Oracle Financial Services Revenue Management and Billing

OR

Oracle Insurance Revenue Management and Billing

Version 5.1.0.0.0

Installation Guide

Revision 24.7

F75893-01

March 2023

ORACLE®

Oracle Financial Services Revenue Management and Billing/Oracle Insurance Revenue Management and Billing Installation Guide

Note: To improve the content readability, the above two products are collectively referred to as Oracle Revenue Management and Billing throughout this document.

F75893-01

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Preface

About This Document

This document will help you to understand the prerequisites, supported platforms, and hardware and software requirements for installing the Oracle Revenue Management and Billing (ORMB) application. It explains how to install Oracle Utilities Application Framework and Oracle Revenue Management and Billing on the application server.

Intended Audience

This document is intended for the following audience:

- End-Users
- System Administrators
- Consulting Team
- Implementation Team

The intended audience should have:

- Required experience for installing and configuring application servers and other software.
- Administrative privileges on the host where you want to install the software.

Organization of the Document

The information in this document is organized into the following sections:

Section No.	Section Name	Description
Section 1	Overview	Provides an overview on how to install the Oracle Revenue Management and Billing application.
Section 2	Application Architecture Overview	Provides an overview of the Oracle Revenue Management and Billing architecture.
Section 3	Supported Platforms and Hardware Requirements	Lists the software and hardware requirements for each application tier.
Section 4	Planning the Installation	Explains how to install and configure the Oracle Revenue Management and Billing application. It also provides checklist and worksheets which help you in the installation and configuration process.
Section 5	Installing Application Server Prerequisite Software	Lists the software that you need to install for each supported operating system and application server combination.
Section 6	Configuring WebSphere Application Server	Explains how to configure the WebSphere Basic or WebSphere Network Deployment environments before installing OUAF and after installing ORMB.

Section No.	Section Name	Description
Section 7	Installing the Application Server Component of Oracle Utilities Application Framework	Explains how to install Oracle Utilities Application Framework.
Section 8	Installing the Application Server Component of Oracle Revenue Management and Billing	Explains how to install the Oracle Revenue Management and Billing application. It also explains how to install the Oracle Revenue Management and Billing online help.
Section 9	Additional Tasks	Lists and describes the additional tasks that you need to perform after installing the application.
Appendix A	Application Framework Prerequisite Patches	Lists the framework patches that you need to install prior to installing the Oracle Revenue Management and Billing application.
Appendix B	ORMB V5.1.0.0.0 Rollup Packs	Lists the rollup packs available for Oracle Revenue Management and Billing Version 5.1.0.0.0. It also explains how to apply a rollup pack.
Appendix C	ORMB V5.1.0.0.0 Bug Fixes	Lists the bugs fixed in Oracle Revenue Management and Billing Version 5.1.0.0.0.
Appendix D	License and Copyright Notices	Lists all notices with reference to usage of third-party products.

Conventions

The following conventions are used across the document:

Convention	Meaning
boldface	Boldface indicates graphical user interface elements associated with an action, or terms defined in the text.
italic	Italic indicates a document or book title.
`monospace`	Monospace indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or information that an end-user needs to enter in the application.

Acronyms

The following acronyms are used in this document:

Acronym	Meaning
ORMB	Oracle Revenue Management and Billing
OUAF	Oracle Utilities Application Framework

Acronym	Meaning
FW	Framework
PDF	Portable Document Format
RDS	Reliable Datagram Sockets
UAT	User Acceptance Testing
ND	WebSphere Network Deployment
IWS	Inbound Web Services
ENG	English
CM	Customer Modifications
ICU4J	International Components for Unicode
WLS	WebLogic Server

Related Documents

You can refer to the following documents for more information:

Document Name	Description
Oracle Revenue Management and Billing Version 5.1.0.0.0 Release Notes	Provides a brief description about the new features, enhancements, and UI level changes introduced in the current release. The new features and enhancements are classified under three distinct heads – Generic (which is intended for both domains), Financial Services, and Health Insurance. It also contains high-level information about the supported platforms, framework upgrade, supported upgrades, and documentation updates. In addition, it contains a list of discontinued features, planned deprecation notices, customer bugs fixed or forward ported and known issues in the current release.
Oracle Revenue Management and Billing Quick Installation Guide	Provides information about the media packs which are available for the current release. It contains information about the supported platforms, space requirements, and release-specific documentation library. In addition, it contains high-level information on how to install ORMB and selected additional software.

Document Name	Description
Oracle Revenue Management and Billing Database Administrator's Guide	Provides information about the supported database platforms and explains how to install database with or without demo data. It contains the standards and conventions that should be followed while working with ORMB database. In addition, it lists various configurations and implementation guidelines with respect to tablespace, encryption, storage, compression, indexes, initialization parameters, listener, table partitioning, performance monitoring, memory resource management, optimizer statistics and segment advisors, etc. It contains various appendices which lists the new objects added in ORMB, application services configured for default user groups, new objects added in OUAF, information about OUAF system tables and ORMB rollup packs, notices about third-party JAR and other components.
Oracle Revenue Management and Billing Server Administration Guide	Provides detailed information about the product architecture, native support, directory structures, environment variables, logs, etc. It explains various concepts related to the batch server and lists and describes the scripts required for installing and configuring ORMB. It explains how to monitor the system and configure Web browser, Web application server, business application server, inbound web services, and batch server. It explains how to provide Oracle Cloud Support and how to integrate and monitor Oracle Scheduler. It contains various appendices which lists and describes the parameters available in the ENVIRON.INI, Web.xml, spl.properties, hibernate.properties, submitbatch.properties, threadpoolworker, coherence-cache.config.xml, and tangosol-coherence-override.xml files.
Oracle Revenue Management and Billing Security Guide	Highlights what's new in security! Describes all the security features available in ORMB for authentication, authorization, user access, database access, LDAP and SSO integration, audit, encryption, web services, and JNDI access. It also describes how to provide support for data masking, Oracle cloud object storage, groovy, HTTP proxy, keystore, truststore, whitelist, federated architecture, and object erasure. In addition, it explains how to garble the customer information.

Document Name	Description
Oracle Revenue Management and Billing Upgrade Path Guide	Explains the path and pre-requisites for upgrading Oracle Revenue Management and Billing from one version to another.
Oracle Revenue Management and Billing Upgrade Guide	Explains how to upgrade the ORMB application server and database from one version to another. It also explains how to migrate the ORMB data from one version to another and describes the additional tasks that you need to perform after upgrading from one version to another. It includes various appendices that contain information about new tables introduced in the current release, existing tables which are modified in the current release, dropped algorithms and algorithm types, dropped characteristic types, dropped algorithm parameters, dropped option types in feature configurations, ORMB rollup packs, and SQL statements used for data migration.
Oracle Revenue Management and Billing Direct Database Upgrade Guide	Explains how to directly upgrade the ORMB database from 2.5.0.1.0 or any later version to the current release. It also highlights any known issues during direct database upgrade and how to handle these issues in the database.

Change Log

Revision	Last Update	Updated Section	Comments
24.1	28-Apr-2023	Section 8.3: Post Installation Tasks	Updated Information
		Appendix B: ORMB V5.1.0.0.0 Rollup Packs	Updated Information
		Section 8.3.2: Creating the billView Directory	Moved to 3rd level
		Section 8.3.3: Setting the C1-CFS Feature Configuration	Added Section
		Section 8.3.4: Setting the C1-REPORTVW Feature Configuration	Added Section
		Section 8.3.5: Setting the C1-FLUPLD Feature Configuration	Added Section
24.2	8-May-2023	Section 8.3.3: Setting the C1-CFS Feature Configuration	Updated Information
		Section 8.3.4: Setting the C1-REPORTVW Feature Configuration	Updated Information

Revision	Last Update	Updated Section	Comments
		Section 8.3.5: Setting the C1-FLUPLD Feature Configuration	Updated Information
24.3	7-Sep-2023	Related Documents	Added Information
		Section 7.2.4: Downloading the OUAF Application Package	Updated Information
		Section 7.2.5: Decompressing the OUAF Application Package	Updated Information
		Section 7.2.6: Downloading the OUAF Rollup Package	Updated Information
		Section 7.2.7: Decompressing the OUAF Rollup Package	Updated Information
		Section 7.3: Installing Oracle Utilities Application Framework Version 4.5.0.0.0	Updated Information
		Section 7.5: Post Installation Tasks	Updated Information
		Section 8.1.1: Downloading the ORMB Application Package	Updated Information
		Section 8.1.2: Decompressing the ORMB Application Package	Updated Information
		Section 8.2: Installing the Application	Updated Information
		Section 8.5: User Documentation	Added Information
		Section 9.1: Importing Self-Signed Certificates	Updated Information
		Section 9.9: Deploying Inbound Web Services (IWS)	Updated Information
		Appendix A : Application Framework Prerequisite Patches	Updated Information
24.4	02-Jan-2024	Cover Page	Updated Information
		Copyright Notice Page	Updated Information
		Section 8.5: User Documentation	Updated Information
24.5	05-Jan-2024	Section 8.3.3: Setting the C1-CFS Feature Configuration	Updated Information
		Section 8.3.4: Setting the C1-REPORTVW Feature Configuration	Updated Information
		Section 8.3.5: Setting the C1-FLUPLD Feature Configuration	Updated Information
24.6	26-Aug-2024	Appendix D: License and Copyright Notices	Removed Information

Revision	Last Update	Updated Section	Comments
		Section D.1.22: Notice Concerning Usage of Microsoft .NET	Removed Information
24.7	18-July-2025	Section 3.3.2: Oracle Database Servers	Added Information
		Section 3.3.4: Oracle VM Support	Updated Information
		Section 5.1.2: Web/Application Server Tier	Added Information
		Section 5.2.2: Web/Application Server Tier	Added Information
		Section 5.3.2: Web/Application Server Tier	Added Information
		Section 8.3.1: Applying the ORMB Patches	Added Information

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Contents

1.   Overview

This section provides an overview about how to install Oracle Revenue Management and Billing (ORMB) Version 5.1.0.0.0.

1.1   Installation Overview

The Oracle Revenue Management and Billing installation involves the following steps:

1. Review the different tiers of the application architecture as described in the Application Architecture Overview section.

2. Understand the hardware requirements for installing the application and the supported platforms for the application and database servers as described in the Supported Platforms and Hardware Requirements section.

Note: The installation and administration of the database server tier is described in detail in the *Oracle Revenue Management and Billing Database Administrator's Guide*.

3. Install the database as described in the *Oracle Revenue Management and Billing Database Administrator's Guide*.

4. Plan your installation as described in the Planning the Installation section.

5. Install all required third-party software as described in the Installing Application Server Prerequisite Software section. The required software is listed for each supported combination of operating system and application server.

6. Install the framework for the application as described in the Installing the Application Server Component of Oracle Utilities Application Framework section.

7. Install Oracle Revenue Management and Billing as described in the Installing the Application Server Component of Oracle Revenue Management and Billing section.

8. Follow the installation guidelines described in the Additional Tasks section.

2.   Application Architecture Overview

This section provides an overview of the Oracle Utilities Application Framework application architecture.

2.1   Application Architecture

The Oracle Utilities Application Framework application is deployed on multiple tiers.

Refer to the *Oracle Revenue Management and Billing Server Administration Guide* for a more detailed description of the application architecture and individual tiers.

2.1.1   Tier 1: Desktop/Client, or Presentation Tier

This tier is implemented in a browser-based client. Users use a desktop client web browser to log in to and use the Oracle Revenue Management and Billing application.

Note: A desktop machine having Microsoft Windows and Oracle Database Client is required to perform some of the Oracle Revenue Management and Billing product installation steps.

2.1.2   Tier 2: Web/Business Application Server, or Business Logic Tier

This tier is implemented in a web application server, business application server, or the batch server. The business application component can be installed as part of the web application server, or as a separate component. Except where explicitly noted, most of the Oracle Utilities Application Framework installation documentation assumes that the web application and business application servers reside together. The batch infrastructure will also run within this tier. You can have multiple batch server instances that serve the application.

2.1.3   Tier 3: Database, or Persistence Tier

This tier is implemented in a database server. The database server stores data maintained by the Oracle Revenue Management and Billing application. More specifically, the database tier contains the data server files and database executables that physically store the tables, indexes, and other database objects for your system.

3. Supported Platforms and Hardware Requirements

This section provides an overview of the tiers on which the product is implemented and shows each of the operating system and application server combinations on which the product is supported. It includes:

- Software and Hardware Considerations
- Requirements by Tier
- Supported Platforms
- Application Server Space Requirements
- Support for Software Patches and Upgrades

3.1 Software and Hardware Considerations

There are many factors that can influence software and hardware decisions. For example, your system may have to satisfy specific performance, availability, or scalability requirements, or to support running in a language other than English. These business requirements, together with the chosen system architecture, should be used in initial software and hardware planning.

Some of the questions that you should answer before beginning the installation include:

- On which hardware platform and operating system will Oracle Revenue Management and Billing be deployed?
- Which web server product will Oracle Revenue Management and Billing deploy on?
- Which database product will Oracle Revenue Management and Billing deploy on?
- Do you plan to deploy multiple Oracle Revenue Management and Billing instances on the same physical server?
- How do you plan to deploy Oracle Revenue Management and Billing?
    - Web/application/database on the same physical server
    - Web/application on one server and database on separate server
    - Each component on its own server

For detailed descriptions of various deployment architecture choices that may aid in planning, refer to the *Oracle Utilities Application Framework Architecture Guidelines* *(Document ID: 807068.1)* article on My Oracle Support.

The final hardware and software decisions must comply with the Oracle Revenue Management and Billing specific requirements as described in this section.

3.2   Requirements by Tier

The application is deployed on multiple tiers:

- Tier 1, Desktop
- Tier 2, Web/Business Application Server
- Tier 3, Database Server

3.2.1   Tier 1, Desktop: Software and Hardware Requirements

The hardware requirements for Tier 1 are:

Configuration	Processor	Memory (RAM)	Minimum Monitor Display Size
Minimum	Pentium IV - 2.0 GHz	1024 MB	1920x1080
Recommended **Note:** The recommended configuration improves client performance.	Pentium IV - 3.0+ GHz, or any Core 2 Duo or any Athlon X2	2048 MB	1920x1080

Web Browser Requirements

The following operating system and web browser software are supported:

- Microsoft Windows 10 (64-bit) with Chromium Edge v83
- Microsoft Windows 10 (64-bit) with Firefox ESR 91.x

Note: Here, x represents the vendor supported version.

- Microsoft Windows 10 (64-bit) with Google Chrome Enterprise Version 81 or higher

3.2.2   Tier 2, Web/Business Application Server: Software and Hardware Requirements

Refer to the Supported Platforms section to determine which web application servers can be used with the operating system that will be hosting this tier.

The recommendations that follow are based on a standard installation with both the web application and business application servers on the same machine and the system running with the default values. The default values may not support a production environment. You should adjust these values according to your production needs. Refer to the *Oracle Revenue Management and Billing Server Administration Guide* on how to change the default values. The minimum resource requirements exclude third-party software installation requirements. Refer to the third- party vendors for specific requirements. The sizing excludes the Oracle database server installation.

3.2.3 Tier 3, Database Server: Software and Hardware Requirements

Refer to the Supported Platforms section for information about supported database servers.

