which indicates whether the TABLESPACE is encrypted or not in the ENCRYPTED column:

```
TABLESPACE_NAME                ENCRYPTED
------------------------------ ---
SYSTEM                              NO
SYSAUX                             NO
UNDOTBS1                         NO
TEMP                                  NO
USERS                                      NO
ENCRYPTED_TS                       YES

6 rows selected.
```

The above example indicates TABLESPACE `ENCRYPTED_TS is created with Encryption ON`.

25.1.2 Configuring TDE in case of Upgrade

This section details about the configurations required in case you want to enable TDE in OFSAA applications after upgrade to OFSAA 8.0.6.0.0 version from a previous version. Additionally, these configurations are required in case you did not enable TDE during 8.0.6.0.0 installation and want to enable at a later point of time.

1. Create a new PDB (12c)/ instance (11g) on same or different Database Server for TDE. For more information, see Configuring Software Keystore and Encrypted Tablespace Creation
2. Shutdown the OFSAAI Services.
3. Export all Configuration, Atomic and Sandbox Schemas as per the applications installed in your OFSAA instance.

   For example:

   ```
   expdp SYSTEM/oracle@OFSA12C2DB  DIRECTORY=data_pump_dir
   DUMPFILE=ofsaaconf_ofsaaatm_%U.dmp filesize=2G
   SCHEMAS=ofsaaconf,ofsaaatm LOGFILE=ofsaaconf_ofsaaatm_exp.log
   ```

NOTE: The above command will create data dumps as files of 2GB size each (multiples). Any other commands/ tools as appropriate may be used to archive the schemas.

4. Import all schemas that are exported using the above command, into the new DB instance.

   For example:

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

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

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

5. Provide select grants on `sys.V_$parameter` to view Configuration and Atomic Schemas of Target Environment database

   For example:

   Login as sys user:

   ```
   SQL> GRANT SELECT ON SYS.V_$PARAMETER TO ofsaaconf;

   Grant succeeded
   ```

```
SQL> GRANT SELECT ON SYS.V_$PARAMETER TO ofsaaatm;

Grant succeeded
```

6. Update `.profile` for `ORACLE_SID` environment variable with new ORACLE_SID.
7. Update JDBC URL by executing Port Changer utility. For details on how to execute Port Changer utility, see How to run Port Changer Utility section.
8. Navigate to the `$FIC_WEB_HOME` directory and execute the following command to trigger the creation of EAR/WAR file:

   ./ant.sh
9. The EAR/WAR file - <contextname>.ear/.war - is created in `$FIC_WEB_HOME` directory.
10. On completion of EAR/WAR file creation, the message "BUILD SUCCESSFUL" will be displayed.
11. Edit the existing Connection Pool settings to point to new JDBC URL and verify connections.
12. Clear the webserver cache and redeploy the application onto your configured web application server.
13. Restart the OFSAA Services. For more information, refer to the *Start/Stop Infrastructure Services* section in the Oracle Financial Services Advanced Analytical Applications Infrastructure Application Pack Installation and Configuration Guide 8.0.2.0.0.

25.2 Data Redaction

OFSAA is enhanced to enable masking of sensitive data and Personal Identification Information (PII) to adhere to Regulations and Privacy Policies. Oracle Data Redaction provides selective, on-the-fly redaction of sensitive data in database query results prior to display by applications so that unauthorized users cannot view the sensitive data. The stored data remains unaltered, while displayed data is transformed to a pattern that does not contain any identifiable information.

25.2.1 Enabling Data Redaction in case of Upgrade

This section details about the configurations required in case you want to enable Data Redaction in OFSAA applications after upgrade to OFSAA 8.0.6.0.0 version from a previous version. Additionally, these configurations are required in case you did not enable TDE during OFSDF 8.0.6.0.0 installation and want to enable at a later point of time.

Perform the following steps:

1. Login as SYSDBA into the database.
2. Execute the file `$FIC_HOME/utility/data_security/scripts/create_data_sec_roles.sql` only once per database (PDB in case of 12c).

3. Execute the following sql statement to find out the list of atomic users from the table:

   ```
   select v_schema_name from aai_db_detail where V_DB_NAME <>
   'CONFIG' AND V_DB_TYPE = 'ORACLE'
   ```

4. Execute the file `$FIC_HOME/utility/data_security/scripts/grant_data_sec_roles.sql` for all atomic users found in the previous step.

5. From the *Configuration* window in the *System Configuration* module, select the **Allow Data Redaction** checkbox.

6. Run the Data Redaction utility. For more details on how to run the utility, see *Data Redaction* section under *Data Security and Data Privacy* chapter in OFS Analytical Applications Infrastructure Administration Guide 8.0.6.0.0.

26 Appendix T: Configuring Work Manager in Web Application Servers

Process Modelling framework requires creation of Work Manager and mapping it to OFSAA instance. This configuration is required for WebSphere and WebLogic Web Application Server types.

This section covers the following topics:

- Configuring Work Manager in WebSphere Application Server
- Configuring Work Manager in WebLogic Application Server

26.1 Configuring Work Manager in WebSphere Application Server

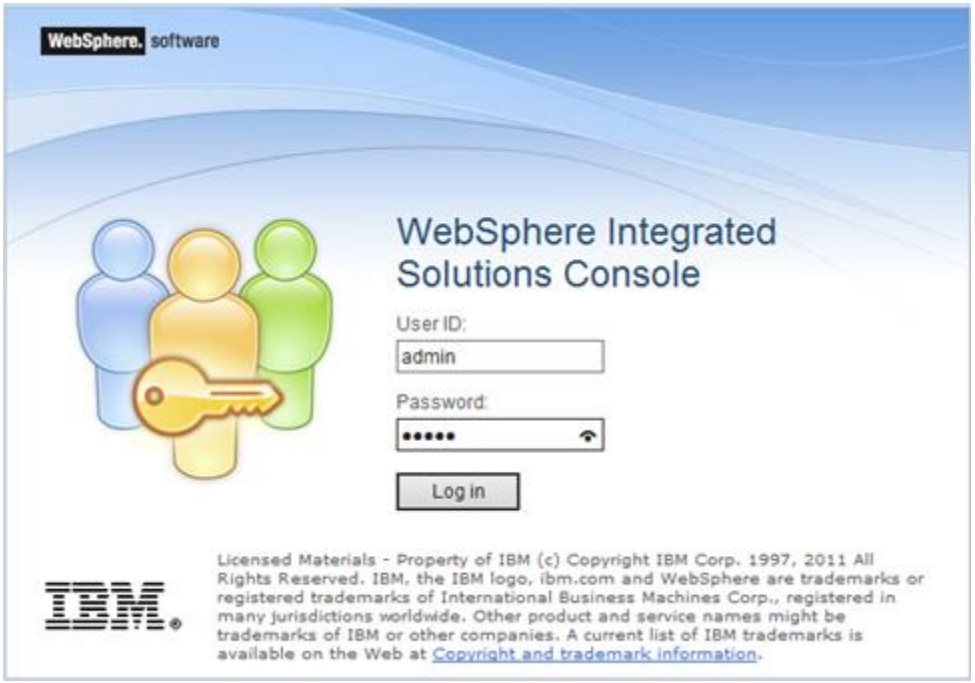
This section is applicable only when the Web Application Server type is WebSphere.

This section covers the following topics:

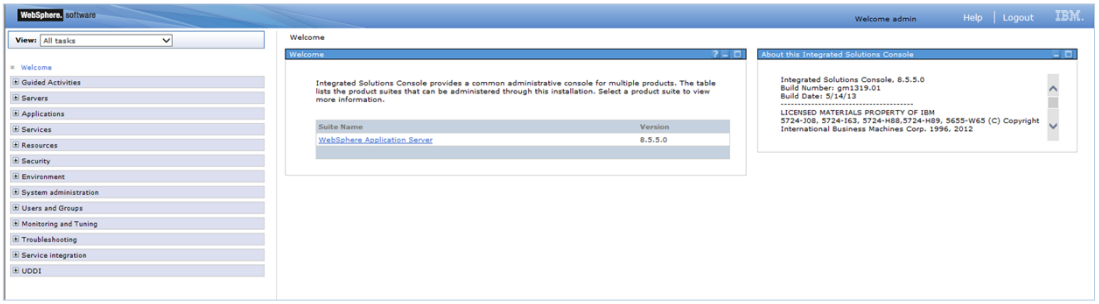
- Creating Work Manager
- Mapping Work Manager to OFSAA WebSphere Instance

26.1.1 Creating Work Manager

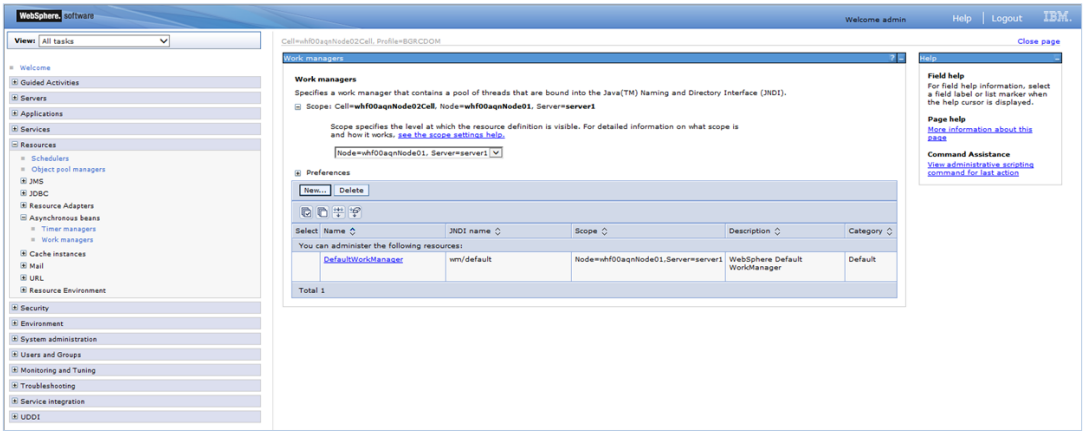
1. Open the WebSphere admin console in the browser window: http://<ipaddress>:<administrative console port>/ibm/console. (https if SSL is enabled). The *Login* window is displayed.



2. Login with the user id that has admin rights.



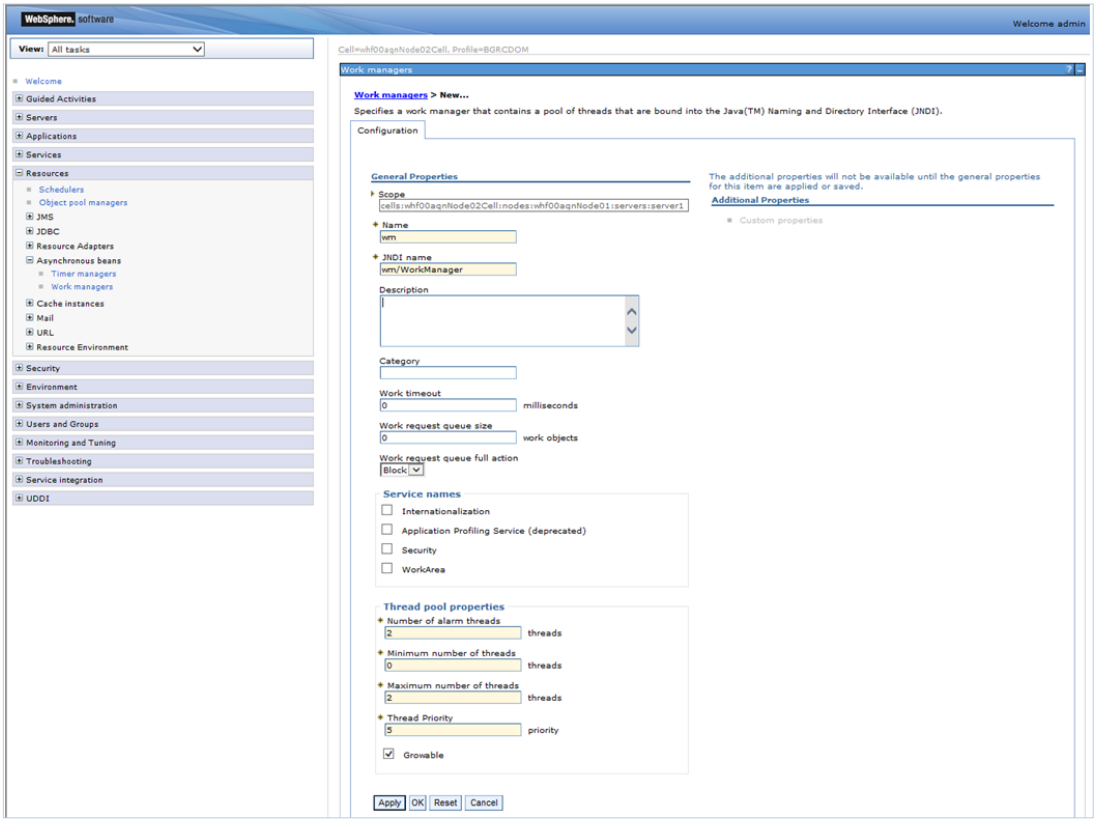
3. From the LHS menu, expand **Resources** > **Asynchronous beans** and select **Work Managers**.



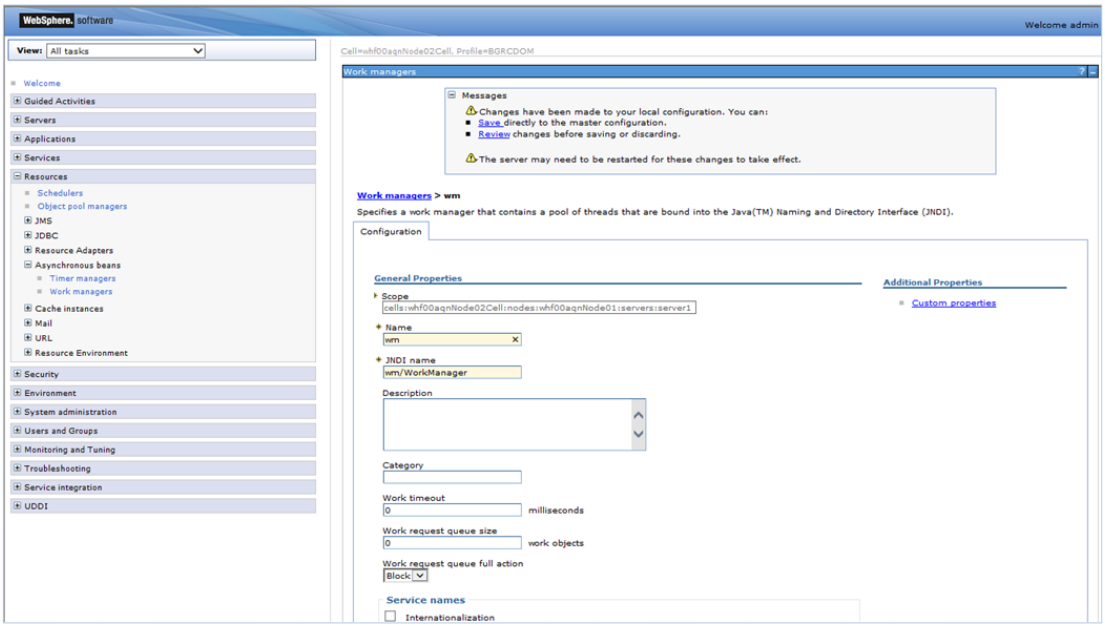
4. Select the required **Scope** from the drop-down list.

   For example, Node=whf00aqnNode01, Server=server1.

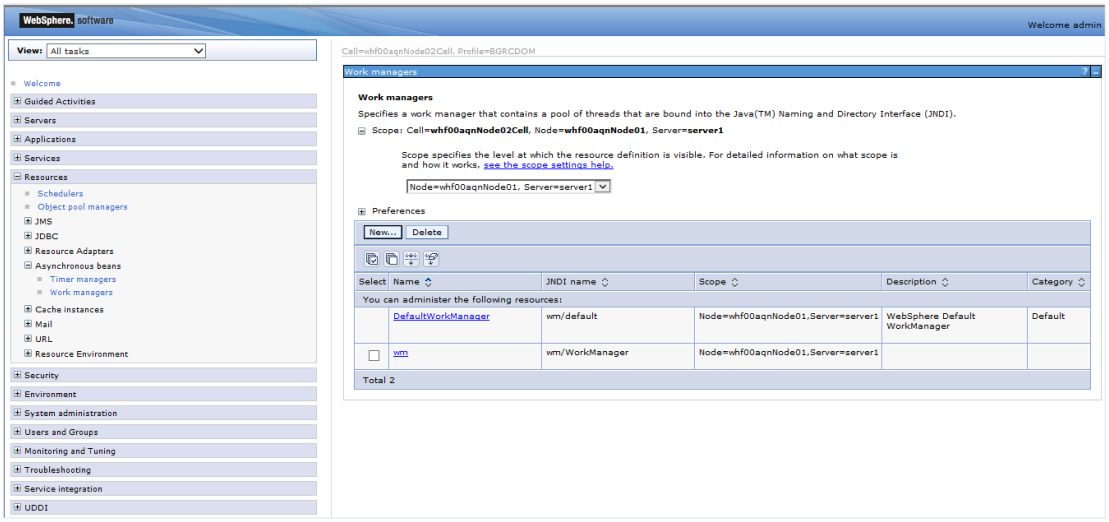
5. Click **New** in the *Preferences* section.



6. Enter the **Name** as ‘wm’ and **JNDI name** as ‘wm/WorkManager ‘ in the respective fields.
7. Enter the **Thread pool properties**.
8. Click **Apply**.



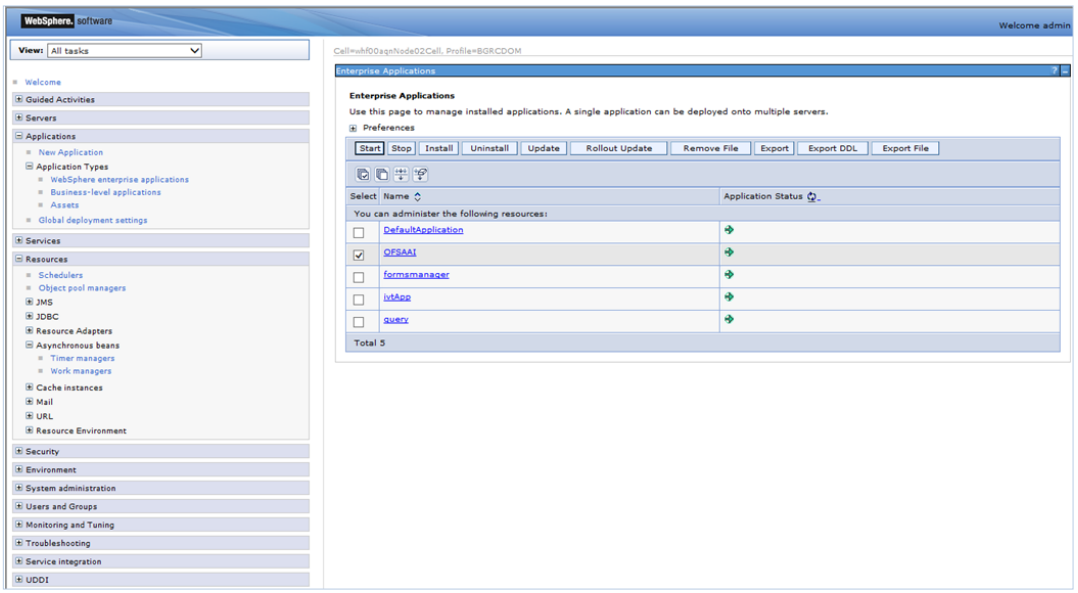
9. Click **Save**.