3.3 Supported Platforms

The installation has been tested and certified to operate on many operating system, application server, and database server combinations. For the software requirements for each of these combinations, refer to the Installing Application Server Prerequisite Software section. This section includes the following topics:

- Operating Systems and Application Servers
- Oracle Database Servers
- Oracle WebLogic Server Information
- Oracle VM Support

3.3.1 Operating Systems and Application Servers

The following table lists the operating system and application server combinations on which Oracle Revenue Management and Billing Version 5.1.0.0.0 is supported:

Operating System and Web Browser (Client)	Operating System (Server)	Chipset	Application Server	Database Server
Microsoft Windows 10 (64-bit) with Chromium Edge v83, Firefox ESR 91.x, or Google Chrome Enterprise Version 81 or higher **Note:** Here, x represents the vendor supported version.	AIX 7.2 TL3+ (64-bit) **Note:** Version numbers suffixed with "+" are the MINIMUM version supported. That version and all future 4th digit updates will be supported.	POWER 64-bit	Oracle WebLogic 12.2.1.4 (64-bit)	Oracle Database Server 19c
	Oracle Linux 8.x (64-bit)	x86_64	Oracle WebLogic 12.2.1.4 (64-bit) IBM WebSphere 9.0.5.6	Oracle Database Server 19c

Operating System and Web Browser (Client)	Operating System (Server)	Chipset	Application Server	Database Server
	Red Hat Enterprise Linux 8.x (64-bit) **Note:** Oracle Revenue Management and Billing is tested and certified on Oracle Linux 8.x. Oracle Linux is 100% user space-compatible with Red Hat Enterprise Linux, and therefore Oracle Revenue Management and Billing is supported on Red Hat Enterprise Linux.	x86_64	Oracle WebLogic 12.2.1.4 (64-bit) IBM WebSphere 9.0.5.6	Oracle Database Server 19c
	Microsoft Windows Server 2016+ (64-bit)	x86_64	Oracle WebLogic 12.2.1.4 (64-bit)	Oracle Database Server 19c

Points to Note:

IBM WebSphere certification is pending for Oracle Revenue Management and Billing Version 5.1.0.0.0.

Oracle Corporation distributes Oracle Linux with the following two kernels:

Red Hat Compatible Kernel – This kernel is identical to the kernel shipped in Red Hat Enterprise Linux.

Unbreakable Enterprise Kernel – This kernel is based on a later Linux 2.6-series kernel, with Oracle's own enhancements for OLTP, InfiniBand, SSD disk access, NUMA-optimizations, Reliable Datagram Sockets (RDS), async I/O, OCFS2, and networking.

Oracle claims that the Unbreakable Enterprise Kernel is compatible with Red Hat Enterprise Linux; and Oracle middleware and third-party Red Hat Enterprise Linux-certified applications can be installed and run unchanged on Unbreakable Enterprise Kernel. However, for users requiring strict compatibility with Red Hat or for users running kernel modules dependent on specific kernel versions, the Red Hat Compatible Kernel offers 100% compatibility with Red Hat Enterprise Linux.

We strongly recommend you install Oracle Revenue Management and Billing (ORMB) on Microsoft Windows platform only for non-production activities, such as User Acceptance Testing (UAT), development setup, and so on.

Refer to the *Oracle Utilities Application Framework Software Development Kit* documentation for supported development environment configuration.

Refer to the *Oracle Revenue Management and Billing Certification Matrix (Document ID: 1674639.1)* article on My Oracle Support to determine whether any new version of the operating systems, web browsers, application servers, database servers, or pre-requisites software is supported.

3.3.2 Oracle Database Servers

Oracle Revenue Management and Billing Version 5.1.0.0.0 is supported with Oracle Database Server 19c on all operating systems listed above. The following Oracle Database Server Editions are supported:

- Oracle Database Server Enterprise Edition

Points to Note:

For instructions on how to install the database server, see Database Installation Guide for Microsoft Windows, Database Installation Guide for Linux, or Database Installation Guide for IBM AIX on POWER Systems depending on the platform you want to install the database server.

Oracle Database Enterprise Edition with the **Advanced Compression** and **Partitioning** options is strongly recommended in all situations. For more information about the Oracle Database Server requirements, see *Oracle Revenue Management and Billing Database Administrator's Guide*.

Oracle Database Client 19c is required as a pre-requisite for installing the Oracle Revenue Management and Billing application.

Note: For instructions on how to install the database client, see Database Client Installation Guide for Microsoft Windows, Database Client Installation Guide for Linux, or Database Client Installation Guide for IBM AIX on POWER Systems depending on the platform you want to install the database client.

3.3.3 Oracle WebLogic Server Information

You must download and install Oracle WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.4 from Oracle Software Delivery Cloud.

Note: While creating a domain, select the **Oracle Restricted JRF [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension [wlserver]** option is selected automatically.

3.3.4 Oracle VM Support

Oracle Revenue Management and Billing Version 5.1.0.0.0 is supported on Oracle VM Server for x86_64 supported releases of Oracle Linux and Microsoft Windows operating systems.

Refer to the *Support Position for Oracle Products Running on VMWare Virtualized Environments (Document ID: 249212.1)* article on My Oracle Support for Oracle's Support Policy regarding VMWare.

3.4   Application Server Space Requirements

For each application server environment, a minimum of 4 GB of real memory is required, plus 6 GB of swap space. The approximate disk space requirements in a standard installation are as follows (the size represents the MINIMUM required):

Location	Size	Usage
Install DIR ($SPLEBASE) Location	12 GB recommended	This is the location where the application and framework are installed. The startup, shutdown, and other online log files are stored in this location. The size and space that is used should be monitored because various debugging options can significantly affect the size of log files.
Log DIR ($SPLOUTPUT) Location	10 GB recommended 2 GB minimum	This location is used for storing batch log files and output from batch jobs. The size of this space should be influenced by which batches are executed and how often, and the amount of debugging information that is collected.
Location of the application web work files on the web servers	5 GB recommended 2 GB minimum	This location is used by the various web server vendors to expand the application. It should be considered when installing these products. Refer to the individual web server documentation to determine the location of the temporary files.
Installation Temporary Area	10 GB minimum	The application is installed from this location. You need enough space to decompress the files and install the application.
Oracle Data Area	16 GB minimum	This is the location where the Oracle Database data files are stored. The size of this space should be based on the requirements of the production environment. For an initial or demo database install, 4 GB should be sufficient.

3.5   Support for Software Patches and Upgrades

Due to the ongoing nature of software improvement, the vendors will periodically issue patches and service packs for the operating systems, application servers and database servers on which the Oracle products are tested.

If it is necessary to upgrade, you must first upgrade the testing environment that is running on the same platform as the production environment prior to updating the Oracle Revenue Management and Billing production environment.

The exception from this rule is Hibernate Version 4.1.0. This version should not be upgraded.

Always contact Oracle Support prior to applying vendor updates that do not guarantee backward compatibility.

4.   Planning the Installation

This section focuses on planning an Oracle Revenue Management and Billing installation. It contains the following topics:

- Installation and Configuration Overview
- Before You Install
- Installation Checklist
- Installation and Configuration Worksheets
- Installation Menu Functionality Overview

4.1   Installation and Configuration Overview

The following diagram provides an overview of the steps that need to be taken to install and configure Oracle Revenue Management and Billing:
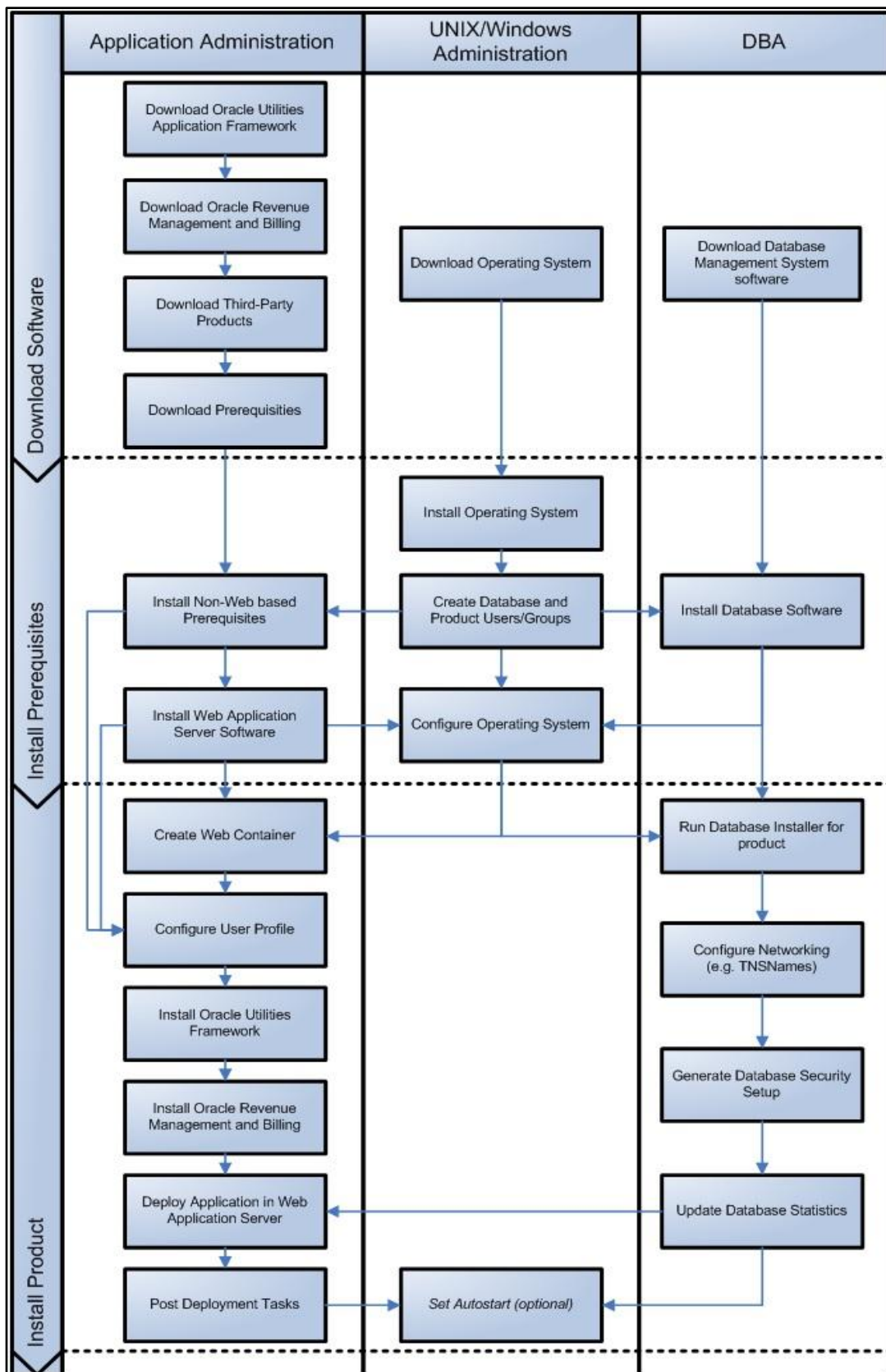
Figure 1: ORMB Installation and Configuration Steps

4.2   Before You Install

Refer to My Oracle Support for up-to-date additional information about the Oracle Revenue Management and Billing installation.

4.2.1   Oracle WebLogic Native Installation

With Oracle Utilities Application Framework V4.5.0.0.0, an Oracle WebLogic native installation is required. Refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Document ID: 2413918.1)* article on My Oracle Support for additional information.

4.2.2   Application Server Clustering

If you are considering application server clustering, refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Document ID: 2413918.1)* article on My Oracle Support.

For additional information about Oracle WebLogic clustering, refer to the Fusion Middleware Using Clusters for Oracle WebLogic Server documentation.

4.2.3   Directory Names

Directory cannot contain whitespace characters.

4.3   Installation Checklist

The following checklist will help guide you through the installation process of the application tier. The details for each step are presented in subsequent sections.

1. Install the database as described in the *Oracle Revenue Management and Billing Database Administrator's Guide*.
2. Create Group/User ID.
3. Install the following prerequisite software (for complete details about installing and configuring the prerequisite third-party software for your specific platform, refer to the Installing Application Server Prerequisite Software section):
   a. Oracle Database Client 19c
   b. Java 8 Update 351 or Later
   c. Hibernate 4.1.0
4. Install Oracle WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.4.
5. Verify that the software is installed.
6. Set up the environment variables.
7. Install Oracle Utilities Application Framework.
8. Install the rollup pack for Oracle Utilities Application Framework (prerequisite single fixes for ORMB).
9. Install Oracle Revenue Management and Billing.
10. Install the post-requisite patches or rollup packs for Oracle Revenue Management and Billing.

11. Deploy the Oracle Revenue Management and Billing application.

12. Complete the post installation tasks.

13. Proceed with optional third-party product integration (such as reporting tools).

4.4 Installation and Configuration Worksheets

During the installation and configuration of the application, you will need to provide a variety of system values. These worksheets will assist you in providing that information. They should be completed before installing the application framework, as described in the Installing the Application Server Component of Oracle Utilities Application Framework section.

Note: Some web application server information will not be available until the software installation steps have been completed as described in the Installing Application Server Prerequisite Software section.

Refer to the *Oracle Revenue Management and Billing Server Administration Guide* for additional details (such as, default value, valid values, usage, etc.).

4.5 Installation Menu Functionality Overview

The main configuration menu is structured so that related variables and/or options are grouped together and are associated by a menu item number. To access a particular group of variables and options, enter the menu item number associated with that group. Each option within that group is displayed in turn on the screen, along with a prompt so that you can type the desired value for the option, if it is not the same as the default or current value.

When performing the initial installation, you need to go through all menu options. The menu options may have a default value, a list of valid values and a validation check.

On each option prompt you can keep the current value by simply leaving the input line empty. To erase a variable value, you need to enter one dot ("."). The leading spaces will be trimmed out on each values entered. The menu includes the following:

- **Valid Values: `[ALFANUM]`** - This indicates you will need to enter an alphanumeric value in the prompt.

- **Valid Values: `[NUM]`** - This indicates you will need to enter a numeric value in the prompt.

Points to Note:

Once all options are set, type `<P>` at the main menu prompt option. This will save the option values selected throughout the configuration.

During this processing the global variables are validated and the configuration file `<SPLEBASE>/etc/ENVIRON.INI` is created or updated. This file contains all the variables inputted and calculated. These are needed by the next part of the installation process.

To exit the configuration utility without saving the specified parameter values, type `X` and then press 'Enter'.

4.5.1   Installation Menu Functionality Details

The Environment Installation Utility requires that Oracle Database Client Home is set in the path for the user performing the installation.

Prior to running the installation utility, you will need to review the supported platforms document to ensure you have all the Third-Party software installed.

In this menu if the variables are set prior to execution, that value will be defaulted by the installation utility when performing the installation.

When the installation has been completed successfully, the values will be written to an ENVIRON.INI file. When `splenviron.sh` or `splenviron.cmd` is executed, it will read from the `ENVIRON.INI` file to set the environment variables. Refer to the *Oracle Revenue Management and Billing Server Administration Guide* for more information about configuring these values.

Install the Oracle Database Client software specified in the [Supported Platforms](#) section prior to running any of the installation utilities.

The following prompt appears when executing the installation utility:

`Enter Oracle Client Home Directory (<ENTER> quit):`

Note: If the environmental variable `ORACLE_CLIENT_HOME` is set, the install script will validate the variable. If it passes the validation, you will not be prompted for it. This is needed to run Perl installation utilities.

4.5.2   Encryption Methods

The Oracle Utilities Application Framework installation also uses industry standard cryptography to encrypt passwords that are prompted within the installation.

When these passwords are entered in the command line, the input values are not reflected on the screen when performing the installation.