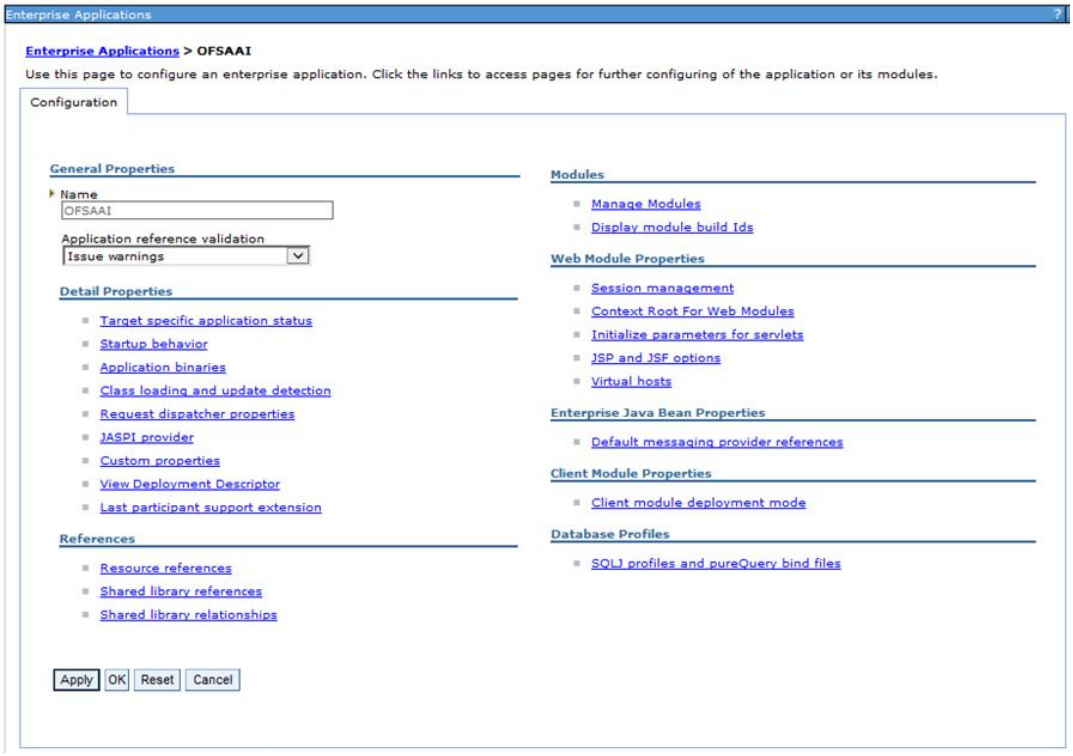
After creating work manager successfully, you have to map it to OFSAA instance.

26.1.2 Mapping Work Manager to OFSAA WebSphere Instance

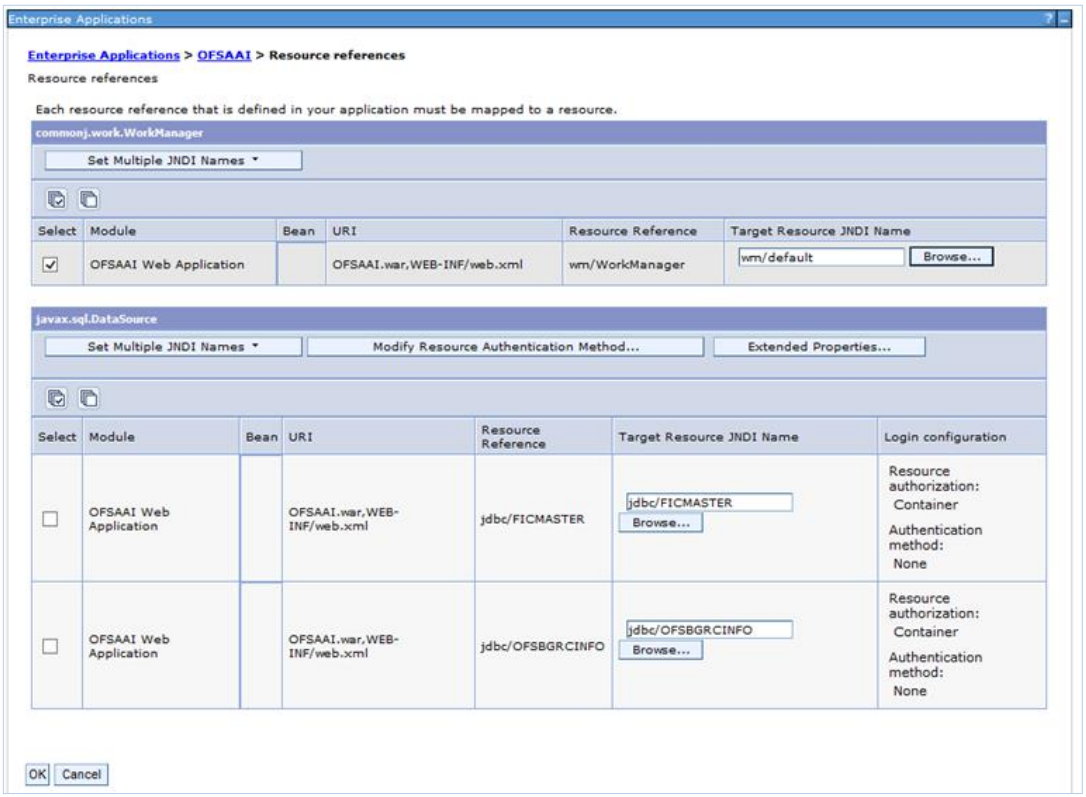
1. From the LHS menu, expand **Applications** > **Application Types** and select **WebSphere enterprise applications**.



2. Click OFSAAI instance hyperlink.

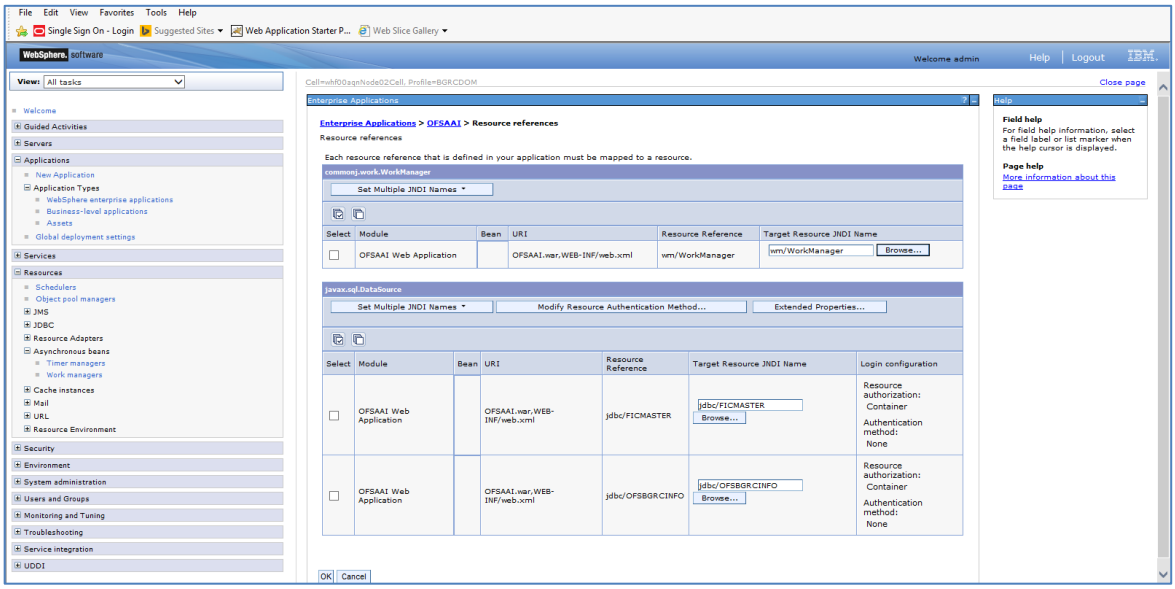


3. Click **Resource references** link under References section.

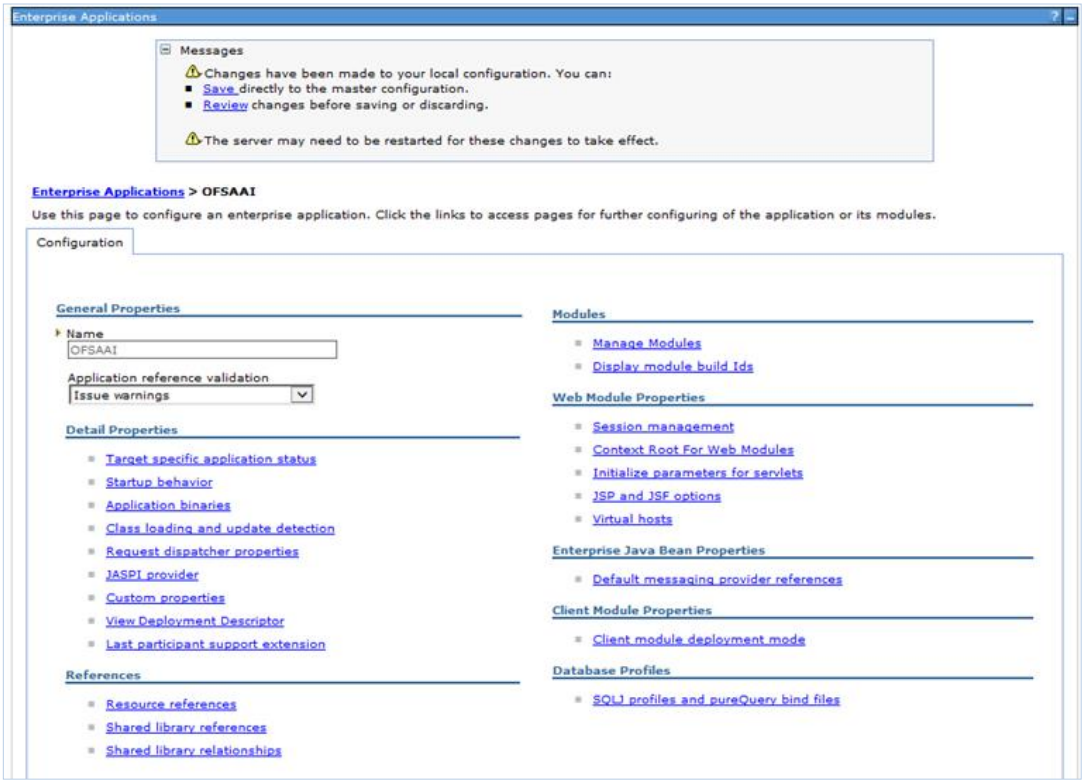


4. Click **Browse** corresponding to the Work Manager Resource Reference. The available resources are displayed.

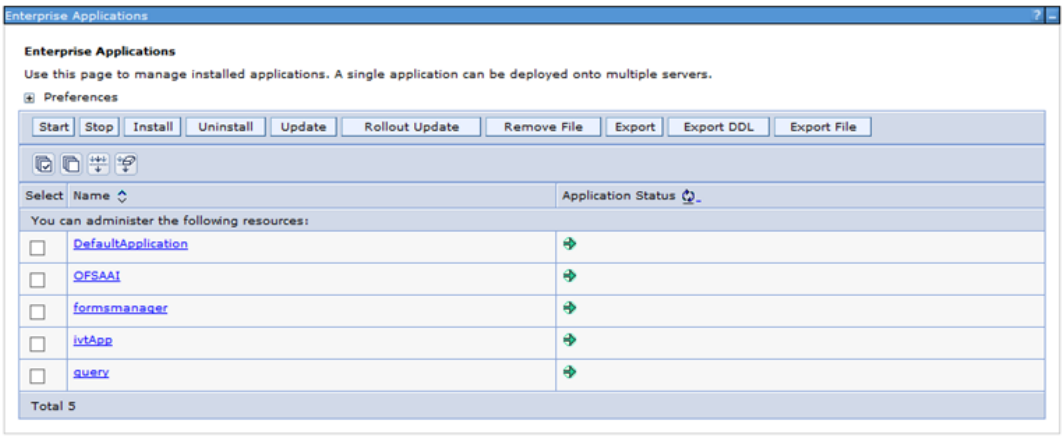
5. Select the newly created Work Manager ('wm') and click **Apply**.



6. Select the Work Manager ('wm/WorkManager') and click **OK**.



7. Click **Save**.

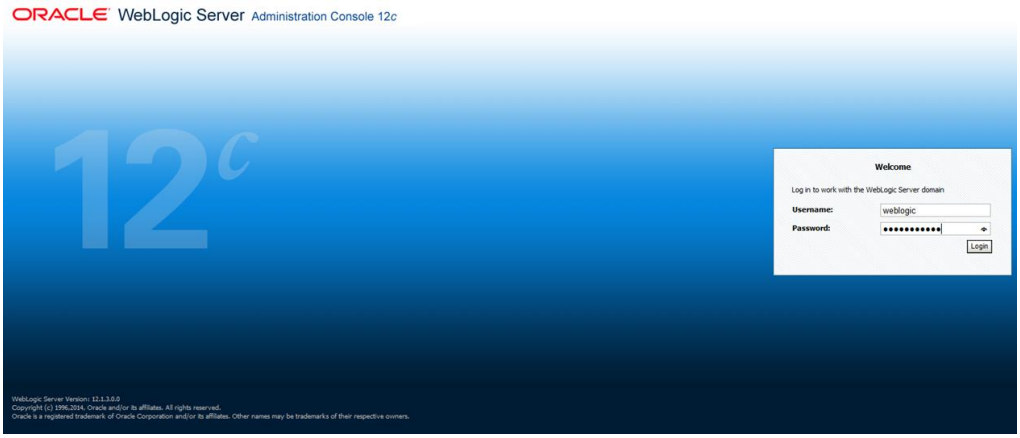


26.2 Configuring Work Manager in WebLogic Application Server

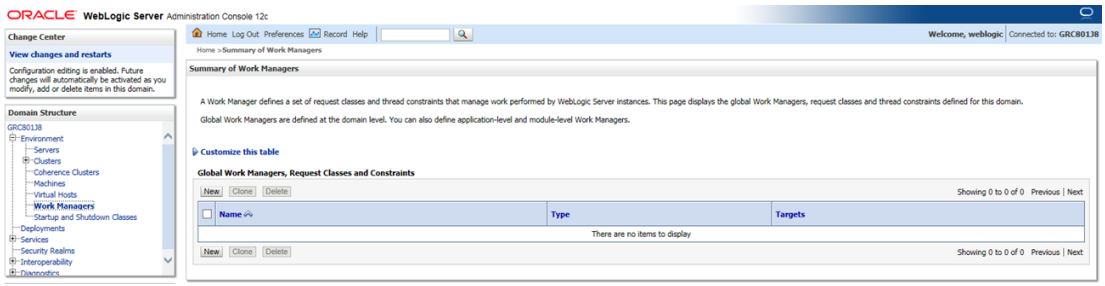
This section is applicable only when the Web Application Server type is WebLogic.

26.2.1 Creating Work Manager

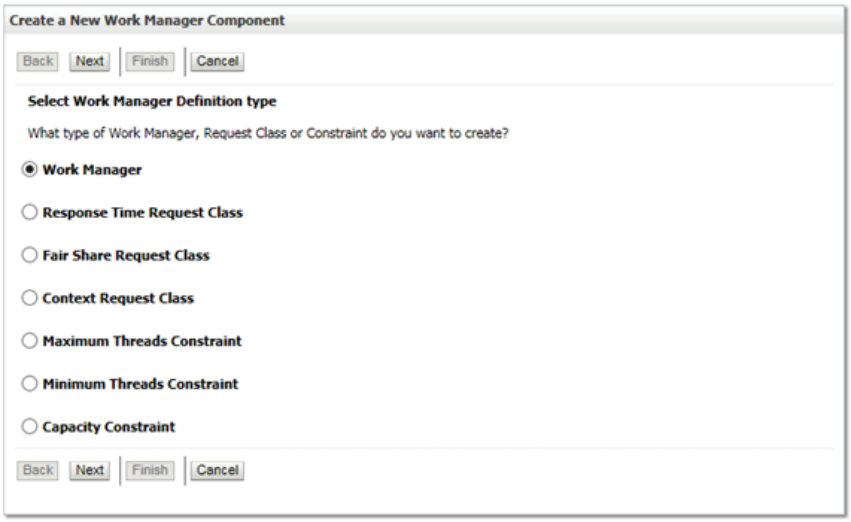
1. Open the WebLogic admin console in the browser window: `http://<ipaddress>:<administrative console port>/console`. (https if SSL is enabled). The *Welcome* window is displayed.



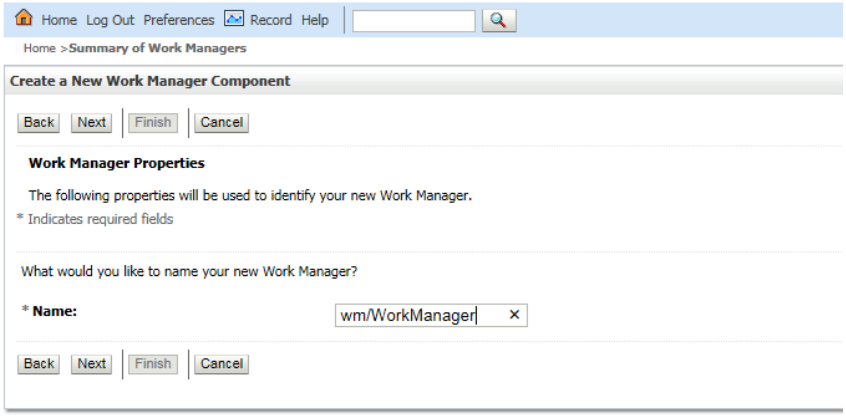
2. Login with the user id that has admin rights.
3. From the Domain Structure menu in the LHS, expand **Environment** and select **Work Managers**. The Summary of Work Managers window is displayed.



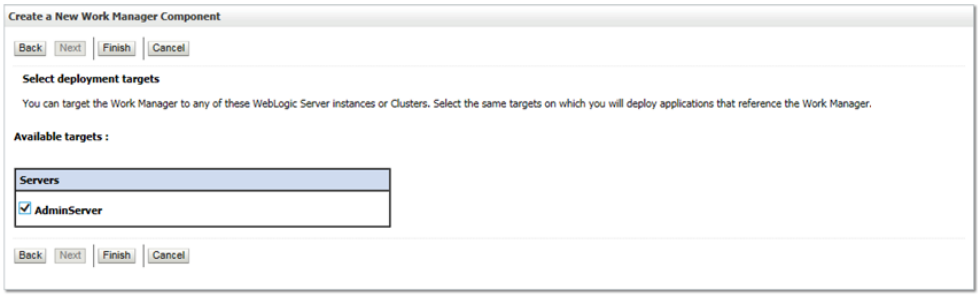
4. Click **New** to create a new work manager component.



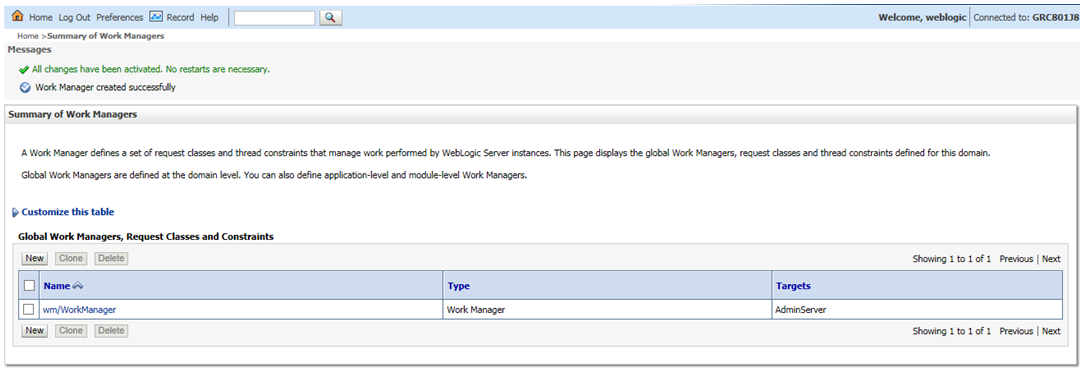
5. Select **Work Manager** and click **Next**.