4.5.3   Environment Installation Options

The environment installation options are available during installation. The environment installation options are categorized into the following menus:

- `1. Environment ID, Roles, Third Party Software Configuration`
- `2. Keystore Options`
- `50. Environment Installation Options`

Note: Once the installation is complete, you can change the environment installation options (if required) using the following command:

AIX, Linux:

`$SPLEBASE/bin/configureEnv.sh –i`

Windows:

`%SPLEBASE%\bin\configureEnv.cmd –i`

However, note that you can only edit the menu options of the former two menus and not the latter menu using the `configureEnv` utility.

4.5.3.1   Environment ID, Roles, Third Party Software Configuration

The following table lists and describes the third-party software configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Environment ID	`ENVIRONMENT_ID`	
Server Roles	`SERVER_ROLES`	
Oracle Client Home Directory	`ORACLE_CLIENT_HOME`	
Web Java Home Directory	`JAVA_HOME`	
Hibernate JAR Directory	`HIBERNATE_JAR_DIR`	
ONS JAR Directory **Note:** To activate the RAC FCF, the application needs the external `ons.jar` file. This `ons.jar` is located at `$ORACLE_HOME/opmn/lib`. The `ons.jar` should be copied to the application server. During the OUAF installation, the relevant option should be populated with the location of the `ons.jar` file.	`ONS_JAR_DIR`	
Web Application Server Home Directory	`WEB_SERVER_HOME`	
Additional JAR Directory **Note:** For more information, refer to the Setting Up and Using the Additional JAR Directory section.	`WLTHINT3CLIENT_JAR_DIR`	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.3.2　Keystore Options

The keystore is a set of files used for encryption, decryption, and hash generation. The files reside at the following locations:

- `<SPLEBASE>/ks/.ouaf_keystore`
- `<SPLEBASE>/ks/.ouaf_storepass`

To run the application correctly, data encryption, decryption, and hash generation of data in the database and on the application, server must be performed using the same keystore; otherwise, the application will fail.

From Oracle Utilities Application Framework Version 4.4.0.0.0, the keystore and truststore options have been removed from the **Environment Installation** menu and defaulted in the following user exit template, which is used by all the properties files:

`templates/FW_spl.properties.keystore.truststore.include`

The user can still customize the keystore and truststore options. For more information, refer to the Centralized Properties Customization section.

> **Note:** Oracle Utilities Application Framework Version below 4.4.0.0.0 still uses the keystore and truststore options stored in the existing **etc/ENVIRON.INI** file.

The following table lists and describes the keystore menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Import Keystore Directory	`KS_IMPORT_KEYSTORE_FOLDER`	

> **Note:** Set the **Import Keystore Directory** option to import an existing keystore.

For more information on how to setup keystores, refer to the *Oracle Revenue Management and Billing Security Guide*.

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.3.3　Environment Installation Options

The following table lists and describes the environment installation menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Environment Mount Point	`SPLDIR`	
Log Files Mount Point	`SPLDIROUT`	
Environment Name	`SPLENVIRON`	
Install Application Viewer Module	`WEB_ISAPPVIEWER`	
Install Sample CM Source Code	`CM_INSTALL_SAMPLE`	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4 Environment Configuration

The environment configuration options are available during installation. Alternatively, you can access these options using the following command:

AIX, Linux:

`$SPLEBASE/bin/configureEnv.sh`

Windows:

`%SPLEBASE%\bin\configureEnv.cmd`

The environment configuration options are categorized into the following menus:

- `1. Environment Description`
- `2. Business Application Server Configuration`
- `3. Web Application Server Configuration`
- `4. Database Configuration`
- `5. General Configuration Options`
- `6. OUAF TrustStore Options`

4.5.4.1 Environment Description

The following table lists and describes the environment menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Environment Description	DESC	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.2 WebLogic Business Application Server Configuration

The following table lists and describes the WebLogic Business Application Server configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Business Server Host	BSN_WLHOST	
Business Server Application Name	BSN_APP	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.3   WebSphere Network Deployment (ND) Business Application Server Configuration

The following table lists and describes the WebSphere ND Business Application Server configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Business Server Host	BSN_WLHOST	
Bootstrap Port	BSN_WASBOOTSTRAPPORT	
WebSphere Server Name	BSN_SVRNAME	
WebSphere Node Name	BSN_NODENAME	
WebSphere Cluster Name	BSN_CLUSTNAME	
Business Server Application Name	BSN_APP	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.4   WebSphere Basic Business Application Server Configuration

The following table lists and describes the WebSphere Basic Business Application Server configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Business Server Host	BSN_WLHOST	
Bootstrap Port	BSN_WASBOOTSTRAPPORT	
WebSphere Server Name	BSN_SVRNAME	
WebSphere Node Name	BSN_NODENAME	
Business Server Application Name	BSN_APP	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.5   WebLogic Web Application Server Configuration

The following table lists and describes the WebLogic Web Application Server configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Web Server Host	WEB_WLHOST	
WebLogic SSL Port Number	WEB_WLSSLPORT	
WebLogic Console Port Number	WLS_ADMIN_PORT	
Web Context Root	WEB_CONTEXT_ROOT	

Menu Option	Corresponding Parameter	Customer Install Value
WebLogic JNDI User ID	WEB_WLSYSUSER	
WebLogic JNDI Password	WEB_WLSYSPASS	
WebLogic Server Name	WEB_WLS_SVRNAME	
Web Server Application Name	WEB_APP	
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	
Enable The Unsecured Health Check Service	WEB_ENABLE_HEALTHCHECK	
MDB RunAs User ID	WEB_IWS_MDB_RUNAS_USER	
Super User IDs	WEB_IWS_SUPER_USERS	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.6 WebSphere Network Deployment (ND) Web Application Server Configuration

The following table lists and describes the WebSphere ND Web Application Server configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Web Server Host	WEB_WLHOST	
WebSphere SSL Port Number	WEB_WASSLPORT	
Web Context Root	WEB_CONTEXT_ROOT	
WebSphere Server Name	WEB_SVRNAME	
WebSphere Node Name	WEB_NODENAME	
WebSphere Cluster Name	WEB_CLUSTNAME	
Web Server Application Name	WEB_APP	
WebSphere JNDI System User ID	WEB_WASUSER	
WebSphere JNDI System Password	WEB_WASPASS	
Deploy Using Archive Files	WEB_DEPLOY_EAR	
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	
Enable The Unsecured Health Check Service	WEB_ENABLE_HEALTHCHECK	
MDB RunAs User ID	WEB_IWS_MDB_RUNAS_USER	
Super User IDs	WEB_IWS_SUPER_USERS	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.7   WebSphere Basic Web Application Server Configuration

The following table lists and describes the WebSphere Basic Web Application Server configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Web Server Host	WEB_WLHOST	
Web Server SSL Port Number	WEB_WLPORT	
Web Context Root	WEB_CONTEXT_ROOT	
WebSphere Server Name	WEB_SVRNAME	
WebSphere Node Name	WEB_NODENAME	
Web Server Application Name	WEB_APP	
WebSphere JNDI System User ID	WEB_WASUSER	
WebSphere JNDI System Password	WEB_WASPASS	
Deploy Using Archive Files	WEB_DEPLOY_EAR	
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	
Enable The Unsecured Health Check Service	WEB_ENABLE_HEALTHCHECK	
MDB RunAs User ID	WEB_IWS_MDB_RUNAS_USER	
Super User IDs	WEB_IWS_SUPER_USERS	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.8 Database Configuration

The following table lists and describes the database configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Application Server Database User ID	DBUSER	
Application Server Database Password	DBPASS	
XAI Database User ID	XAI_DBUSER	
XAI Database Password	XAI_DBPASS	
Batch Database User ID	BATCH_DBUSER	
Batch Database Password	BATCH_DBPASS	
Web JDBC DataSource Name	JDBC_NAME	

Menu Option	Corresponding Parameter	Customer Install Value
Database Name	`DBNAME`	
Database Server	`DBSERVER`	
Database Port	`DBPORT`	
ONS Server Configuration	`ONSCONFIG`	
Database Override Connection String	`DB_OVERRIDE_CONNECTION`	
Character Based Database	`CHAR_BASED_DB`	
Oracle Client Character Set NLS_LANG	`NLS_LANG`	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

Points to Note:

If any of the database menu option value is changed (thus, potentially connecting to a different schema), the system displays the following warning corresponding to the menu option:

"This database option has been changed. Since the keystore and encrypted data in the database must be compatible, you have two options:

>> load the compatible keystore into the environment;

>> keep the current keystore, re-enter any encrypted information online through the application, and re-generate the database hashes."

Refer to the *Oracle Revenue Management and Billing Security Guide* for more information.

4.5.4.9 General Configuration Options

The following table lists and describes the general configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Batch RMI Port	`BATCH_RMI_PORT`	
RMI Port number for JMX Business	`BSN_JMX_RMI_PORT_PERFORMAN CE`	
RMI Port number for JMX Web	`WEB_JMX_RMI_PORT_PERFORMAN CE`	
JMX Enablement System User ID	`BSN_JMX_SYSUSER`	
JMX Enablement System Password	`BSN_JMX_SYSPASS`	
Coherence Cluster Name	`COHERENCE_CLUSTER_NAME`	
Coherence Cluster Address	`COHERENCE_CLUSTER_ADDRESS`	
Coherence Cluster Port	`COHERENCE_CLUSTER_PORT`	

Menu Option	Corresponding Parameter	Customer Install Value
Coherence Cluster Mode	COHERENCE_CLUSTER_MODE	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.4.10 OUAF TrustStore Options

The OUAF TrustStore configuration is required for Inbound Web Services (IWS). The following table lists and describes the OUAF TrustStore menu options:

Menu Option	Corresponding Parameter	Customer Value Install
Import TrustStore Directory	TS_IMPORT_KEYSTORE_FOLDER	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.5 Advanced Menu Options

The advanced menu options are not available during installation. These options can be accessed after installation using the following commands:

AIX, Linux:

$SPLEBASE/bin/configureEnv.sh –a

Windows:

%SPLEBASE%\bin\configureEnv.cmd –a

The advanced menu options are categorized into the following menus:

- 50. Advanced Environment Miscellaneous Configuration
- 51. Advanced Environment Memory Configuration
- 52. Advanced Web Application Configuration
- 54. WebLogic Diagnostics
- 55. URI, File and URL Related Options
- 56. Mobile Security Configuration

4.5.5.1 Advanced Environment Miscellaneous Configuration

The following table lists and describes the advanced environment miscellaneous configuration menu options:

Menu Option	Corresponding Parameter	Customer Value Install
OUAF DBMS Scheduler User	OUAF_DBMS_SCHEDULER_USER	
WebLogic ThreadPoolWorker Enabled	WLS_THEADPOOLWORKERENABLED	
Online JVM Batch Server Enabled	BATCHENABLED	

Menu Option	Corresponding Parameter	Customer Value Install
Online JVM Batch Number of Threads	`BATCHTHREADS`	
Online JVM Batch Scheduler Daemon Enabled	`BATCHDAEMON`	
Enable Batch Edit Functionality	`BATCHEDIT_ENABLED`	
Batch Online Log Directory	`BATCH_ONLINE_LOG_DIR`	
JDBC Read Timeout	`JDBC_TIMEOUT`	
Enable JMS Global Flush for Batch	`ENABLE_JMS_GLOBAL_FLUSH`	
Add UsernameToken.xml	`ADD_USERNAMETOKEN_XML`	
IWS Deployment Target	`WLS_CLUSTER_NAME`	
Web Admin Server Host	`WEB_ADMIN_SERVER`	
Split File Size in MB	`TEMPSTORAGE_SPLITFILESIZE`	
GIS Service Running on the same Web Server	`GIS`	
GIS Service URL	`GIS_URL`	
GIS WebLogic System User ID	`GIS_WLSYSUSER`	
GIS WebLogic System Password	`GIS_WLSYSPASS`	
Online Display Software Home	`ONLINE_DISPLAY_HOME`	
Max Queries To Hold In Cache Across All Threads	`XQUERIES_TO_CACHE`	
Seconds Timeout Flush Cache Completely	`XQUERY_CACHE_FLUSH_TIMEOUT`	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.5.2 Advanced Environment Memory Configuration

The following table lists and describes the advanced environment memory configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Global JVM Arguments	`GLOBAL_JVMARGS`	
Ant Min Heap Size	`ANT_OPT_MIN`	
Ant Max Heap Size	`ANT_OPT_MAX`	
Ant Additional Options	`ANT_ADDITIONAL_OPT`	
Thread Pool Worker Java Min Heap Size	`BATCH_MEMORY_OPT_MIN`	

Menu Option	Corresponding Parameter	Customer Install Value
Thread Pool Worker Java Max Heap Size	BATCH_MEMORY_OPT_MAX	
Thread Pool Worker Additional Options	BATCH_MEMORY_ADDITIONAL_OPT	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.5.3 Advanced Web Application Configuration

The following table lists and describes the advanced web application configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Deploy XAI Application Module	WEB_DEPLOY_XAIAPP	
Web Application Cache Settings	WEB_L2_CACHE_MODE	
Web Server Port Number	WEB_WLPORT	
CSRF Protection For REST Services	CSRF_PROTECTION	
OWSM Protection For REST Services	OWSM_PROTECTION_FOR_REST_SERVICES	
Domain Home Location	WLS_DOMAIN_HOME	
Batch Cluster URL	WEB_BATCH_CLUSTER_URL	
Strip HTML Comments	STRIP_HTML_COMMENTS	
Authentication Login Page Type	WEB_WLAUTHMETHOD	
Web Form Login Page	WEB_FORM_LOGIN_PAGE	
Web Form Login Error Page	WEB_FORM_LOGIN_ERROR_PAGE	
Application Viewer Form Login Page	WEB_APPVIEWER_FORM_LOGIN_PAGE	
Application Viewer Form Login Error Page	WEB_APPVIEWER_FORM_LOGIN_ERROR_PAGE	
Help Form Login Page	WEB_HELP_FORM_LOGIN_PAGE	
Help Form Login Error Page	WEB_HELP_FORM_LOGIN_ERROR_PAGE	
Web Security Role	WEB_SECURITY_NAME	
Web Principal Name	WEB_PRINCIPAL_NAME	
Application Viewer Security Role	WEB_APPVIEWER_ROLE_NAME	
Application Viewer Principal Name	WEB_APPVIEWER_PRINCIPAL_NAME	

Menu Option	Corresponding Parameter	Customer Install Value
This is a development environment	WEB_ISDEVELOPMENT	
Preload All Pages on Startup	WEB_PRELOADALL	
Maximum Age of a Cache Entry for Text	WEB_MAXAGE	
Maximum Age of a Cache Entry for Images	WEB_MAXAGEI	
JSP Recompile Interval(s)	WEB_WLPAGECHECKSECONDS	
Enable Strict Transport Security	STRICT_TRANSPORT_SECURITY	
Strict Transport Security Max Age	HSTS_MAX_AGE	
Strict Transport Security Include Subdomains	HSTS_SUBDOMAINS	
Strict Transport Security Preload	HSTS_PRELOAD	
User Interface Style	USER_INTERFACE_STYLE	OPE
		Note: We recommend that you set the value of this menu option to **OPE** to use the old-style user experience and not the redwood style user experience.
Oracle Guided Learning Id	ORACLE_GUIDED_LEARNING_ID	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.5.4 WebLogic Diagnostics

The following table lists and describes the WebLogic diagnostics menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Diagnostic Context Enabled	WLS_DIAGNOSTIC_CONTEXT_ENABLED	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.5.5 URI, File and URL Related Options