6. Enter the **Name** as ‘wm/WorkManager’.
7. Click **Next**.



8. Select the required deployment target and click **Finish**.



27 Appendix U: FAQs and Error Dictionary

This section of the document consists of resolution to the frequently asked questions and error codes noticed during OFSAAI installation.

- Frequently Asked Questions
- Error Dictionary

OFSAAI installer performs all the pre-requisite validation check during installation. Any errors encountered in the process are displayed with an appropriate Error Code. You can refer to the Error Dictionary to find the exact cause and resolution to rectify the error.

27.1 Frequently Asked Questions

You can refer to the Frequently Asked Questions which has been developed with the interest to help you resolve some of the OFSAAI Installation and configuration issues. This intends to share the knowledge of problem resolution to a few of the known issues. This is not an official support document and just attempts to share the knowledge of problem resolution to a few of the known issues.

This section includes the following topics:

- OFSAAI FAQs
- Application Pack 8.0.6.0.0 FAQs

27.1.1 OFSAAI FAQs

What are the different components that get installed during OFSAAI?

The different components of OFSAAI are illustrated in Figure 1–1, "OFSAA Infrastructure Framework".

Can the OFSAA Infrastructure components be installed on multi-tier?

No. OFSAA Infrastructure components (ficapp, ficweb, ficdb) cannot be installed on multi-tier. By default, they will be installed on single-tier. However, OFSAA Infrastructure can be deployed within the n-Tier architecture where the Database, Web Server and Web Application Server is installed on separate tiers.

What are the different modes of OFSAAI installation?

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

What deployment options does OFSAAI recommend?

OFSAAI recommends you to install all OFSAAI components namely FICAPP, FICWEB, and FICDB on a single machine (Single Tier).

Is JDK (Java Development Kit) required during installation of OFSAA? Can it

be uninstalled after OFSAA installation?

JDK is not required during installation of OFSAA and only a run time is needed for details. Refer Hardware and Software Requirements, Java Runtime Environment section.

Is JRE required during installation of OFSAA? Can it be uninstalled after OFSAAI installation?

Only JRE (Java Runtime Environment) is required during installation of OFSAA and cannot be uninstalled as the JRE is used by the OFSAA system to work.

How do I know what is the Operating system, webservers and other software versions that OFSAA supports?

Refer to OFSAA Technology Stack Matrices.

What are the different files required to install OFSAAI?

The following files are required:

- setup.sh.
- envCheck.sh
- preinstallcheck.sh
- VerInfo.txt
- OFSAAInfrastructure.bin
- validatedXMLinputs.jar
- MyResources_en_US.properties
- log4j.xml
- OFSAAI_PostInstallConfig.xml
- OFSAAI_InstallConfig.xml
- privileges_config_user.sql
- privileges_atomic_user.sql
- XML_Utility.jar

During installation, when one gets an error message, "Execute Permission denied", what is to be done?

Please check whether all the files provided for OFSAAI installation has execute permissions. To give execute permissions, navigate to the path OFSAAI_80000 and execute the command: `chmod 755`

"***Graphical installers are not...***" message is displayed.

If error resembles "Graphical installers are not supported by the VM. The console mode will be used instead..." then check whether any of the X-windows software has been installed.

Example: Hummingbird Exceed is started and configured to Graphical mode installation.

NOTE: Type `'xclock'` from prompt and this should display clock in graphical mode.

"***No Java virtual machine could be…***" message is displayed.

If the error message reads "No Java virtual machine could be found from your PATH environment variable. You must install a VM prior to running this program", then:

- Check whether "java path" is set in PATH variable. See the Table 3–1, "Prerequisite Information" in this document.
- Check whether sufficient temporary space is available.
- Ensure that the movement of OFSAAI Installer text files to the target system is done in the Text mode so that setup.sh file does not contain control line feed characters (^M).

During the installation, what should one do if the error message shows "OracleDriver Files Not Found, Please Choose the Right Path To Continue"?

Check whether the provided path for Oracle Driver files is correct and whether the user has permissions to access the files.

During installation, what is to be done if the error always reads "User must have CREATE TABLE, CREATE VIEW, CREATE TRIGGER, CREATE INDEX, CREATE SEQUENCE, CREATE PROCEDURE" even though the oracle schema user created has the mentioned privileges?

OFSAAI installer validates the database details provided during installation, so ensure:

- Whether the oracle schema user has the required set of privileges for successful installation.
- Whether the oracle schema user has been created with quota privileges on tablespace to create database objects.

See the "Prerequisite Information" section for more information.

Installation of OFSAAI was completed successfully! What next?

Post the successful completion of OFSAAI installation, one has to perform the Post Installation steps. See "Post Installation Configuration", for more information.

What should I do when OFSAAI Installation is unsuccessful?

OFSAAI installer generates log file OFSAAInfrastructure_Install.log in the Infrastructure Installation Directory. There is also another log file created in the path configured in Log4j.xml. The logs of any of these reported, Warnings/Non Fatal Errors/Fatal Errors/Exceptions should be brought to the notice of the OFSAAI Customer Support. It is recommended not to proceed, until the reported problems are adequately addressed.

Can OFSAAI config and atomic schemas be on different databases?

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

How to grant privileges if a new information domain is created?

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

- Log into the database as sys and connect as sysdba user.
- Execute the file privileges_config_user.sql available under `$FIC_HOME` directory
- Enter the database schema for which you want to grant privileges.

When should I run the MLS utility?

See the Multiple Language Support (MLS) Utility section in OFS Analytical Applications Infrastructure Administration Guide in the Documentation Library for OFSAAI 8.0.6.0.0 on OHC.

Does OFSAAI support Oracle Linux versions other than 5.5?

OFSAAI supports the Oracle Linux versions from 5.5 up to 5.10 and also from 6.0 and above.

On the UNIX System terminal, error message shows "Insert New Media. Please insert Disk1 or type its location" while executing ./setup.sh, what should be done?

1. Login as root user on the UNIX machine where OFSAAI is getting installed.
2. Navigate to the path /etc/security/.
3. Edit the file limits.conf to add/edit a row for the Unix user installing OFSAA:

   ```
   <Unix User> soft nofile 9216
   ```

4. After saving the changes, log in as Unix user with which OFSAAI is getting installed and execute the command:

   ```
   ulimit -n
   ```

   The command should return the value 9216.

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

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

See Verifying the System Environment section for additional information.

How do I know if the installation is completed successfully?

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

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

```
./piverify.sh
```

What should I do if the installation in GUI mode is not invoked?

There are set of configuration steps required to be performed during the installation in GUI mode. Verify whether the steps mentioned under Configuration for GUI Mode Installation section are done correctly.

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

1. Please backup the installation logs.
2. Share the backup logs with Oracle support.

On Solaris 11 system, if I get the following error message during OFSAAI installation, what should I do?

"Error: OFSAAI-1108

ORA-00604: error occurred at recursive SQL level 1

ORA-01882: timezone region not found"

Or

"Time zone cannot be set as null or 'localtime' "

This happens if the time zone is not set, that is NULL or it is set as 'localtime'. Set the environment variable TZ to a valid time zone region in the .profile file. For example,

```
TZ=Asia/Calcutta
export TZ
```

What happens if the installation process is abruptly terminated or aborted? What should I do?

If the installation is abruptly terminated, then the installation process will be incomplete. To recover from this, follow the below steps:

1. Drop the DB objects in the config schema created by OFSAAI installation.
2. Open the `.profile` and remove the entries made by the OFSAAI installation which are made between the comment statements, #Beginning of entries by OFSAA Infrastructure installation and #End of entries by OFSAA Infrastructure installation.
3. Delete the OFSAA install directory created by the OFSAAI installer.
4. Perform the OFSAAI installation again.

Would OFSAA support any other web server types, other than the ones stated in tech matrix and installation guide?

No, all the supported software and versions are stated in the OFSAA Technology Stack Matrices.

What should I do if the database connection from connection pool throws an error "java.sql.SQLRecoverableException: IO Error: Connection reset"?

This happens while running several database intensive tasks in parallel. To correct this error, add the line `securerandom.source=file:/dev/./urandom` in the java.security configuration file available in `$JAVA_HOME/jre/lib/security/ path`.

NOTE: This needs to be configured on all the machines or VMs where the OFSAAI components are installed.

If the issue is not resolved even with the above settings, check the Maximum Transmission Unit (MTU) settings on the Linux box. For details on MTU settings and updating them, contact your system Administrator.

When I invoke setup.sh file from my install archive, it throws syntax errors/file not found error messages, what should I do?

This could mostly happen:

When installer was not unzipped rightly or corrupted during unzip.

`setup.sh` file which resides within the install archive was not transferred in ASCII or text mode, which could have corrupted the file.

To correct this, follow the steps:

1. Copy the installer (in BINARY mode) to the system on which the OFSAA Infrastructure components will be installed.
2. Unzip the installer using the command:

   ```
   unzip <OFSAAI_Installer>.zip
   ```

3. The corrupted setup.sh file would have introduced certain ^M characters into the file. You can remove ^M characters from setup.sh file by following the below steps:

   a. Login to the server where the installer is copied.
   b. Navigate to the directory OFSAAI_80000.
   c. Open the setup.sh file in the vi editor using the command: vi setup.sh.
   d. Inside vi editor in Esc mode, type: **`%s/^M//g`**

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

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

Does OFSAA support Oracle DB 11g Standard edition?

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

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

On the UNIX System terminal, Error message shows "./startofsaai.sh: /java: Execute permission denied" while executing ./startofsaai.sh file. What is to be done?

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

OFSAAI Login page does not come up, error message "Could not retrieve list of locales" is displayed. What should I do?

This could be due to 2 reasons:

1. System is unable to resolve the hostname configured.
2. Conflict with the ports configured.

To correct them, follow the below steps:

A. Steps to replace the hostnames with IP address:

1. Stop all the OFSAA services. See Stopping Infrastructure section on how to stop the services.
2. Replace all the hostnames with the IP address in all the places mentioned in the document (Where to find port, IP address, HTTPS Configuration for OFSAAI 7.2 Installation (DOC ID 1500479.1)).
3. Restart all the OFSAAI services. See Starting Infrastructure section.

B. Steps to correct the port number conflicts

1. Stop all the OFSAA services.
2. Refer to the port numbers stated in the document (Where to find port, IP address, HTTPS Configuration for OFSAAI 7.2 Installation (DOC ID 1500479.1)) and check on the discrepancy in the port numbers and correct them.
3. Restart all the OFSAAI services.

What happens when the OFSAAI Application Server does not proceed even after providing the system password?

Ensure that, the System Password provided when prompted should match with the "Oracle Configuration password" provided during installation. Also check whether the connection to the "configuration schema" can be established through SQL Plus.

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

Ensure OFSAAI servers have been started and are running successfully. On the server start up parameters options, see Starting Infrastructure section.

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

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

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

Can we have distributed OFSAAI Application Server for load balancing?

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

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

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

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

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

Is it mandatory to provide the ftp/sftp password?

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

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

It is recommended to provide 777 permissions on ftpshare in case of installations done across different machines or VMs (multitier installation).

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

And on any new file that is created in the 'ftpshare' folder of any installation layer should be granted specific/explicit permission.

Port Change utility could be used to have the Port number modified, which are currently being used by the Infrastructure application. For more information, refer Configure Infrastructure Ports section.

Are there any in-built system administration users within OFSAAI Application?

The three in-built system administration users are provided to configure and setup OFSAAI.

1. SYSADMN
2. SYSAUTH
3. GUEST

Does OFSAAI Application support both FTP and SFTP?

OFSAAI supports both FTP and SFTP configuration.

Is it necessary to enable the FTP/SFTP services to use the OFSAAI?

Yes, enabling of FTP/SFTP services and its ports is a pre-requisite step towards using the OFSAAI.

OFSAAI Configuration: Unable to save the server details?

1. Ensure the input User ID, Password, and Share Name are correct.
2. Ensure FTP/SFTP services are enabled.
3. Have a test FTP/SFTP connection made and confirm if they are successful.

During Information Domain creation, the message "Please create a database and then create the information domain" appears. What should be done?

Information Domain is mapped to only one Database; and thus before the creation of Information Domain, at least one database details would need to exist.

The message "ConnectToDatabase: FatalError, could not connect to the DB server" appears during startup of backend engine message server. What do I need to do?

- Verify whether connection to the "configuration schema" can be established through SQL Plus.
- Verify "configuration schema" password is modified post installation.
- Ensure oracle database alias name created for oracle instance and oracle service name are same.
- On a multitier Installation mode, ensure TNSNAME and SID are the same in both the Application and Database Layers.

The message "Fatal Error, failed to get user ID from LibSmsConnect" appears during the startup of backend engine message server. What should I do?

Ensure Reveleus.sec file exist under the `$FIC_HOME/conf` directory where the Database components are installed.

Does OFSAAI Application support LDAP authentication?

OFSAAI supports LDAP configuration and authentication.

Does OFSAAI support multiple languages?

Yes, OFSAAI supports multiple languages.

Does OFSAAI provide any data back-up features?

OFSAAI does not have built-in back up facility. External Storage Infrastructure is recommended for back-up.

What kind of security features does the OFSAAI provides?

OFSAAI provides security at:

- Segment Level: Users can access only the segment they are mapped to.
- Application Level: Users can perform an operation only if mapped to appropriate role and functions.

Does OFSAAI have the ability to enforce periodic password change?

OFSAAI provides configurable parameters to define number of days after which the user password would expire and then the user is forced to change the password after expiration period.

What is the password policy followed in OFSAAI?

OFSAAI enforces a minimum password length with a combination of Upper and Lower case characters and alpha-numeric strings.

Which version of Erwin Data Modeler does OFSAAI support?

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

Note: OFS AAI supports data model upload for data models generated using ERwin 7.1.x, 7.2.x, 7.3.x, 9.0.x, 9.2.x, and 9.5.x versions

Does OFSAAI provide the mechanism to upload Business Data model?

OFSAAI provides two mechanisms for business data model upload:

- Easy to use GUI based Model upload mechanism to upload the Business Data Model through Unified Metadata Manager --> Import Model.
- OFSAAI also provides a model upload utility "upload.sh" for uploading the business data model through the command line parameter by executing this shell script file under the path <FIC_HOME>/ficapp/common/FICServer/bin.

Refer the section *Run the Model Upload Utility* of the Oracle Financial Services Analytical Application Infrastructure User Guide on OFS Analytical Applications Infrastructure User Guide for details.

The Business Data model undergoes changes; how does this incremental change get applied to the existing model?

Modified data model can be uploaded into the system and OFSAAI has the ability to compare the changes within the data model with respect to the one already present in the system and enables propagation of incremental changes in a consistent manner.

What are the different types of uploading a business data Model?

OFSAAI supports uploading of business data model from client desktop and also by picking up the data model from the server location.

Can the OFSAAI "Configuration Schema" password be modified post installation?

The OFSAAI "configuration schema" password can be modified post installation. OFSAAI application stores the password in the database and few configuration files, thus any changes to the "configuration schema" password would necessitate updating in these. Contact OFSAAI support for more details.

Can the OFSAAI "Atomic Schema" password be modified?

The OFSAAI "Atomic Schema" password can be modified. OFSAAI application stores the atomic schema password in the database and few configuration files, thus any change to the atomic schema password would necessitate updating the password.

To change the Atomic Schema password, follow the steps:

1. Login to OFSAA.
2. Navigate to System Configuration → Database Details window. Select the appropriate connection, provide the modified password and save.
3. Navigate to Unified Metadata Manager → Technical Metadata → Data Integrator → Define Sources window. Update the appropriate Source details.
    a. If you are using Apache Tomcat as Web server:
        - Update the <Context> -> Resource tag details in server.xml file from the $CATALINA_HOME/conf folder. (In case of Tomcat only Atomic <Resource> will exist).
    b. If you are using WebSphere as Web server:
        - Login to the WebSphere Administration Console from the left side menu.
        - Navigate to Resources >JDBC >Data Sources. A list of data sources will be populated on the right side.
        - Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
    c. If you are using WebLogic as Web server:
        - Login to the WebLogic Administration Console from the left side menu.
        - Under Domain Structure list box, expand the appropriate Domain and navigate to Services → JDBC >Data Sources. A list of data sources will be populated on the right side.
        - Select the appropriate Data Source and edit the connection details. (In this case, both Config and Atomic data sources need to be modified).
4. Restart the OFSAAI services.

NOTE: If the modified passwords are not updated, OFSAAI logs displays the message ORA-28000: the account is locked.

Does the upload of Business Data model depend on Java Memory?

Business data model upload through OFSAAI depends on the Java memory settings on the client and server machines. Java memory setting varies with the data model size and the available RAM. Contact OFSAAI support for more details.

Why do the Business Metadata Management screens (Business Processors screen) in User Interface, takes longer time to load?

The Log file in DynamicServices.xml which resides in $FIC_HOME/conf is continuously being updated/refreshed to cache metadata. This can be observed when you are starting reveleusstartup.sh and if any of the log file (Ex: SMSService.log) in DynamicServices.xml is being continuously refreshed for longer time.

By default, the Metadata Log file cache size is set to 1000. If in case the log is being updated beyond this limit, retrospectively the preceding entries are overwritten. For example, the 1001th entry is overwritten by deleting the first entry. This results in the application screen taking a longer time to load.

Increase the cache size limit in Dynamicservices.xml located at <FIC_HOME>/conf, depending on the currently logged count for the specific metadata.

1. Generate the Log report by executing the below query in config schema.

   ```
   select count(1), t.metadata_name, m.dsn_id
   from metadata_master m, metadata_type_master t
   where m.metadata_type = t.metadata_type
   group by t.metadata_name, m.dsn_id
   ```

2. The above query returns a list of codes with their respective metadata count. You can refer to "metadata_type_master" table to identify the metadata name.
3. View the log report to identify the metadata which is being updated/refreshed beyond the specified cache size limit. Accordingly increase the cache size limit in Dynamicservices.xml depending on the currently logged count for the specific metadata.

   For example, if the "MEASURE_CACHE_SIZE" is set to 1000 and total measure reported in log is 1022, increase the limit to 2000 (approximately).
4. Restart Reveleus/OFSAAI servers (Web and APP) and check the issue.

What should I do if I get OutOfMemoryError while deploying EAR file in WebSphere application server?

The Java memory needs to be increased in ejbdeploy.sh file which is present under `<WebSphere Install directory>/AppServer/deploytool/itp`. For example,

```
$JAVA_CMD \
-Xbootclasspath/a:$ejbd_bootpath \
Xms256m -Xmx1024m \
```

What configurations should I ensure if my data model size is greater than 2GB?

In order to upload data model of size greater than 2GB in OFSAAI Unified Metadata Manager-Import Model, you need to configure the required model size in struts.xml file available in the path `$FIC_WEB_HOME/webroot/WEB-INF/classes`.

NOTE: The size requirements have to be always specified in bytes.

For example, if you need to configure for model size of 2.5GB, then you can approximately set the max size to 3GB (3221225472 bytes) as indicated below, in order to avoid size constraints during model upload.

```
<constant name="struts.multipart.maxSize" value="3221225472"/>
```

After configuring struts.xml file, generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR / WAR file, see Appendix C.

What should I do if my Hierarchy filter is not reflecting correctly after I make changes to the underlying Hierarchy?

In some cases, the Hierarchy Filters do not save the edits correctly if the underlying Hierarchy has been changed. This can occur in hierarchy maintenance, where you have moved a member to another hierarchy branch, and that member was explicitly selected in the Filter and is now a child of a node which is already selected in the Filter.

Please refer to Support Note for the workaround.

How do I turn off unused information domains (infodoms) from cache?

Follow the below steps to turn off unused Information Domains from cache:

Navigate to `$FIC_HOME/conf` in the APP layer of your OFSAAI installation.

1. In the DynamicServices.xml file, identify the section for <Service code="20">.
2. Modify the value of parameter CACHE_ON_STARTUP to 0 (default is 1).
3. Repeat the same in the WEB layer too. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR / WAR file, see Appendix C.
4. Restart the OFSAAI Services (APP and WEB). For more information, see Start / Stop Infrastructure Services chapter.