The following table lists and describes the URI, File and URL related menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Enable CORS For Embedded UI	ENABLE_CORS	

Menu Option	Corresponding Parameter	Customer Install Value
Allowed Frame Ancestors Max Number	**Note:** At present, this menu option is not used in the ORMB application. It will be used in the future ORMB release.	
URI For Variable CSP_FRAME_ANS_HOST1	**Note:** At present, this menu option is not used in the ORMB application. It will be used in the future ORMB release.	
URI For Variable CSP_FRAME_ANS_HOST2	**Note:** At present, this menu option is not used in the ORMB application. It will be used in the future ORMB release.	
URI For Variable FA_DOMAIN	**Note:** At present, this menu option is not used in the ORMB application. It will be used in the future ORMB release.	
URI For Variable ALM_DOMAIN	**Note:** At present, this menu option is not used in the ORMB application. It will be used in the future ORMB release.	
Restriction URIs Enable	`CLOUD_RESTRICTION_URLS_ENABLE`	
Custom SQL Security	`CUSTOM_SQL_SECURITY`	
White List Full Path	`CLOUD_WHITE_LIST_PATH`	
Custom White List Full Path	`CLOUD_CUSTOM_WHITE_LIST_PATH`	
Substitution Variable List File Location	`CLOUD_SUBSTITUTION_VARIABLE_LIST_FILE_LOCATION`	
Directory For Variable F1_CMA_FILES	`CLOUD_LOCATION_F1_MIGR_ASSISTANT_FILES`	
URI For Variable F1_OAUTH2_URI	`CLOUD_LOCATION_F1_OAUTH2_URI`	
URI For Variable F1_BASE_REST_URL	`CLOUD_LOCATION_F1_BASE_REST_URL`	
URI for Variable F1_OPEN_API_BASE_URL	`CLOUD_LOCATION_F1_OPEN_API_BASE_URL`	
URI For Variable F1_BASE_WEB_URI	`CLOUD_LOCATION_F1_BASE_WEB_URI`	
URI For Variable F1_BASE_IWS_URI	`CLOUD_LOCATION_F1_BASE_IWS_URI`	
Consolidated Logfile Full Path	`CONSOLIDATED_LOG_FILE_PATH`	
Temporary File Location	`TMP_FILE_LOCATION`	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

4.5.5.6   Mobile Security Configuration

The following table lists and describes the mobile security configuration menu options:

Menu Option	Corresponding Parameter	Customer Install Value
Enable Mobile Application	MOBILE_ENABLED	
Deploy Only Mobile Web Application	MOBILE_APP_ONLY	
Mobile Application Directory	MOBILE_APPDIR	
Allow Self Signed SSL Certificates	ALLOW_SELFSIGNED_SSL	
Force Http Connection	FORCE_HTTP	
Web Mobile Form Login Page	WEB_MOBILE_FORM_LOGIN_PAGE	
Web Mobile Form Login Error Page	WEB_MOBILE_FORM_LOGIN_ERROR_PAGE	

For more information about the parameter, refer to the *Oracle Revenue Management and Billing Server Administration Guide*.

5.   Installing Application Server Prerequisite Software

This section describes the software that needs to be installed for each of the supported operating system and application server combinations. This section includes:

- AIX 7.2 Application Server
- Oracle Linux 8.x and Red Hat Enterprise Linux 8.x Application Server
- Microsoft Windows 2016+ Application Server
- Additional Prerequisite Software Information

5.1   AIX 7.2 Application Server

This section describes the software requirements for operating the application using the AIX application server.

5.1.1   Supported Application Servers

Operating System	Chipsets	Application Server
AIX 7.2 TL3+ (64-bit) **Note:** Version numbers suffixed with "+" are the MINIMUM version supported. That version and all future 4th digit updates will be supported.	POWER 64-bit	Oracle WebLogic 12.2.1.4 (64-bit)

5.1.2   Web/Application Server Tier

AIX 7.2 TL3+ Operating System Running on Power5 and Power6 Architecture

UNIX Administrator User ID

The following user groups and accounts must be created to install and administer the application:

Description	Default Value	Customer Defined Value
ORMB Administrator User ID	`cissys`	-
ORMB User Group	`cisusr`	-

Note: It is recommended that you change the default values for security reasons.

Throughout this document the administrator user ID is often referred to as the "`cissys`" user ID. You should substitute that with the customer defined user ID when not using the default value. After the initial install, the software should always be managed using that user ID.

By default, `cissys` is the only user ID that can be used to access the installed files.

1. Create the `cisusr` user group.
2. Create the `cissys` user. The primary group is `cisusr`.
3. Set the primary shell for the `cissys` user to `Korn` Shell.

The shell scripts use ">" to overwrite shell functionality. By default, your operating system may be configured to not allow this functionality in the Users shell.

To avoid file access permission problems while executing scripts, consider placing the following command into `cissys` profile script:

```
set +o noclobber
```

Security Configuration

Various options exist to secure a system. In this application, all files will be created with the minimum permissions required to ensure that group-readable, group-writable and group-executable files will have the correct user groups and to restrict the permissions available to legitimate users. In this way, a low privileged end user cannot directly edit configuration files and thereby bypass application security controls.

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 077 to ensure files created during normal operation have the correct permissions.

Replace these users and groups for your installation defaults:

User	Group	Description
cissys	cisusr	This user will be used to install the application and to apply patches. This user will own all the application files. The same care should be taken with this user ID as if it is 'root'. This user will be able to add, delete and modify the files within the application.
cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than the generated log files.

Note: The Oracle Database Client and Oracle WebLogic should be installed as the user who will stop and start the application. For example, if you plan to run the application as the install user these components must belong to `cissys`.

You must use the same user for starting and stopping a process. For example, if `cissys` is used to start the application server, then use `cissys` to stop it as well.

Oracle Database Client 19c - Runtime Option

Oracle Database 19c Enterprise Edition can be downloaded from [Oracle Software Delivery Cloud](). Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

For the `cissys` user ID, ensure that the `ORACLE_CLIENT_HOME` environment variable is set up, and that `ORACLE_CLIENT_HOME/perl/bin` is the first Perl listed in the `cissys` account's `PATH` variable.

Note: For instructions on how to install the database client, see <u>Database Client Installation Guide for IBM AIX on POWER Systems</u>.

IBM Java Software Development Kit Version 8.0 (64-bit)

Installation of Java as a prerequisite is only needed if you are using Oracle WebLogic as a Web application server. At the time of release, AIX Java packages could be obtained from:

<u>https://www.ibm.com/support/pages/java-sdk-aix</u>

The web server requires the 64-bit Java platform to function. The main prerequisite for the web server is the version of Java mentioned above.

For the Administrator user ID (`cissys`), ensure that the `JAVA_HOME` environment variable is set up, and that Java can be found in `cissys' PATH` variable.

Note: For instructions on how to install the JDK, see <u>Installing the SDK</u>.

Hibernate 4.1.0

You must install Hibernate 4.1.0 before installing Oracle Revenue Management and Billing. To install Hibernate External JAR files to the Hibernate Third-Party JARs Depot:

1. Create a Hibernate Third-Party JARs Depot:

    ```
    export HIBERNATE_JAR_DIR=<Hibernate Third-Party JARs Depot>
    ```

2. Download the `hibernate-release-4.1.0.Final.zip` file from the following location:

    <u>http://sourceforge.net/projects/hibernate/files/hibernate4/</u>

3. Click the "4.1.0.Final" link to download the zip file.

4. Extract the contents of the zip file:

    ```
    unzip hibernate-release-4.1.0.Final.zip
    ```

Note: You must have Java JDK installed on the machine to use the jar command. Make sure you install the JDK supported for your platform.

5. Copy the JAR files to the Hibernate JAR Directory (`$HIBERNATE_JAR_DIR`) using the following commands:

    ```
    cp hibernate-release-4.1.0.Final/lib/optional/ehcache/hibernate-ehcache-4.1.0.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/hibernate-commons-annotations-4.0.1.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/hibernate-core-4.1.0.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/hibernate-jpa-2.0-api-1.0.1.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/javassist-3.15.0-GA.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/jboss-transaction-api_1.1_spec-1.0.0.Final.jar $HIBERNATE_JAR_DIR
    ```

6. Another package needs to be downloaded to get the `jboss-logging-3.3.0.Final.jar` file. Download the `hibernate-release-5.2.3.Final.zip` file from the following location:

   https://sourceforge.net/projects/hibernate/files/hibernate-orm/

7. Click the "5.2.3.Final" link to download the zip file.

8. Extract the contents of the zip file:

   ```
   unzip hibernate-release-5.2.3.Final.zip
   ```

9. Copy the `jboss-logging-3.3.0.Final.jar` file to the Hibernate JAR Directory (`$HIBERNATE_JAR_DIR`) using the following command:

   ```
   cp hibernate-release-5.2.3.Final/lib/required/jboss-logging-
   3.3.0.Final.jar to $HIBERNATE_JAR_DIR
   ```

Oracle WebLogic Server 12.2.1.4 (64-bit)

Oracle WebLogic software can be downloaded from Oracle Software Delivery Cloud. This application server will run as a 64-bit application.

- Download and install 64-bit Java (as documented above) before installing Oracle WebLogic.
- Download and install Oracle WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.4.

Points to Note:

For instructions on how to install the WebLogic Server, see Installing and Configuring the Oracle Fusion Middleware Infrastructure.

With Oracle Utilities Application Framework V4.5.0.0.0, an Oracle WebLogic native installation is required. Refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Document ID: 2413918.1)* article on My Oracle Support.

While creating a domain, select the **Oracle Restricted JRF [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension [wlserver]** option is selected automatically.

Once the domain is created in WebLogic, you need to do the following:

1. Add `startScriptEnabled=true` in the following file:

   `<WebLogic_Home>/nodemanager/nodemanager.properties`

2. Add the below two lines in the `DOMAIN_PATH/bin/setDomainEnv.sh` file:

   `SPLEBASE=<ORMB_INSTALLATION_PATH>`

   `export SPLEBASE`

5.2 Oracle Linux 8.x and Red Hat Enterprise Linux 8.x Application Server

This section describes the software requirements for operating the application using the Oracle Linux or Red Hat Enterprise Linux application server.

5.2.1 Supported Application Servers

Operating System	Chipsets	Application Server
Oracle Linux 8.x (64-bit)	x86_64	Oracle WebLogic 12.2.1.4 (64-bit) IBM WebSphere 9.0.5.6 (64-bit)
Red Hat Enterprise Linux 8.x (64-bit) **Note:** Oracle Revenue Management and Billing is tested and certified on Oracle Linux 8.x. Oracle Linux is 100% user space-compatible with Red Hat Enterprise Linux, and therefore Oracle Revenue Management and Billing is supported on Red Hat Enterprise Linux.	x86_64	Oracle WebLogic 12.2.1.4 (64-bit) IBM WebSphere 9.0.5.6 (64-bit)

5.2.2 Web/Application Server Tier

Oracle Linux 8.x or Red Hat Enterprise Linux 8.x Operating System Running on x86_64 (64-bit) Architecture

Linux Administrator User ID

The following user groups and accounts must be created to install and administer the application:

Description	Default Value	Customer Defined Value
ORMB Administrator User ID	`cissys`	-
ORMB User Group	`cisusr`	-

Note: It is recommended that you change the default values for security reasons.

Throughout this document the administrator user ID is often referred to as the `"cissys"` user ID. You should substitute that with the customer defined user ID when not using the default value. After the initial install, the software should always be managed using that user ID.

By default, `cissys` is the only user ID that can be used to access the installed files.

1. Create the `cisusr` user group.
2. Create the `cissys` user. The primary group is `cisusr`.
3. Set the primary shell for the `cissys` user to `Korn` Shell.

The shell scripts use ">" to overwrite shell functionality. By default, your operating system may be configured to not allow this functionality in the Users shell.

To avoid file access permission problems while executing scripts, consider placing the following command into `cissys` profile script:

```
set +o noclobber
```

Security Configuration

Various options exist to secure a system. In this application, all files will be created with the minimum permissions required to ensure that group-readable, group-writable, and group-executable files will have the correct user groups and to restrict the permissions available to legitimate users. In this way, a low privileged end user cannot directly edit configuration files and thereby bypass application security controls.

The following users and group categories must be defined to implement this security. For demonstration purposes the following users and groups will be used. These users must be created according to industry standards (including password policies). All users should be created with a default umask of 077 to ensure files created during normal operation have the correct permissions.

Replace these users and groups for your installation defaults:

User	Group	Description
cissys	cisusr	This user will be used to install the application and to apply patches. This user will own all the application files. The same care should be taken with this user ID as if it is 'root'. This user will be able to add, delete and modify the files within the application.
cisadm	cisusr	Administrative and Operation functions will be available to this user. This user will be able to stop and start the application and batch processes, but will not have access to modify any file other than the generated log files.

Note: The Oracle Database Client and Oracle WebLogic should be installed as the user who will stop and start the application. For example, if you plan to run the application as the install user these components must belong to `cissys`.

You must use the same user for starting and stopping a process. For example, if `cissys` is used to start the application server, then use `cissys` to stop it as well.

Oracle Database Client 19c - Runtime Option

Oracle Database 19c Enterprise Edition can be downloaded from [Oracle Software Delivery Cloud](#). Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

For the `cissys` user ID, ensure that the `ORACLE_CLIENT_HOME` environment variable is set up, and that `ORACLE_CLIENT_HOME/perl/bin` is the first Perl listed in the `cissys` account's `PATH` variable.

Note: For instructions on how to install the database client, see [Database Client Installation Guide for Linux](#).

Oracle Java Development Kit Version 8.0 Update 351 or Later, 64-Bit

At the time of release, Oracle Java packages could be obtained from:

https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html

The Oracle WebLogic Server requires the 64-bit version. The main prerequisite for the web server is the version of Java mentioned above.

For the `cissys` user ID, ensure that the `JAVA_HOME` environment variable is setup, and that `java_home/bin` and `java_home/lib` can be found in `cissys'` `PATH` variable.

Note: For instructions on how to install the JDK, see JDK Installation Guide.

Hibernate 4.1.0

You must install Hibernate 4.1.0 before installing Oracle Revenue Management and Billing. To install Hibernate External JAR files to the Hibernate Third-Party JARs Depot:

1. Create a Hibernate Third-Party JARs Depot:

    ```
    export HIBERNATE_JAR_DIR=<Hibernate Third-Party JARs Depot>
    ```

2. Download the `hibernate-release-4.1.0.Final.zip` file from the following location:

    http://sourceforge.net/projects/hibernate/files/hibernate4/

3. Click the "4.1.0.Final" link to download the zip file.

4. Extract the contents of the zip file:

    ```
    unzip hibernate-release-4.1.0.Final.zip
    ```

Note: You must have Java JDK installed on the machine to use the jar command. Make sure you install the JDK supported for your platform.