NOTE: This setting will cache the Information Domain metadata only for the Information Domains that get accessed upon user login. Information Domains which do not get accessed, will not be cached.

Sample code is pasted below:

```
<SERVICE CODE="20"
CLASS="com.iflex.fic.metadata.services.MetadataServiceProvider"
NAME="BMD"
SERVERID="DEFAULT" PATH=" " LOGGERNAME="UMMLOGGER" LOGGERLEVEL="10">
<PARAMETERS>
<PARAMETER NAME="CACHE_ON_STARTUP" VALUE="0" />
<PARAMETER NAME="BACKUP_XML" VALUE="1" />
<PARAMETER NAME="MAX_BACKUP_XML" VALUE="2" />
<PARAMETER NAME="PC_NONBI_BI_SWITCH" VALUE="2048" />
<PARAMETER NAME="HIERARCHY_NODE_LIMIT" VALUE="2000" />
<PARAMETER NAME="ALIAS_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="DATASET_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="MEASURE_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="HIERARCHY_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="DIMENSION_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="HIERARCHYATTRIBUTE_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="CUBE_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="RDM_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="BUSINESSPROCESSOR_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="DERIVEDENTITY_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="LOG_GET_METADATA" VALUE="false" />
<PARAMETER NAME="METADATA_PARALLEL_CACHING" VALUE="0" />
</PARAMETERS>
</SERVICE>
```

Can I install an Application Pack on an existing Atomic schema/ Information Domain created manually?

No, you cannot install an Application Pack on existing Atomic schema/Information Domain created manually. Application Packs can be installed only on Atomic Schemas/Information Domain created using schema creator utility and/ or the Application Pack installer.

When trying to view the model outputs in Model Outputs screen, I get "Exception ->Local Path/STAGE/Output file name (No such file or directory)".

Ensure you have created a folder "STAGE" under the path mentioned as "Local Path" in the web server details screen. This folder needs to be created under the local path on every node for web application server clustering.

During OFSAA services startup, I get Exception in thread "main" java.lang.UnsatisfiedLinkError: net (Not a directory)?

Ensure the JRE referred in .profile is not a symbolic link. Correct the path reference to point to a physical JRE installed.

What is the optimized memory settings required for "New" model upload?

The following table lists the optimized memory settings required for "New" model upload.

Table 6: optimized memory settings required for "New" model upload

Model Upload Options	Size of Data Model XML File	X_ARGS_APP ENV Variable in OFSAAI APP Layer
Pick from Server	106 MB	-Xms1024m -Xmx1024m
	36 MB	-Xms2048m -Xmx2048m
	815 MB	-Xms4096m -Xmx4096m
	1243 MB	-Xms6144m -Xmx6144m
Model Upload Utility	106 MB	-Xms1024m -Xmx1024m
	336 MB	-Xms2048m -Xmx2048m
	815 MB	-Xms4096m -Xmx4096m
	1243 MB	-Xms6144m -Xmx6144m
Save New Erwin File In Server	106 MB	-Xms1024m -Xmx1024m
	336 MB	-Xms2048m -Xmx2048m
	815 MB	-Xms4096m -Xmx4096m
	1243 MB	-Xms6144m -Xmx6144m

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

Yes. Follow the instructions explained in the OFS Inline Processing Engine Configuration Guide.

I get an error "" when I try to build an Oracle OLAP cube. What should I do?

Execute the below grant on the appropriate ATOMIC schema

```
@ grant olap_user to &database_username
```

How do I turn off unused Information Domains (Infodoms) from caching?

Follow these steps to turn off unused Information Domains from caching:

1. Navigate to $FIC_HOME/conf in the APP layer of your OFSAAI installation.
2. In the DynamicServices.xml file, identify the section for <Service code="20">.
3. Modify the value of parameter CACHE_ON_STARTUP to 0 (default is 1).
4. Repeat the same in the WEB layer too. Generate the application EAR/WAR file and redeploy the application onto your configured web application server. For more information on generating and deploying EAR / WAR file, refer to the Post Installation Configuration section.
5. Restart the OFSAAI Services (APP and WEB). For more information, refer to the Start OFSAA Infrastructure Services section.

NOTE: This setting will cache the Information Domain metadata only for the Information Domains that get accessed upon user login. Information Domains which do not get accessed, will not be cached.

Sample code is pasted below:

```
<SERVICE CODE="20"
CLASS="com.iflex.fic.metadata.services.MetadataServiceProvider"
NAME="BMD"
SERVERID="DEFAULT" PATH=" " LOGGERNAME="UMMLOGGER" LOGGERLEVEL="10">
<PARAMETERS>
<PARAMETER NAME="CACHE_ON_STARTUP" VALUE="0" />
<PARAMETER NAME="BACKUP_XML" VALUE="1" />
<PARAMETER NAME="MAX_BACKUP_XML" VALUE="2" />
<PARAMETER NAME="PC_NONBI_BI_SWITCH" VALUE="2048" />
<PARAMETER NAME="HIERARCHY_NODE_LIMIT" VALUE="2000" />
<PARAMETER NAME="ALIAS_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="DATASET_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="MEASURE_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="HIERARCHY_CACHE_SIZE" VALUE="2000" />
```

```
<PARAMETER NAME="DIMENSION_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="HIERARCHYATTRIBUTE_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="CUBE_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="RDM_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="BUSINESSPROCESSOR_CACHE_SIZE" VALUE="2000" />
<PARAMETER NAME="DERIVEDENTITY_CACHE_SIZE" VALUE="1000" />
<PARAMETER NAME="LOG_GET_METADATA" VALUE="false" />
<PARAMETER NAME="METADATA_PARALLEL_CACHING" VALUE="0" />
</PARAMETERS>
</SERVICE>
```

"While creating an Excel Mapping, after specifying the excel worksheet, the target table, and mapping each column in the worksheet to a target table, I click SAVE and nothing happens. But when I click CANCEL, a message pops up informing me that all changes will be discarded", what is to be done.

Check if the excel mapping creation is done using I.E 8 with JRE 1.4 plug in enabled on machine. If so, upgrade the JRE plug in to 1.7+

How can I configure the OFSAA application for High Availability?

OFSAA can have active-passive high availability. For more details, refer Configuration for High Availability- Best Practices Guide.

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

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

What should I do when an entity containing many attributes (>100 columns) is selected as Source entity and the Data Mapping (T2T definition) save operation takes longer than expected with the hourglass in the UI continuously rotating?

In such cases, the user might falsely assume that T2T definition save has failed. The reason for this occurrence is that the FilerServlet has taken considerable amount of time to validate the xml data that was passed. If we skip validation in `excludeURLList.cfg`, there will be no latency in Data Mapping save operation. To rectify this, follow these steps:

1. Locate the webserver deployed area `webroot/conf/excludeURLList.cfg` file.
2. Modify the following entries:

   `[SQLIA]./dataIntegrator/ to [ALL]./dataIntegrator/`

   `[SQLIA]./ETLExtractionServlet` to `[ALL]./ETLExtractionServlet`

3. Save the changes and restart the webserver.
4. Resave the definition.

I get an error while executing grant olap_user to the schema. What should I do?

During OLAP user creation (Error while executing- grant olap_user to dev_ofsaafsd37), this error occurs “java.sql.SQLSyntaxErrorException: ORA-01919: role 'OLAP_USER' does not exist”.

Follow this workaround:

1. Create this role as mentioned below and proceed further.
2. The OLAP_USER role is defined in the sql script file in this path, $ORACLE_HOME/olap/admin/apsroles.sql.

27.1.2 Application Pack 8.0.6.0.0 FAQs

What is an Application pack?

An Application Pack is suite of products. For more information, refer Application Packs.

Can I get a standalone installer for OFSAAI 8.0?

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

How does OFSAA 8.0 Application pack relate to OFSAA 7.x series?

8.0 is a new major release consolidating all products from OFSAA product suite.

Can existing OFSAA 7.x customers upgrade to OFSAA 8.0 Application Pack?

There is no upgrade path available. However, we will have migration kit / path for every product to 8.0 application pack. Further details will be available with Oracle Support.

Does OFSAA 8.0 Application pack UPGRADE’s automatically existing environments?

No. Refer Point 5. OFSAA 8.0 application pack has to be installed in a new environment and subsequently migration path / migration kit needs to be run to migrate from 7.x to 8.0. Please note we will have migration path only from the previously released version of OFSAA products.

Where can I download OFSAA 8.0 Application Pack?

You can download the OFSAAI 8.0 Application Pack from Oracle Software Delivery

Cloud (OSDC).

What are the minimum system and software requirements for OFSAA 8.0 Application Pack?

Refer installation guide section Hardware and Software Requirements section.

Is my environment compatible with OFSAA 8.0 Application Pack?

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

Has OFSAA 8.0 Application Pack is supports all Operating systems?

LINUX, AIX, SOLARIS 10, 11. Refer to Technology Matrix for the technology matrix that OFSAA suite products are/ will be qualified on.

How can I install OFSAA 8.0 Application Pack?

Refer to *Oracle Financial Services Advanced Analytical Infrastructure Installation And Configuration Guide* published in OHC Documentation Library for the application pack installers.

Does this installation require any Third party Software's?

Oracle Financial Services Advanced Analytical Infrastructure Installation And Configuration Guide published in OHC Documentation Library lists the third party software that needs to be installed.

What languages are supported during OFSAA 8.0 Application Pack installation?

US English is the language supported.

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

OFSAA Application Packs supports both, GUI and Silent Mode.

Does OFSAA 8.0 Application Pack support Multi-tier Installations?

OFSAA 8.0 does single tier installation. For more information refer to OFSAAI FAQ section.

Does this Application Pack validate all Pre-requisites required for this installation i.e., Memory, Disk Space etc.?

Yes. The pre-requisite checks are done by the respective application pack installer.

What happens if it aborts during installation of any application with in Application pack?

Customer needs to restore the system and retrigger the installation

Does this Application pack 'Rolls Back' if any of application installation fails due to errors?

Rollback of installation is not supported.

Does the Application pack installs all applications bundled?

All application pack system files are installed but there is an option to enable the licensed products.

How can I re-install any of the Application Pack?

You can retrigger in case of failure.

Does Application pack allow enabling / disabling any of the applications installed?

Yes. You cannot disable once the product is enabled in an environment.

I have installed one application in an Application pack and can I install any of new applications within the Application pack later point of time?

No, installation is not required. Enabling the application is an option to use it later.

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

There is no issue in installing separate OFSAAI installations, each with their own PFT/FTP installations and separate associated database instances and separate Web Server installations on the same server as long as adequate memory is allocated for each instance and as long as each OFSAAI installation is installed using a separate UNIX user and profile. Care should be taken if running multiple OFSAAI installations on a single server.

Adequate memory will be required for each installation as several OFSAAI processes (model upload, DEFQ services, and so on) take significant amounts of memory. So it depends on your server memory.

Is it possible to Install OFSAA 8.0 Application pack on any one of the existing 'Infodom' where another OFSAA 8.0 application is installed?

Yes. However, the Behavioral Detection Application Pack, Compliance Regulatory Reporting Application pack Asset Liability Management Application Pack and Profitability Application Pack are the exceptions. They need to be installed in a different INFODOM.

Is there any option in Application pack for the user to select Infodom during installations?

Yes. You can select or change the required Information Domain.

Can I install all Application Packs in a 'Single Infodom'?

Yes. But Behavioral Detection Application Pack, Compliance Regulatory Reporting Application Pack, Asset Liability Management Application Pack and Profitability Application Pack are the exceptions. They need to be installed in a different INFODOM.

Is it possible to install applications on different Infodom within the Application pack? (That is if you want to install LRM & MR in two infodoms)

Applications within application pack have to be installed in the same information domain in the same environment.

How many Infodoms can be created over a single OFSAA Infrastructure of 8.0.6.0.0?

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

Is the 'Data Model' bundled?

Does 'Data Model' bundled is Application pack Specific or Specific to individual application?

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

Is it possible to install OFS Enterprise Modeling in later point of time?

OFS Enterprise Modeling is a separate product and can be enabled as an option later from any application pack that bundles Enterprise Modeling.

Will Application pack creates sandbox automatically for the required applications?

Yes, Sandbox creation is part of application install process.

Are Upgrade Kits available for individual applications or the complete Application Pack?

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

Can I upgrade AAI only?

Yes, you can upgrade AAI alone.

Can I upgrade one application within the Application Pack? i.e., LRM will be upgraded in Treasury Application pack, but MR won't be upgraded.

No. Not possible Upgrade is applied across packs.

Is it possible to uninstall any Application from the Application pack?

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

Can I uninstall entire Application Pack?

No, you cannot uninstall the Application Pack.

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

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

Does Application Pack contain all Language Packs supported?

Language Packs need to be installed on 8.0 application packs.

Can I install an Application Pack over another Application Pack (that is same infodom or different infodom?)

Yes, you can install an Application Pack over another Application Pack in the same information domain or different information domain. But Behavioral Detection Application Pack and Compliance Regulatory Reporting Application Pack, Asset Liability Management Application Pack and Profitability Application Pack are the exceptions. They need to be installed in a different INFODOM.

Can I use an existing manually created schema as information domain for application pack installation?

No. Schemas required by OFSAA applications have to be created using Schema Creator Utility.

Does OFSAA 8.0 support on WebLogic 10.3.6 with Oracle 12c?

Yes, OFSAA 8.0 will support on WebLogic 10.3.6 with Oracle 12c. WebLogic 10.3.6 supports oracle 12c with some additional configurations. Refer the link http://docs.oracle.com/cd/E28280_01/web.1111/e13737/ds_12cdriver.htm#JDBCA655 for additional configurations.

While running the schema creator utility, I get an error "HostName in input xml is not matching with the local hostname"?

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

What are the Java versions supported in OFS AAAI Application Pack version 8.0.6.0.0?

OFS AAAI Application Pack supports Java 1.7.x and 1.8.x.

Is this release of the OFS AAAI Application Pack version 8.0.6.0.0 supported on Java 8?

Yes. To install this release of the OFS AAAI Application Pack version 8.0.6.0.0 on Java 8. For more information, refer to specific notes mentioned in the sections Installer and Installation Prerequisites, Configurations supported for Java 8, Configuring the Schema Creator Utility, GUI Mode Installation, SILENT Mode Installation.

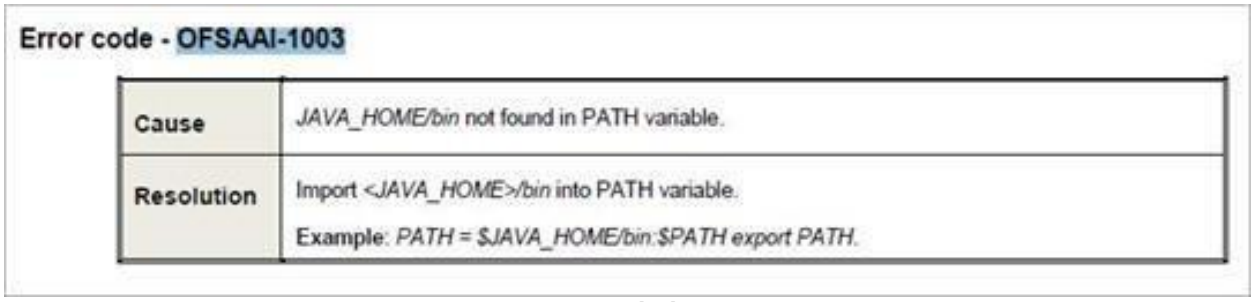
27.2 Error Dictionary

The content of this section has been created with the interest to help you resolve the installation issues if any. There is a compilation of all the possible errors that might arise during the installation process with the possible cause and the resolution to quickly fix the issue and proceed further with the installation.

27.2.1 Accessing Error Dictionary

Instead of scrolling through the document to find the error code, you can use the pdf search functionality. In the "Find" dialog available in any of the Adobe Acrobat version that you are using to view the pdf document, follow the below instructions to quickly find the error resolution.

1. With the Installation pdf open, press **Ctrl+F** or select Edit → Find.
2. The Find dialog is displayed as indicated.
3. Enter the error code that is displayed on screen during Infrastructure installation.
4. Press Enter. The search results are displayed and highlighted as indicated below.



Error Dictionary

View the details of the issues, its cause, and resolution specific to the error code. Repeat the step to find an answer to any other errors that you notice during installation. If you are not able to resolve the issue even after following the steps provided in resolution, you can contact support.oracle.com along with log files and appropriate screen shots.

27.2.2 Error Code Dictionary

27.2.1 Error code - OFSAAI-1001

Cause	Unix shell is not "korn" shell.
Resolution	Change the shell type to "korn". Use chsh Unix command to change SHELL type. Shell type can also be changed by specifying shell path for the Unix user in `/etc/passwd` file. **Note**: `chsh` command is not available in Solaris OS.

27.2.2 Error code - OFSAAI-1002

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

27.2.3 Error code - OFSAAI-1004

Cause	File .profile is not present in `$HOME`.
Resolution	Create `.profile` in `$HOME`, i.e. in the home directory of user.

27.2.4 Error code - OFSAAI-1005

Cause	File `OFSAAInfrastructure.bin` is not present in current folder.
Resolution	Copy `OFSAAInfrastructure.bin` into installation kit directory.

27.2.5 Error code - OFSAAI-1006

Cause	File `CustReg.DAT` is not present in current folder.
Resolution	Copy `CustReg.DAT` into installation kit directory.

27.2.6 Error code - OFSAAI-1007

Cause	File `OFSAAI_InstallConfig.xml` is not present in current folder.
Resolution	Copy `OFSAAI_InstallConfig.xml` into installation kit directory.

27.2.7 Error code - OFSAAI-1008

Cause	File `validateXMLInputs.jar` is not present in current folder.
Resolution	Copy `validateXMLInputs.jar` into installation kit directory.

27.2.8 Error code - OFSAAI-1009

Cause	File `log4j.xml` is not present in current folder.
Resolution	Copy `log4j.xml` into installation kit directory.

27.2.9 Error code - OFSAAI-1010

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

27.2.10 Error code - OFSAAI-1011

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

27.2.11 Error code - OFSAAI-1012

Cause	Property file with locale name does not exist.
Resolution	Copy `MyResources_en_US.properties` to the setup kit directory and keep `en_US` in `LOCALE` tag of `OFSAAI_InstallConfig.xml`

27.2.12 Error code - OFSAAI-1013

Cause	File `OFSAAI_InstallConfig.xml/OFSAAI_PostInstallConfig.xml` not found.
Resolution	Copy `OFSAAI_InstallConfig.xml/OFSAAI_PostInstallConfig.xml` to the setup kit directory.

27.2.13 Error code - OFSAAI-1014

Cause	XML node value is blank.
Resolution	Make sure all node values except SMTPSERVER, PROXYHOST, PROXYPORT, PROXYUSERNAME, PROXYPASSWORD, NONPROXYHOST, or RAC_URL are not blank.

27.2.14 Error code - OFSAAI-1015

Cause	XML is not well formed.
Resolution	Execute the command dos2unix `OFSAAI_InstallConfig.xml` to convert plain text file from DOS/MAC format to UNIX format. OR Make sure that `OFSAAI_InstallConfig.xml` is valid. Try to open the file through Internet Explorer for a quick way to check validity. If it is not getting opened, create new `OFSAAI_InstallConfig.xml` using the `XML_Utility.jar`.

27.2.15 Error code - OFSAAI-1016

Cause	User installation directory contain blank spaces.
Resolution	Provide an installation path that does not contain spaces. Check the tag `USER_INSTALL_DIR` in `OFSAAI_InstallConfig.xml` file. This path should not contain any spaces.

27.2.16 Error code - OFSAAI-1017

Cause	User installation directory is invalid.
Resolution	Provide a valid installation path. Check if you are able to create the directory mentioned in `USER_INSTALL_DIR` tag value of `OFSAAI_InstallConfig.xml` file.

Oracle Financial Services Data Foundation Application Pack

8.0.6.0.0 Installation Guide

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