5. Copy the JAR files to the Hibernate JAR Directory (`$HIBERNATE_JAR_DIR`) using the following commands:

    ```
    cp hibernate-release-4.1.0.Final/lib/optional/ehcache/hibernate-
    ehcache-4.1.0.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/hibernate-commons-
    annotations-4.0.1.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/hibernate-core-
    4.1.0.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/hibernate-jpa-2.0-
    api-1.0.1.Final.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/javassist-3.15.0-
    GA.jar $HIBERNATE_JAR_DIR

    cp hibernate-release-4.1.0.Final/lib/required/jboss-transaction-
    api_1.1_spec-1.0.0.Final.jar $HIBERNATE_JAR_DIR
    ```

6. Another package needs to be downloaded to get the `jboss-logging-3.3.0.Final.jar` file. Download the `hibernate-release-5.2.3.Final.zip` file from the following location:

    https://sourceforge.net/projects/hibernate/files/hibernate-orm/

7. Click the "5.2.3.Final" link to download the zip file.

8. Extract the contents of the zip file:

   `unzip hibernate-release-5.2.3.Final.zip`

9. Copy the `jboss-logging-3.3.0.Final.jar` file to the Hibernate JAR Directory (`$HIBERNATE_JAR_DIR`) using the following command:

   `cp hibernate-release-5.2.3.Final/lib/required/jboss-logging-3.3.0.Final.jar to $HIBERNATE_JAR_DIR`

Oracle WebLogic Server 12.2.1.4 (64-bit)

Oracle WebLogic software can be downloaded from Oracle Software Delivery Cloud. This application server will run as a 64-bit application.

- Download and install 64-bit Java (as documented above) before installing Oracle WebLogic.
- Download and install Oracle WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.4.

Points to Note:

For instructions on how to install the WebLogic Server, see Installing and Configuring the Oracle Fusion Middleware Infrastructure.

With Oracle Utilities Application Framework V4.5.0.0.0, an Oracle WebLogic native installation is required. Refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework* (Document ID: 2413918.1) article on My Oracle Support.

While creating a domain, select the **Oracle Restricted JRF [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension [wlserver]** option is selected automatically.

Once the domain is created in WebLogic, you need to do the following:

1. Add `startScriptEnabled=true` in the following file:

   `<WebLogic_Home>/nodemanager/nodemanager.properties`

2. Add the below two lines in the `DOMAIN_PATH/bin/setDomainEnv.sh` file:

   `SPLEBASE=<ORMB_INSTALLATION_PATH>`

   `export SPLEBASE`

IBM WebSphere Application Server 9.0.5.6 (64-bit)

WebSphere must be purchased and downloaded from IBM. It must be installed and configured prior to the Oracle Revenue Management and Billing installation. This Web application server will run as a 64-bit application.

A single WebSphere server represents a single Oracle Revenue Management and Billing environment. You can install multiple environments on a single WebSphere Installation by creating additional WebSphere servers. Refer to the Configuring WebSphere Application Server section for the configuration steps.

IBM WebSphere ND Application Server 9.0.5.6 (64-bit)

WebSphere must be purchased and downloaded from IBM. It must be installed and configured prior to the Oracle Revenue Management and Billing installation. This Web application server will run as a 64-bit application.

A single WebSphere server represents a single Oracle Revenue Management and Billing environment. You can install multiple environments on a single WebSphere Installation by creating additional WebSphere servers. Refer to the Configuring WebSphere Application Server section for the configuration steps.

5.3 Microsoft Windows 2016+ Application Server

This section describes the software requirements for operating the application using the Microsoft Windows application server.

5.3.1 Supported Application Servers

Operating System	Chipsets	Application Server
Microsoft Windows Server 2016+ (64-bit)	x86_64	Oracle WebLogic 12.2.1.4 (64-bit)

Note: Microsoft Windows Server is not supported for the Production environments. Wherever Microsoft Windows Server is referenced within this document, it is supported only for the Testing or Development environments.

5.3.2 Web/Application Server Tier

File and Directory Names Limitations

File and directory names cannot contain spaces. Due to limitations in Microsoft Windows, fully qualified filenames cannot exceed 2047 characters.

Oracle Database Client 19c — Runtime Option

Oracle Database 19c Enterprise Edition can be downloaded from Oracle Software Delivery Cloud. Install Oracle Database Client as described in the Oracle Database Client Installation documentation. Use the `cissys` account to install Oracle Database Client. If another user installs Oracle Database Client, make sure the `cissys` user ID has the proper execute permissions.

For the `cissys` user ID, ensure that the `ORACLE_CLIENT_HOME` environment variable is set up, and that `ORACLE_CLIENT_HOME\perl\bin` is the first Perl listed in the `cissys` account's `PATH` variable.

Note: For instructions on how to install the database client, see Database Client Installation Guide for Microsoft Windows.

Oracle Java Development Kit Version 8.0 Update 351 or Later, 64-Bit

At the time of release, Oracle Java packages could be obtained from:

https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html

The Oracle WebLogic Server requires the 64-bit version. The main prerequisite for the web server is the version of Java mentioned above.

For the `cissys` user ID, ensure that the `JAVA_HOME` environment variable is setup, and that `java_home\bin` and `java_home\lib` can be found in `cissys'` `PATH` variable.

Note: For instructions on how to install the JDK, see JDK Installation Guide.

Hibernate 4.1.0

You must install Hibernate 4.1.0 before installing Oracle Revenue Management and Billing. To install Hibernate External JAR files to the Hibernate Third-Party JARs Depot:

1. Create a Hibernate Third-Party JARs Depot:

   ```
   set HIBERNATE_JAR_DIR=<Hibernate Third-Party JARs Depot>
   ```

2. Download the `hibernate-release-4.1.0.Final.zip` file from the following location:

   http://sourceforge.net/projects/hibernate/files/hibernate4/

3. Click the "4.1.0.Final" link to download the zip file.

4. Extract the contents of the zip file:

   ```
   unzip hibernate-release-4.1.0.Final.zip
   ```

Note: You must have Java JDK installed on the machine to use the jar command. Make sure you install the JDK supported for your platform.

5. Copy the JAR files to the Hibernate JAR Directory (`$HIBERNATE_JAR_DIR`) using the following commands:

   ```
   cp hibernate-release-4.1.0.Final/lib/optional/ehcache/hibernate-
   ehcache-4.1.0.Final.jar %HIBERNATE_JAR_DIR%

   cp hibernate-release-4.1.0.Final/lib/required/hibernate-commons-
   annotations-4.0.1.Final.jar %HIBERNATE_JAR_DIR%

   cp hibernate-release-4.1.0.Final/lib/required/hibernate-core-
   4.1.0.Final.jar %HIBERNATE_JAR_DIR%

   cp hibernate-release-4.1.0.Final/lib/required/hibernate-jpa-2.0-
   api-1.0.1.Final.jar %HIBERNATE_JAR_DIR%

   cp hibernate-release-4.1.0.Final/lib/required/javassist-3.15.0-
   GA.jar %HIBERNATE_JAR_DIR%

   cp hibernate-release-4.1.0.Final/lib/required/jboss-transaction-
   api_1.1_spec-1.0.0.Final.jar %HIBERNATE_JAR_DIR%
   ```

6. Another package needs to be downloaded to get the `jboss-logging-3.3.0.Final.jar` file. Download the `hibernate-release-5.2.3.Final.zip` file from the following location:

   https://sourceforge.net/projects/hibernate/files/hibernate-orm/

7. Click the "5.2.3.Final" link to download the zip file.

8. Extract the contents of the zip file:

   ```
   unzip hibernate-release-5.2.3.Final.zip
   ```

9. Copy the `jboss-logging-3.3.0.Final.jar` file to the Hibernate JAR Directory (`%HIBERNATE_JAR_DIR%`) using the following command:

```
cp hibernate-release-5.2.3.Final/lib/required/jboss-logging-
3.3.0.Final.jar to %HIBERNATE_JAR_DIR%
```

Oracle WebLogic Server 12.2.1.4 (64-bit)

Oracle WebLogic software can be downloaded from Oracle Software Delivery Cloud. This application server will run as a 64-bit application.

- Download and install 64-bit Java (as documented above) before installing Oracle WebLogic.
- Download and install Oracle WebLogic Server using Fusion Middleware Infrastructure Installer 12.2.1.4.

Points to Note:

For instructions on how to install the WebLogic Server, see Installing and Configuring the Oracle Fusion Middleware Infrastructure.

With Oracle Utilities Application Framework V4.5.0.0.0, an Oracle WebLogic native installation is required. Refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework* (Document ID: 2413918.1) article on My Oracle Support.

While creating a domain, select the **Oracle Restricted JRF [oracle_common]** option from the **Create Domain Using Product Templates** page in the **Fusion Middleware Configuration Wizard**. The **WebLogic Coherence Cluster Extension [wlserver]** option is selected automatically.

Once the domain is created in WebLogic, you need to do the following:

1. Add `startScriptEnabled=true` in the following file:

   `<WebLogic_Home>/nodemanager/nodemanager.properties`

2. Add the below two lines in the `DOMAIN_PATH/bin/setDomainEnv.cmd` file:

   `SPLEBASE=<ORMB_INSTALLATION_PATH>`

   `Set SPLEBASE`

5.4   Additional Prerequisite Software Information

This section outlines additional information related to installing the prerequisite software, including:

- Setting Up and Using the Additional JAR Directory

5.4.1   Setting Up and Using the Additional JAR Directory

The **Additional JAR Directory** menu option must be populated when the Web Application Server Home directory is not set. For example, when the environment is used only for batch generation and the server has no Oracle WebLogic installed. In this scenario, the additional JAR directory must be created prior to the installation and the following list of Oracle WebLogic JARs should be copied to that directory (full path from the actual Oracle WebLogic location which must be installed in the web server).

`<Web Application Server Home Directory>/server/lib/wlthint3client.jar`

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.codehaus.woodstox.stax2-
api.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.glassfish.jersey.core.jersey-
client.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.glassfish.jersey.core.jersey-
common.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.glassfish.jersey.bundles.repac
kaged.jersey-guava.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.glassfish.jersey.core.jersey-
server.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.glassfish.jersey.media.jersey-
media-jaxb.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/org.glassfish.jersey.media.jersey-
media-multipart.jar
```

```
<Web Application Server Home
Directory>/../oracle_common/modules/com.fasterxml.woodstox.woodstox-
core.jar
```

If the **Additional JAR Directory** menu option is configured, the `initialSetup` process will pull the JARs from the specified directory. However, if the **Additional JAR Directory** menu option is not configured, the `initialSetup` process will pull the JARs from the Web Application Server Home directory.

6. Configuring WebSphere Application Server

This section describes tasks that you should complete before you install the Oracle Utilities Application Framework. It also describes configuration tasks you should complete after installing Oracle Revenue Management and Billing. It includes the following:

- Configuring WebSphere Basic
- Configuring WebSphere Network Deployment

6.1 Configuring WebSphere Basic

6.1.1 Pre-installation Tasks

This section describes tasks that you should complete to configure a WebSphere Basic application server before you install the Oracle Utilities Application Framework.

Note: When working within the WebSphere console make sure to apply and save your changes to the Master Configuration when appropriate.

6.1.1.1 Setting of WebSphere Security

There are several security configurations options within WebSphere. In a production environment you must use the security implementation appropriate for your security requirements. During the release cycle, we used the User account repository of the Federated repository. The following procedures describe how to apply these security settings.

Note: Refer to the IBM WebSphere Application Server documentation for more details.

1. Start the WebSphere Administrative Console and log in.
2. Go to Security, Global security.
    a. Check Enable administrative security.
    b. Check Enable application security.
    c. Select Federated repositories from the Available realm definitions
3. Click Apply.

6.1.1.2 Setting WebSphere Application Groups

1. Start the WebSphere Administrative Console and log in.
2. Go to Users and Groups - Manage Groups.
    a. Create the group name of `cisusers` (default group).
3. Click Create.

6.1.1.3   Setting WebSphere Application Users

1. Start the WebSphere Administrative Console and log in.
2. Go to Users and Groups - Manage Users.

    a. Create the user ID of `SYSUSER` (example user)

    b. Add the Group Membership of `cisusers` (created in the previous step) to the user.

3. Click Create.

6.1.1.4   Setting WebSphere JNDI Users

1. Start the WebSphere Administrative Console and log in.
2. Go to Users and Groups, Manage Users.

    a. Create the user ID of JNDI (example user).

    b. Add the Group Membership of `cisusers` (created in the previous step) to the JNDI user, created in this step.

3. Click Create.

6.1.1.5   Creation of Additional Servers in WebSphere - Sample Script

You must also provide the name of servers during OUAF installation. You can use the following sample script to create additional servers using the wsadmin.sh tool.

Note: There are several other ways to accomplish this task.

1. Initialize the `wsadmin.sh` session:

    ```
    <$WAS_HOME>/bin/wsadmin.sh -host localhost –port
    <SoapConnectorPort> -conntype SOAP –username <WebSphereUserName>
    -password <WebSphereUserPassword>
    ```

Note: Substitute $WAS_HOME, WebSphereUserName, SoapConnectorPort, WebSphereUserPassword, with values that are appropriate for your installation. For example:

```
/ouaf/IBM/WebSphere85/AppServer/bin/wsadmin.sh  -host  localhost  –port
8889 –conntype SOAP
```

2. Create the server instance:

    ```
    <wsadmin> $AdminTask createApplicationServer <nodeName> {-name
    <ServerName>}
    ```

3. Save the configuration using the following command:

    ```
    <wsadmin> $AdminConfig save
    ```

6.1.1.6   Setting General Server Properties

1. Connect to the WebSphere administrative console.
2. Select Servers, Server Types, WebSphere application servers, and then select Application Servers.
3. Select your server's name.

4. Under the section General Properties.

    a. Deselect Parallel start.

    b. Deselect Run in development mode.

5. Click OK.

6. Click Save to commit the setting.

6.1.1.7 Enabling SOAP Communication with WebSphere

The OUAF configuration scripts communicate with WebSphere as a SOAP client by using Jython commands to perform environment maintenance (for example, stop, start, deploy, undeploy).

To enable SOAP communication with WebSphere:

1. In a text editor, open the following file:

   `$WAS_HOME/profiles/<PROFILE_NAME>/properties/soap.client.props`

2. Edit the property lines as follows:

   `a. com.ibm.SOAP.requestTimeout=0`

   `b. com.ibm.SOAP.loginUserid=< WebSphere_User_Id >`

   `c. com.ibm.SOAP.loginPassword=< WebSphere_Password >`

Note: Refer to the IBM WebSphere Application Server documentation for more details.

3. If you want to encode the password in the `soap.client.props` file, then run the `PropFilePasswordEncoder` command from the `$WAS_HOME/profiles/<PROFILE_NAME>/bin` directory.

   This command is specific to IBM WebSphere Application Server. It encodes passwords located in plain-text property files.

4. Save and close the file.

6.1.1.8 Enabling RMI Communication with WebSphere (Web Services Enable Environment)

The Inbound Web Services (IWS) Deployment configuration scripts communicate with WebSphere using RMI for IWS commands to perform actions for IWS (for example, deploy and undeploy of the WebService.war file). When the following items are not completed, the deployment run would appear to "hang", most importantly if submitted from the OUAF online Inbound Web Services Deployment page.

To allow the deployment tasks to know RMI communication with WebSphere:

1. In a text editor, open the following file:

   `$WAS_HOME/profiles/<PROFILE_NAME>/properties/sas.client.props`

2. Edit the property lines as follows:

   `a. com.ibm.CORBA.loginSource=properties`

   `b. com.ibm.CORBA.loginUserid=<WebSphere user ID>`

   `c. com.ibm.CORBA.loginPassword=<WebSphere user password>`

Note: Refer to the IBM WebSphere Application Server documentation for more details. If you want to encode the password in the `sas.client.props` file, then run the `PropFilePasswordEncoder` command from the `$WAS_HOME/profiles/<PROFILE_NAME>/bin` directory.

> This command is specific to IBM WebSphere Application Server. It encodes passwords located in plain-text property files.

3. Save and close the file.

6.1.1.9   Obtaining the Bootstrap Port and WC_defaulthost_secure

You must also provide these port numbers during Oracle Utilities Application Framework installation. Obtain the bootstrap port number and the WC_defaulthost_secure by using the WebSphere administrative console.

Note: The WebSphere application server1 must be running to obtain the bootstrap port number and the WC_defaulthost_secure port number.

To view the bootstrap port number and the WC_defaulthost_secure:

1. Log on to the WebSphere administrative console.
2. Select Servers, Server Types, WebSphere application servers, <server_name> and then select Ports under Communications.
3. The bootstrap port is displayed as BOOTSTRAP_ADDRESS.
4. The WC_defaulthost_secure is displayed as WC_defaulthost_secure.
5. Note the values for WC_defaulthost_secure and BOOTSTRAP_ADDRESS. The Oracle Utilities Application Framework will prompt you for this information during the installation.

6.1.1.10   Set Up a Virtual Host for the Server

1. Select Environment, Virtual Host, default_host, and then select Host Alias.
2. Click New.
3. Enter the following:

    a. Host Name: *

    b. Port: WC_defaulthost_secure Port Number

6.1.1.11   Obtaining the WebSphere Node Name

You must also provide the node name during the installation. Obtain the node name by using the WebSphere administrative console.

Note: The WebSphere application server must be running to obtain the bootstrap port number.

To obtain the node name:

1. Connect to the WebSphere administrative console.
2. Select Servers, Server Types, WebSphere application servers, <server_name>.

Note: Take note of the value for the Node Name.

6.1.1.12 Installing Oracle Utilities Application Framework as a Non-Root User with IBM WebSphere Installed as Root

Installing Oracle Utilities Application Framework as a non-root user on a WebSphere application server running on AIX requires certain permissions. Prior to the installation, verify that the operating system user account installing the framework must write and execute permissions on the directories in which WebSphere will be installed.

6.1.2 Post Installation Tasks

This section describes tasks that you should complete after you have installed Oracle Revenue Management and Billing on a WebSphere application server.

6.1.2.1 Setting Environment Entries

1. Connect to the WebSphere administrative console.
2. Select Servers, Server Types, WebSphere application servers.
3. Select the server's name.
4. Go to Server Infrastructure, and then click Java and Process Management.
5. Select Process Definition.
6. Go to Environment Entries.
7. Click New and add the following Environment Entries:

   a. Name: SPLEBASE

   b. Value: `<$SPLEBASE>`

Note: Substitute $SPLEBASE with appropriate values for your installation.

   c. Name: SPLWAS

   d. Value: WAS

Points to Note:

This value needs to be set for WebServices (IWS).

You will need to restart the server_name before you attempt to start the application on the server.

8. Click OK.
9. Click Save to commit the setting.

6.1.2.2 Setting JVM Memory and Arguments

For Oracle Utilities Application Framework, JVM memory settings must be changed for production environments and/or when processing large volume in a nonproduction environment.

Perform the following steps to set the JVM memory size. The WebSphere application server must be running to set the memory size.

To set the JVM memory size:

1. Connect to the WebSphere administrative console.

2. Select Servers, Server Types, WebSphere application servers.

3. Select the server's name.

4. Go to Server Infrastructure, and then click Java and Process Management.

5. Select Process Definition.

6. Go to Additional Properties, and then click Java Virtual Machine.

7. Enter 2048 for Minimum Heap Size.

8. Enter 4096 for Maximum Heap Size.

Note: Modify the memory settings based on your production installation needs.

9. Enter   –
    `Djava.security.auth.login.config=<$SPLEBASE>/splapp/config/java.l`
    `ogin.config` for Generic JVM arguments.

Note: Substitute $SPLEBASE with appropriate values for your installation. You will need to restart the server_name before you attempt to start the application on the server.

10. Click OK.

11. Click Save to commit the setting.

6.1.2.3   Setting Server Custom Properties

The following custom properties have been needing in the past to enable WebSphere Classloader to load the `correct xalan.jar` file.

To set the Custom Properties:

1. Connect to the WebSphere administrative console.

2. Select Servers, Server Types, WebSphere application servers.

3. Select the server's name.

4. Go to Server Infrastructure, and then click Java and Process Management.

5. Select Process Definition.

6. Go to Additional Properties, and then click Java Virtual Machine.

7. Go to Additional Properties, and then click Custom Properties.

8. Click New.

9. Enter the following information:

    a. Name: `javax.xml.transform.TransformerFactory`

    b. Value: `org.apache.xalan.processor.TransformerFactoryImpl`

10. Click OK.

11. Click Save to commit the setting.

6.1.2.4   Setting the Web Container Custom Properties

To set the Web Container Custom Properties:

1. Connect to the WebSphere administrative console.

2. Select Servers, Server Types, WebSphere application servers.

3. Select the server's name.

4. Go to Container Settings, and then click Web Container Settings.

5. Select Web container.

6. Go to Additional Properties, and then click Custom properties.

7. Click New.

8. Enter the following information:

   a. Name: `com.ibm.ws.webcontainer.invokefilterscompatibility`

   b. Value: `true`

9. Click OK.

10. Click Save to commit the setting.

6.1.2.5   Starting and Stopping WebSphere Servers

To start WebSphere on AIX, use the following script:

`$WAS_HOME/profiles/<profile_name>/bin/startServer.sh`

For example, execute:

`$WAS_HOME/profiles/<profile_name>/bin/startServer.sh <server_name>`

To stop WebSphere on AIX, use the following script:

`$WAS_HOME/profiles/<profile_name>/bin/stopServer.sh`

For example, execute:

`$WAS_HOME/profiles/<profile_name>/bin/stopServer.sh <server_name>`

Note: The Oracle Utilities Application Framework script `spl.sh` does not stop or start the IBM WebSphere servers. It only stops and starts the Oracle Utilities Application Framework-based applications.

6.1.2.6   Deployment via the Admin Console

The following sections describe how to deploy the application using the Admin Console.

Deployment Overview

The application needs to be deployed in the following order:

1. `SPLService.ear`
2. `SPLWeb.ear`

Note: The `SPLService.ear` must be successfully deployed before deploying `SPLWeb.ear`.

Deploying SPLService.ear

1. Select the ear file to deploy.

   a. Select Applications, Install New Application.

   b. Select Remote file system.

   c. Browse to the `SPLService.ear` or enter the full path to the file.

   d. The ear files can be found under `$SPLEBASE/splapp/applications`.

   e. Click Next.

2. Select Option Fast Path - Prompt only when additional information is required. Click Next.

3. On the Select Installation Options page ensure that Deploy enterprise beans is checked. Click Next.

4. Assign the module to the WebSphere server instance.

  When deploying an application from the console, make sure you select the correct server and then click Apply.

5. Review the summary page. Review the installation options.

6. Click Finish. The application will then deploy. The deployment process takes about 5 minutes.

7. Click Save. The save process may take more than 20 minutes.

Deploying SPLWeb.ear

1. Select the ear file to deploy.

   a. Select Applications, Install New Application.

   b. Select Remote file system.

   c. Browse to the SPLWeb.ear or enter the full path to the file.

   d. The ear files can be found under `$SPLEBASE/splapp/applications`.

   e. Click Next.

2. Select Option Fast Path - Prompt only when additional information is required. Click Next.

3. Assign the module to the WebSphere server instance.

> **Note:** When deploying an application from the console, make sure you select the correct server and then click Apply.

4. Review the summary page. Review the installation options.

5. Click Finish. The application will then deploy. The deployment process takes about 5 minutes.

6. Click Save. The save process may take about more than 20 minutes.

Configuring the Applications

You need to apply these steps to both the SPLWeb and SPLService applications unless specified.

1. Set the startup order of the applications (this applies only to SPLWeb):

   a. Select the SPLWeb application from Applications, Enterprise Applications.

   b. Select Startup behavior.

   c. Change the startup order to 2.

   d. Click OK.

   e. Click OK and Save directly to master configuration.

2. Set the class loading order (for both SPLService.ear and SPLWeb.ear): Select Class loading and update detection.

   a. Set Polling interval to 0.

b. Under Class loader order select Classes loaded with application class loader first. Click OK and Save to master configuration.

3. Set the module starting weight:

   a. SPLService only: Set the Starting weight to 1.

   b. SPLWeb only: For each module (.war) set the Starting weight to 10000 and change the Class loader order to Classes loaded with application class loader first.

4. Set EJB JNDI names (this applies only to SPLService). Select Enterprise Java Bean Properties and enter the following values:

   a. EJB module: SPLServiceBean

   b. JNDI name for all interfaces

   c. Target Resource JNDI Name: `ouaf/servicebean`

   d. EJB module: TUGBULiteServiceBean

   e. JNDI name for all interfaces

   f. Target Resource JNDI Name: `ouaf/liteservicebean`

5. Click Ok.

Configuring the Application Security

After using the supplied script to deploy the application to WebSphere you will need to configure each application's security before starting the application.

Using the WebSphere administration console select Applications, Application Types, WebSphere enterprise applications, <Business Server Application Name>, <server name> (for example, SPLService-server2), Security role to user/group mapping.

For role `cisusers`:

- Check Select and the click Map Users:
- Search for SYSUSER, JNDI User, and Admin Console User and add them to the Selected users list.
- Click OK.

Note: Repeat the process for <Web Server Application Name>-<server name> (for example, SPLWeb-server2).

Restarting the WebSphere Server

It is recommended to stop and then restart the WebSphere server. If the application is deployed in server1 you can use the admin console to stop and start the server. If the application is deployed in another server you will need to use the scripts that are supplied with WebSphere (stopServer.sh, startServer.sh).

Note: WebSphere admin console runs under server1.

Application URL

The Web link to the WebSphere application will be:

`https://<hostname>:<WC_defaulthost_secure>/<context_root>/loginPage.jsp`

For example, `https://oracle:9081/ouaf/loginPage.jsp`

6.2   Configuring WebSphere Network Deployment

6.2.1   Preinstallation Tasks

This section describes tasks that you should complete to configure a WebSphere ND application server before you install the Oracle Utilities Application Framework.

When working within the WebSphere Network Deployment (WebSphere ND) console make sure to apply and save your changes to the Master Configuration when appropriate.

6.2.1.1   Setting of WebSphere ND Security

There are several security configurations options within WebSphere ND. In a production environment you must use the security implementation appropriate for your security requirements. During the release cycle, we used the User account repository of the Federated repository. The following procedures describe how to apply these security settings.

> **Note**: Refer to the IBM WebSphere ND Application Server documentation for more details.

1. Start the WebSphere ND DPMGR Administrative Console and log in.
2. Go to Security, Global security.

   a. Check Enable administrative security.

   b. Check Enable application security.

   c. Select Federated repositories from the Available realm definitions.

3. Click Apply.

6.2.1.2   Setting WebSphere ND Application Groups

1. Start the WebSphere ND Administrative Console and log in.
2. Go to Users and Groups - Manage Groups.

   a. Create the group name of cisusers (default group).

3. Click Create.

6.2.1.3   Setting WebSphere ND Application Users

1. Start the WebSphere ND Administrative Console and log in.
2. Go to Users and Groups - Manage Users.

   a. Create the user ID of `SYSUSER` (example user).

   b. Add the Group Membership of `cisusers` (created in the previous step) to the user.

3. Click Create.

6.2.1.4   Setting WebSphere ND JNDI Users

1. Start the WebSphere Administrative Console and log in.
2. Go to Users and Groups - Manage Users.

    a. Create the user ID of JNDI (example user).

    b. Add the Group Membership of `cisusers` to the user ID of JNDI (created above)

3. Click Create.

6.2.1.5   Setting General Server Properties

1. Connect to the WebSphere ND DPMGR administrative console
2. Select Servers, Server Types, WebSphere application servers.
3. Select the server's name.
4. Under the section General Properties.

    a. Deselect Parallel start.

    b. Deselect Run in development mode.

5. Click OK.
6. Click Save to commit the setting.

6.2.1.6   Enabling SOAP Communication with WebSphere ND

The OUAF configuration scripts communicates with WebSphere ND Deployment Manager as a SOAP client by using Jython commands to perform environment maintenance (e.g., stop, start, deploy, undeploy).

To enable SOAP communication with WebSphere ND:

1. In a text editor, open the following file:

    `$WAS_HOME/profiles/<PROFILE_NAME>/properties/soap.client.props`

2. Edit the property lines as follows:

    a. `com.ibm.SOAP.requestTimeout=0`

    b. `com.ibm.SOAP.loginUserid=<WebSphere_User_Id>`

    c. `com.ibm.SOAP.loginPassword=<WebSphere_Password>`

Note: Refer to the IBM WebSphere Application Server documentation for more details.

3. If you want to encode the password in the `soap.client.props` file, then run the `PropFilePasswordEncoder` command from the `$WAS_HOME/profiles/<PROFILE_NAME>/bin` directory.

    This command is specific to IBM WebSphere ND Application Server, and it encodes passwords located in plain-text property files.

4. Save and close the file.

6.2.1.7 Enabling RMI Communication with WebSphere (Web Services Enable Environment)

The Inbound Web Services (IWS) Deployment configuration scripts communicate with WebSphere using RMI for IWS commands to perform actions for IWS (for example, deploy and undeploy of the WebService.war file). When the following items are not completed, the deployment run would appear to "hang", most importantly if submitted from the OUAF online Inbound Web Services Deployment page.

To allow the deployment tasks to know RMI communication with WebSphere:

1. In a text editor, open the following file:

   `$WAS_HOME/profiles/<PROFILE_NAME>/properties/sas.client.props`

2. Edit the property lines as follows:

   a. `com.ibm.CORBA.loginSource=properties`

   b. `com.ibm.CORBA.loginUserid=<WebSphere user ID>`

   c. `com.ibm.CORBA.loginPassword=<WebSphere user password>`

Note: Refer to the IBM WebSphere Application Server documentation for more details. If you want to encode the password in the `sas.client.props` file, then run the `PropFilePasswordEncoder` command from the `$WAS_HOME/profiles/<PROFILE_NAME>/bin` directory.

   This command is specific to IBM WebSphere Application Server. It encodes passwords located in plain-text property files.

3. Save and close the file.

6.2.1.8 Creation of Additional Servers in WebSphere ND

You must also provide the server names during the installation.

Note: There are several other ways to accomplish this task.

1. Select Servers, New Servers.

   This will lead you through a list of steps for creating a new server.

2. Select server type from the drop-down list: WebSphere application server. Click Next.
3. Select node from the drop-down list that has been created for to host the WebSphere server.
4. Enter the Server name.

Note: Both the Node Name and Server Name will be needed for during the OUAF installation process.

5. Select a server template of default. Click Next
6. Check the box to Generate Unique Ports. Click Next
7. Confirm new server. Click Finished.

6.2.1.9   Obtaining the Bootstrap Port and WC_defaulthost_secure

You must also provide these port numbers during Oracle Utilities Application Framework installation. Obtain the bootstrap port number and the WC_defaulthost_secure by using the WebSphere ND administrative console.

Note: The WebSphere ND Deployment Manager server must be running to obtain the bootstrap port number and the WC_defaulthost_secure port number.

To view the bootstrap port number and the WC_defaulthost_secure:

1. Log on to the WebSphere ND administrative console.

2. Select Servers, Application Servers, <server_name>, and then select Ports under Communication.

    The bootstrap port is displayed as BOOTSTRAP_ADDRESS. The WC_defaulthost_secure is displayed as WC_defaulthost_secure.

3. Note the values for WC_defaulthost_secure and BOOTSTRAP_ADDRESS. The Oracle Utilities Application Framework will prompt you for this information during the installation.

6.2.1.10 Set up a New Virtual Host for your Server

1. Select Environment, Virtual Host, default_host, and then select Host Alias.

2. Click New.

3. Enter the following:

    a.   Host Name:

    b.   Port: WC_defaulthost_secure Port Number

6.2.1.11 Obtaining the WebSphere ND Node Name

You must also provide the node name during OUAF installation. Obtain the node name by using the WebSphere ND administrative console.

Note: The IBM WebSphere ND application server must be running to obtain the bootstrap port number.

To obtain the node name

1. Connect to the WebSphere ND administrative console

2. In the left pane, click Servers.

3. Click Application Servers under Servers.

4. Click the server instance (server_name, default) on the right section.

5. Click the Runtime tab.

6. Enter the value for the Node Name.

Note: If the value of State is not started, then restart the server instance.

6.2.1.12 Installing Oracle Utilities Application Framework as a Non-Root User with IBM WebSphere Installed as Root

Prior to attempting to install Oracle Utilities Application Framework as a non-root user on the IBM WebSphere ND application server running on AIX, verify that the operating system user account installing Oracle Utilities Application Framework has write and execute permissions on the directories in which IBM WebSphere ND will be installed.

6.2.2 Post-Installation Tasks

This section describes tasks that you should complete after you have installed the Oracle Utilities Application Framework and Oracle Revenue Management and Billing on a WebSphere application server.

6.2.2.1 Setting Environment Entries

1. Connect to the IBM WebSphere ND administrative console.
2. Select Servers and then select Application Servers.
3. Select the server's name.
4. Go to Server Infrastructure, and then click Java and Process Management.
5. Select Process Definition.
6. Go to Environment Entries.
7. Click New and add the following Environment Entries:

    a. Name: `SPLEBASE`

    b. Value: `<$SPLEBASE>`

> **Note**: Substitute $SPLEBASE with appropriate values for your installation.

    a. Name: `SPLWAS`

    b. Value: `WAS`

> **Note:** This value needs to be set for WebServices (IWS).

You will need to restart the server_name before you attempt to start the application on the server.

8. Click OK.
9. Click Save to commit the setting.

6.2.2.2 Setting JVM Memory and Arguments

For Oracle Utilities Application Framework, JVM memory settings must be changed for production environments and/or when processing large volume in a nonproduction environment.

Perform the following steps to set the JVM memory size. The IBM WebSphere ND application server must be running to set the memory size.

To set the JVM memory size:

1. Connect to the IBM WebSphere ND administrative console.
2. Select Servers, and then select Application Servers.

3. Select the server's name.

4. Go to Server Infrastructure, and then click Java and Process Management.

5. Select Process Definition.

6. Go to Additional Properties, and then click Java Virtual Machine.

7. Enter 2048 for Minimum Heap Size.

8. Enter 4096 for Maximum Heap Size.

> **Note**: Modify the memory settings based on your production installation needs.

9. Enter   –
    `Djava.security.auth.login.config=<$SPLEBASE>/splapp/config/java.l`
    `ogin.config` for Generic JVM arguments.

> **Note**: Substitute $SPLEBASE with appropriate values for your installation.

10. You will need to restart the server_name before you attempt to start the application on the server.

11. Click OK.

12. Click Save to commit the setting.

6.2.2.3   Setting Server Custom Properties

The following custom properties have been needing in the past to enable WebSphere ND Classloader to load the correct `xalan.jar` file.

To set the Custom Properties:

1. Connect to the WebSphere ND administrative console.

2. Select Servers, and then select Application Servers.

3. Select the server's name.

4. Go to Server Infrastructure, and then click Java and Process Management.

5. Select Process Definition.

6. Go to Additional Properties, and then click Java Virtual Machine.

7. Go to Additional Properties, and then click Custom Properties.

8. Click New.

9. Enter the following information:

    a. Name: `javax.xml.transform.TransformerFactory`

    b. Value: `org.apache.xalan.processor.TransformerFactoryImpl`

10. Click OK.

11. Click Save to commit the setting.

6.2.2.4   Setting Up the Web Container Custom Properties

To set the Web Container Custom Properties:

1. Connect to the WebSphere ND administrative console.

2. Select Servers, and then select Application Servers.

3. Select the server's name.

4. Go to Container Settings, and then click Web Container Settings.

5. Select Web container

6. Go to Additional Properties, and then click Custom properties.

7. Click New.

8. Enter the following information:

   a. Name: `com.ibm.ws.webcontainer.invokefilterscompatibility`

   b. Value: `true`

9. Click OK.

10. Click Save to commit the setting.

6.2.2.5   Starting and Stopping WebSphere ND servers

You can use the WebSphere ND console to stop and start the servers. You can also use the command line scripts supplied with WebSphere ND.

Note: The Oracle Utilities Application Framework utility named spl.sh does not stop or start the IBM WebSphere ND servers. It only stops and starts the Oracle Revenue Management and Billing application.

6.2.2.6   Deployment via the Admin Console

The following sections describe how to deploy the application using the Admin Console.

Deployment Overview

The application needs to be deployed in the following order:

1. `SPLService.ear`
2. `SPLWeb.ear`

Note: The `SPLService.ear` must be successfully deployed before deploying `SPLWeb.ear`.

Deploying SPLService.ear

1. Select the ear file to deploy.

   a. Select Applications, Install New Application.

   b. Select Remote file system.

   c. Browse to the SPLService.ear or enter the full path to the file.

   d. The ear files can be found under `$SPLEBASE/splapp/applications`.

2. Click Next.

3. Select Option Fast Path - Prompt only when additional information is required.

   Click Next.

4. On the Select Installation Options page, ensure that the Deploy enterprise beans option is selected. Click Next.

5. Assign the module to the IBM WebSphere ND server instance.

6. When deploying an application from the console, make sure you select the correct server and then click Apply.

7. Review the summary page. Review the installation options.

8. Click Finish. The application will then deploy. The deployment process takes about 5 minutes.

9. Click Save. The save process can take about more than 20 minutes.

Deploying SPLWeb.ear

1. Select the ear file to deploy.

    a. Select Applications, Install New Application.

    b. Select Remote file system.

    c. Browse to the SPLWeb.ear or enter the full path to the file.

    d. The ear files can be found under `$SPLEBASE/splapp/applications`.

2. Click Next.

3. Select Option Fast Path - Prompt only when additional information is required. Click Next.

4. Assign the module to the IBM WebSphere ND server instance.

5. When deploying an application from the console, make sure you select the correct server and then click Apply.

6. Review the summary page. Review the installation options

7. Click Finish. The application will then deploy. The deployment process takes about 5 minutes.

8. Click Save. The save process can take about more than 20 minutes.

Configuring the Applications

You need to apply these steps to both the SPLWeb and SPLService applications unless specified.

1. Set the startup order of the applications (this applies only to SPLWeb):

    a. Select the SPLWeb application from Applications, Enterprise Applications.

    b. Select Startup behavior.

    c. Change the startup order to 2.

    d. Click OK.

2. Click OK and Save directly to master configuration.

3. Set the class loading order (for both SPLService.ear and SPLWeb.ear): Select Class loading and update detection.

    a. Set Polling interval to 0.

    b. Under Class loader order select Classes loaded with application class loader first. Click OK and Save to master configuration.

4. Set the module starting weight:

    a. SPLService only - set the Starting weight to 1.

    b. SPLWeb only - for each module (.war) set the Starting weight to 10000 and change the Class loader order to Classes loaded with application class loader first

5. Set EJB JNDI names (this applies only to SPLService). Select Enterprise Java Bean Properties and enter the following values:

   a. EJB module: `SPLServiceBean`

   b. JNDI name for all interfaces

   c. Target Resource JNDI Name: `ouaf/servicebean`

   d. EJB module: `TUGBULiteServiceBean`

   e. JNDI name for all interfaces

   f. Target Resource JNDI Name: `ouaf/liteservicebean`

6. Click Ok.

Configuring the Application Security

After using the supplied script to deploy the application to IBM WebSphere ND you will need to configure each application's security before starting the application.

Using the IBM WebSphere ND administration console select Applications, Enterprise Applications, Business-<server name> (for example, SPLService-server2), Security role to user/group mapping.

For role cisusers:

- Check All Authenticated.
- Check Select and click Look up users:
- Search for SYSUSER, JNDI User, and Admin Console User and add them to the Selected users list.
- Click OK.

Note: Repeat the process for <Web Server Application Name>-<server name> (for example, SPLWeb-server2).

Restarting the IBM WebSphere ND Server

It is recommended to stop and then restart the WebSphere ND server.

Application URL

The Web link to the IBM WebSphere ND application will be:

`https://<hostname>:<WC_defaulthost_secure>/<context_root>/loginPage.jsp`

For example, `https://oracle:9085/ouaf/loginPage.jsp`

7. Installing the Application Server Component of Oracle Utilities Application Framework

Installing the Oracle Utilities Application Framework ("the framework") is the prerequisite and foundation to install a framework-based application such as Oracle Revenue Management and Billing. This section describes the process to install Oracle Utilities Application Framework. It contains the following topics:

- Installation Overview
- Pre-Installation Tasks
- Installing Oracle Utilities Application Framework Version 4.5.0.0.0
- Configuring the OUAF Keystore
- Post Installation Tasks

7.1 Installation Overview

Download the installation packages for your Oracle Utilities Application Framework-based application from Oracle Software Delivery Cloud. You need to do a fresh installation of the application server and you cannot upgrade an existing application server.

Before you proceed with the installation process:

1. Complete the database installation or upgrade process. For more information, refer to the *Oracle Revenue Management and Billing Database Administrator's Guide*.

2. Make sure that you have installed all required third-party software as described in the Installing Application Server Prerequisite Software section.

Once the Oracle Utilities Application Framework installation is successfully completed and the framework application environment is created, install Oracle Revenue Management and Billing on top of the framework environment.

After installing a working Oracle Utilities Application Framework server, configure it manually to support production performance levels.

Application server installation packages delivered for this version are multi-platform and are ready to install on any supported platform. Refer to the Supported Platforms section for more details.

7.2 Pre-Installation Tasks

This section describes the following tasks that you need to perform before installing OUAF:

- Hardware and Software Version Prerequisites
- Database Installation
- Installation Prerequisites
- Downloading the OUAF Application Package
- Decompressing the OUAF Application Package
- Downloading the OUAF Rollup Package

- [Decompressing the OUAF Rollup Package](#)
- [Setting Permissions for the CISTAB File in UNIX](#)

7.2.1 Hardware and Software Version Prerequisites

Refer to the [Supported Platforms](#) section for all prerequisites that are required to install the product.

7.2.2 Database Installation

Verify that the database has been installed and is operational. Refer to the *Oracle Revenue Management and Billing Database Administrator's Guide* for more information.

7.2.3 Installation Prerequisites

Refer to the [Installing Application Server Prerequisite Software](#) section for details about the preparations to be done on the server prior to installing the application server. Please carefully read the server setup requirements and make sure that all prerequisite software is installed and that all required environment variables are set. Accurate server setup and proper environment variable settings are an essential prerequisite for successful environment installation.

7.2.4 Downloading the OUAF Application Package

Oracle Utilities Application Framework 4.5.0.0.0 media pack can be installed on the following supported platforms:

- AIX (64-bit)
- Microsoft Windows (64-bit)
- Linux (64-bit)

The media pack includes the following packages - **Oracle Utilities Application Framework 4.5.0.0.0 - Database Installation Media** and **Oracle Utilities Application Framework 4.5.0.0.0 - Application Installation Media**.

To download the OUAF application package:

1. Login to [Oracle Software Delivery Cloud](#).
2. Select the **Release** option from the **All Categories** list.
3. Type **Oracle Utilities Application Framework** in the corresponding text box.
4. Click **Search**. A list of media packs appears in the search results.
5. Click the **Select** ( ) icon corresponding to the **Oracle Utilities Application Framework 4.5.0.0.0** media pack.
6. If required, you can verify the media pack which is selected by clicking the **View Items** link.
7. Click the **Continue** link. A page appears.
8. Select the required platform from the **Platforms/Languages** list.
9. Click **Continue**. A page appears with the license agreement.
10. Scroll and read the entire license agreement and then click the **I reviewed and accept the Oracle License Agreement** option.
11. Click **Continue**. The **File Download** page appears.

12. Select the **Oracle Utilities Application Framework 4.5.0.0.0 - Application Installation Media** package from the media pack and then click **Download**. An executable file is downloaded on your local machine.

13. Run the executable file. The **Oracle Download Manager** window appears.

14. Browse to the location where you want to download the package and then click **Next**. A zip file is downloaded on your local machine.

7.2.5 Decompressing the OUAF Application Package

To decompress the OUAF application package:

1. Login to the application server host with the Oracle Utilities Application Framework Administrator user ID (default `cissys`).

2. Create a temporary directory such as `c:\ouaf\temp` or `/ouaf/temp`. (Referred to below as `<TEMPDIR>`.)

> **Note**: This directory must be located outside any current or other working Oracle Utilities application environment. All files that are placed in this directory as a part of the installation can be deleted after successful installation.

3. Copy the **Oracle Utilities Application Framework 4.5.0.0.0 - Application Installation Media** package (i.e. downloaded zip file) to the `<TEMPDIR>` directory. If you are using FTP to transfer the file, remember to use the BINARY option for the FTP transfer.

4. Unzip the downloaded file in the `<TEMPDIR>` directory. The contents of the zip file include a directory named `FW-V4.5.0.0.0`. The contents of the installation package are identical for all supported platforms. The `FW-V4.5.0.0.0` folder contains the OUAF installation software.

7.2.6 Downloading the OUAF Rollup Package

The rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0 is shipped in the Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 and Oracle Insurance Revenue Management and Billing 5.1.0.0.0 media packs.

To download the OUAF Rollup package:

1. Login to Oracle Software Delivery Cloud.

2. Select the **Release** option from the **All Categories** list.

3. Type **Oracle Financial Services Revenue Management and Billing** or **Oracle Insurance Revenue Management and Billing** in the corresponding text box.

4. Click **Search**. A list of media packs appears in the search results.

5. Click the **Select** ( ) icon corresponding to the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0** or **Oracle Insurance Revenue Management and Billing 5.1.0.0.0** media pack.

6. If required, you can verify the media pack which is selected by clicking the **View Items** link.

7. Click the **Continue** link. A page appears.

8. Select the required platform from the **Platforms/Languages** list.

9. Click **Continue**. A page appears with the license agreement.

10. Scroll and read the entire license agreement and then click the **I reviewed and accept the Oracle License Agreement** option.

11. Click **Continue**. The **File Download** page appears.

12. Select the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 - Oracle Utilities Application Framework (4.5.0.0.0) Single Fix Prerequisite Rollup** package, respectively, from the media pack and then click **Download**. An executable file is downloaded on your local machine.

13. Run the executable file. The **Oracle Download Manager** window appears.

14. Browse to the location where you want to download the package and then click **Next**. The package is downloaded on your local machine.

7.2.7 Decompressing the OUAF Rollup Package

To decompress the OUAF Rollup package:

1. Copy the **Oracle Utilities Application Framework (4.5.0.0.0) Single Fix Prerequisite Rollup** package (i.e. downloaded zip file) to the `TEMPDIR` folder. If you are using FTP to transfer the file, remember to use the BINARY option for the FTP transfer.

2. Unzip the downloaded file in the `TEMPDIR` folder. The contents include the `ORMB-V51000-FW-PREREQ-MultiPlatform.jar` file.

7.2.8 Setting Permissions for the CISTAB File in UNIX

Every Oracle Utilities Application Framework environment installed on a server must be registered in the `/etc/cistab` file located on that server. On UNIX servers, generally only the root user ID has write permissions to the `/etc` directory. Since the installation process is run by the Oracle administrator user ID (`cissys`), this user ID may not be able to write to `/etc/cistab` table.

The install utility checks permissions and if it identifies a lack of the necessary permissions, it generates a script in the `<TEMPDIR>/FW-V4.5.0.0.0` directory named `cistab_<SPLENVIRON>.sh`. Run the generated script using the root account before continuing with the installation process. The script initializes the cistab file in `/etc` directory (if it is the first Oracle Utilities Application Framework application environment on the server) and registers a new environment.

The generated script also changes the owner of `/etc/cistab` file to the Oracle Utilities Application Framework Administrator user ID, so that the next time a new environment is created by the same Oracle Utilities Framework Administrator user ID, you do not need to run the generated script with the root user ID. Instead, the install utility itself proceeds with the registration.

7.3 Installing Oracle Utilities Application Framework Version 4.5.0.0.0

To install Oracle Utilities Application Framework (OUAF) Version 4.5.0.0.0:

1. Login to the application server using the administrator's credentials.

Note: On UNIX machine, login using the `cissys` credentials. And, on Microsoft Windows machine, login using the administrator's credentials.

2. Install and configure the required third-party software for the application server.

> **Note:** You must install the prerequisite third-party software depending on the platform on which you want to install Oracle Utilities Application Framework. For more details, refer to the [Installing Application Server Prerequisite Software](#) section.

3. Set the Java Home path using the following command:

```
export PATH=/<Java_Home>/bin:$PATH
```

> **Points to Note:**
>
> The `<Java_Home>` is the location where you have installed Java 1.8.
>
> The above command is applicable only for UNIX platform.

4. Change to the `<TEMPDIR>/FW-V4.5.0.0.0` directory.

> **Note:** The `<TEMPDIR>` directory is the location where you have extracted the contents of the **Oracle Utilities Application Framework 4.5.0.0.0 - Application Installation Media** package.

5. Execute the application installation utility using the following command:

   AIX, Linux:

   ```
   ksh ./install.sh
   ```

   Windows:

   ```
   install.cmd
   ```

   The following message appears in the command line:

   ```
   Enter Oracle Client Home Directory (<Enter> quit):
   ```

6. Type `<ORACLE_CLIENT_HOME>`, and then press **Enter**. The following environment installation menus appear in the command line:

   - `1. Environment ID, Roles, Third Party Software Configuration`
   - `2. Keystore Options`
   - `50. Environment Installation Options`

> **Points to Note**:
>
> The `<ORACLE_CLIENT_HOME>` is the location where Oracle Database Client is installed. This is required to execute the Perl installation utilities.
>
> If the `ORACLE_CLIENT_HOME` environment variable is set, the installation utility will not request you to provide this information.

7. Type **1** to define values for the third-party software configuration, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

8. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

> **Note**: For more details about these menu options, refer to the [Environment ID, Roles, Third Party Software Configuration](#) section.

9. Type **2** to define values for the keystore options, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

10. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details about these menu options, refer to the Keystore Options section.

11. Type **50** to define values for the environment installation options, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

12. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Points to Note:

`$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed.

Before you specify the environment installation options, ensure that you have created an output directory named Log File Mount Point. If this output directory does not exist, the installation will not be successfully executed.

For more details about these menu options, refer to the Environment Installation Options section.

13. Type **P** to proceed with the installation. The following environment configuration menus appear in the command line:

- `1.    Environment Description`
- `2.    Business Application Server Configuration`
- `3.    Web Application Server Configuration`
- `4.    Database Configuration`
- `5.    General Configuration Options`
- `6.    OUAF TrustStore Options`

Note: During this step, the specification of a new environment and permissions on mount points and directories are validated against the `/etc/cistab` file.

14. Type **1,** and then press **Enter**. The utility prompts you to enter the environment description.

15. Specify the environment description, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details, refer to the Environment Description section.

16. Type **2** to define values for the business application server configuration, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

17. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details about these menu options, refer to the Business Application Server Configuration section.

18. Type **3** to define values for the web application server configuration, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

19. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details about these menu options, refer to the Web Application Server Configuration section.

20. Type **4** to define values for the database configuration, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

21. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details about these menu options, refer to the Database Configuration section.

22. Type **5** to define values for the general configuration options, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

23. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details about these menu options, refer to the General Configuration Options section.

24. Type **6** to define values for the OUAF TrustStore Options, and then press **Enter**. The utility prompts you to enter values for a list of menu options.

25. Specify the required value for menu options, and then press **Enter**. The specified values are stored in the `$SPLEBASE/etc/ENVIRON.INI` file.

Note: For more details about these menu options, refer to the OUAF TrustStore Options section.

26. Type **P** to proceed with the installation. The Oracle Utilities Application Framework Version 4.5.0.0.0 is installed on the application server.

> **Points to Note:**
>
> The utility contains default values for some of the menu options. If required, you can change their values. While executing the `install` utility, you must set the value for the required menu options. Otherwise, the installation process will not be completed successfully.
>
> You will be warned if you did not edit a section. You may proceed if you want to keep the default settings.
>
> Once the installation process is completed, the following utilities are automatically executed in the specified order:
>
> 1. `initialSetup` - The `initialSetup` utility updates the template configuration files in the system. On the Linux machine, this utility is available in the `$SPLEBASE/bin` directory. And, on the Microsoft Windows machine, this utility is available in the `%SPLEBASE%\bin` directory.
>
> 2. `splenviron` – Once the `ENVIRON.INI` file is created and contains the correct environment parameters, the `splenviron` utility sets up all the necessary environment variables and shell settings for the application server to function correctly. On the Linux machine, this utility is available in the `$SPLEBASE/bin` directory. And, on the Microsoft Windows machine, this utility is available in the `%SPLEBASE%\bin` directory. The following are some of the key environment variables that are set using the `splenviron` utility:
>
> → $PATH
>
> → $SPLEBASE (%SPLEBASE%) – Indicates the `<SPLDIR>/<SPLENVIRON>` directory
>
> → $SPLOUTPUT (%SPLOUTPUT%) - Indicates the `<SPLDIROUT>/<SPLENVIRON>` directory
>
> → $SPLENVIRON (%SPLENVIRON%) – Indicates the environment name
>
> For future operations or any post installation steps, you need to first execute the following command to setup your session to the new environment:
>
> **AIX, Linux:**
>
> `$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON`
>
> **Windows:**
>
> `%SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%`
>
> You need to execute this script each time you want to be connected to the specific environment before performing manual operations such as shutdown, start up or performing an additional application product installation.
>
> When you have finished the install process, your current online session will be connected to the new environment.
>
> For more information, refer to the [Planning the Installation](#) section for settings and configuration.

7.4   Configuring the OUAF Keystore

Refer to the *Oracle Revenue Management and Billing Security Guide* for a detailed description of the Keystore.

7.5   Post Installation Tasks

Once you install Oracle Utilities Application Framework V4.5.0.0.0, you need to do the following:

1. [Install Rollup Pack for Oracle Utilities Application Framework Version 4.5.0.0.0](#)

The OUAF patches must be installed prior to installing Oracle Revenue Management and Billing. These patches are available as a convenience rollup in the `ORMB-V51000-FW-PREREQ-MultiPlatform.jar` file, which is included in the downloaded media pack. For a list of patches included in the OUAF rollup, refer to [Appendix A : Application Framework Prerequisite Patches](#).

7.5.1   Installing Rollup Pack for OUAF Version 4.5.0.0.0

To install the rollup pack for Oracle Utilities Application Framework Version 4.5.0.0.0:

1. Change to the `TEMPDIR` folder which contains the `ORMB-V51000-FW-PREREQ-MultiPlatform.jar` file.

2. Decompress the JAR file using the following command:

   ```
   jar -xvf ORMB-V51000-FW-PREREQ-MultiPlatform.jar
   ```

   A directory named `FW-V4.5.0.0.0-Rollup` is extracted. It contains the following two sub-directories:

   - `Application`
   - `Database`

3. Initialize the application environment where you want to install the rollup pack using the following command:

   AIX, Linux:

   ```
   $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
   ```

   Windows:

   ```
   $SPLEBASE\bin\splenviron.cmd -e %SPLENVIRON%
   ```

4. Change to the `Application` directory using the following command:

   ```
   cd <TEMPDIR>/FW-V4.5.0.0.0-Rollup/Application
   ```

5. Execute the `installSFgroup` utility using the following command:

   AIX, Linux:

   ```
   chmod a+x installSFgroup.sh
   chmod a+x FW*/*.sh
   ./installSFgroup.sh
   ```

   Windows:

   ```
   installSFgroup.cmd
   ```

8. Installing the Application Server Component of Oracle Revenue Management and Billing

This section describes the procedure to install Oracle Revenue Management and Billing on top of the previously created Oracle Utilities Application Framework environment. This section includes:

- Pre-installation Tasks
- Installing the Application
- Post Installation Tasks
- Integrating Customer Modifications into This Release
- User Documentation
- Operating the Application
- Installing Service Packs and Patches

You can download the installation package from Oracle Software Delivery Cloud.

To proceed with the Oracle Revenue Management and Billing installation, you need to be connected to the target framework application environment. Refer to the detailed installation instructions in the following section.

You must initialize the Framework environment along with the required patch set prior to proceeding with the Oracle Revenue Management and Billing installation.

8.1 Pre-installation Tasks

This section describes the following tasks that you need to perform before installing Oracle Revenue Management and Billing:

- Downloading the ORMB Application Package
- Decompressing the ORMB Application Package

8.1.1 Downloading the ORMB Application Package

Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 and Oracle Insurance Revenue Management and Billing 5.1.0.0.0 media packs can be installed on the following supported platforms:

- AIX (64-bit)
- Microsoft Windows (64-bit)
- Linux (64-bit)

The media pack includes multiple packages. For more information, refer to the **Media Pack Contents** section in the *Oracle Revenue Management and Billing Version 5.1.0.0.0 Quick Installation Guide*.

To download the ORMB application package:

1. Login to <u>Oracle Software Delivery Cloud</u>.

2. Select the **Release** option from the **All Categories** list.

3. Type **Oracle Financial Services Revenue Management and Billing** or **Oracle Insurance Revenue Management and Billing** in the corresponding text box.

4. Click **Search**. A list of media packs appears in the search results.

5. Click the **Select** ( ) icon corresponding to the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0** or **Oracle Insurance Revenue Management and Billing 5.1.0.0.0** media pack.

6. If required, you can verify the media pack which is selected by clicking the **View Items** link.

7. Click the **Continue** link. A page appears.

8. Select the required platform from the **Platforms/Languages** list.

9. Click **Continue**. A page appears with the license agreement.

10. Scroll and read the entire license agreement and then click the **I reviewed and accept the Oracle License Agreement** option.

11. Click **Continue**. The **File Download** page appears.

12. Select the **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 – Multiplatform** package, respectively, from the media pack and then click **Download**. An executable file is downloaded on your local machine.

13. Run the executable file. The **Oracle Download Manager** window appears.

14. Browse to the location where you want to download the package and then click **Next**. The package is downloaded on your local machine.

8.1.2 Decompressing the ORMB Application Package

To decompress the ORMB application package:

1. Login to the host server using the Oracle Revenue Management and Billing administrator user ID (default `cissys`). This is the same user ID that was used to install Oracle Utilities Application Framework.

2. Copy the **Oracle Revenue Management and Billing 5.1.0.0.0 Multiplatform** package (i.e. downloaded zip file) to the `<TEMPDIR>` directory. If you are using FTP to transfer the file, remember to use the BINARY option for the FTP transfer.

3. Unzip the downloaded file in the `<TEMPDIR>` directory. The contents of the zip file include a directory named `ORMB.V5.1.0.0.0`. The contents of the installation package are identical for all supported platforms. The `ORMB.V5.1.0.0.0` folder contains the ORMB installation software.

8.2   Installing the Application

To install Oracle Revenue Management and Billing (ORMB) Version 5.1.0.0.0:

1. Login to the application server using the administrator's credentials. Note that you should use the same administrator's credentials which are used while installing OUAF.

2. Initialize the application environment (on which you want to install the application) using the following command:

   AIX, Linux:

   `$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON`

   Windows:

   `%SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%`

   Where, `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed, and `$SPLENVIRON` or `%SPLENVIRON%` is the name of the application environment for which you want to set the environment variables.

3. Stop the managed server where the application is hosted using the Oracle WebLogic Console.

4. Change to the `ORMB.V5.1.0.0.0` directory using the following command:

   AIX, Linux:

   `cd <TEMPDIR>/ORMB.V5.1.0.0.0`

   Windows:

   `cd <TEMPDIR>\ORMB.V5.1.0.0.0`

5. Execute the `install` utility using the following command:

   AIX, Linux:

   `./install.sh`

Note: On the AIX and Linux platforms, ensure that you have the execute permission for the `install.sh` utility.

   Windows:

   `install.cmd`

   The following message appears in the command line:

   `Do you wish to proceed with the installation? (Y,N):`

6. Type **Y** and then press **Enter**. A message appears informing you to type P if you want to proceed with the installation.

7. Type **P**, and then press **Enter**. If an error does not occur during installation or if you do not interrupt the installation, ORMB is installed successfully on the application environment. Note that some of the installation steps may take some time to complete.

Points to Note:

If you want to set the advanced menu options, execute the `configureEnv` utility using the following command:

AIX, Linux:

`$SPLEBASE/bin/configureEnv.sh –a`

Windows:

`%SPLEBASE%\bin\configureEnv.cmd -a`

You cannot set the advanced menu options during the installation process. These options can be set only after the application is installed. For more information, refer to the [Advanced Menu Options](#) section.

Before you execute the `configureEnv` utility, you need to initialize the application environment. Once you execute the `configureEnv` utility, you need to execute the `initialSetup` utility to reflect the changes (if any) in the application environment.

8.3   Post Installation Tasks

Once you install Oracle Revenue Management and Billing (ORMB) Version 5.1.0.0.0, you need to apply the release-specific patches on the application environment. To view the list of patches that you need to apply on the application environment, refer to the *[ORMB V5.1.0.0.0 Patch Guide](#)* *(Document ID: 2941754.1)* on [My Oracle Support](#).

Alternatively, instead of individually applying the patches, you can download and install the rollup packs, if available, to apply a set of patches at once. For more information about the rollup packs, refer to [Appendix B: ORMB V5.1.0.0.0 Rollup Packs](#).

8.3.1   Applying the ORMB Patches

To apply a patch:

1. Download the patch from [My Oracle Support](#). A zip file is downloaded.
2. Unzip the downloaded file in your local directory. The contents include three files - `README.txt`, `MultiPlatform.zip`, and `Bug_<PATCH_NUMBER>_Product_Fix_Design.pdf`.
3. Unzip the `MultiPlatform.zip` file in your local directory. The contents include the `V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform` directory.
4. Change to the `V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform` directory using the following command:

   AIX, Linux:

   `cd <DESTINATION_FOLDER_1>/V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform`

   Windows:

   `cd <DESTINATION_FOLDER_1>\V5.1.0.0.0-<PATCH_NUMBER>_MultiPlatform`

> **Note:** The `<DESTINATION_FOLDER_1>` directory is the location where you have extracted the contents of the `MultiPlatform.zip` file.

> The contents include a file named `CCB.V5.1.0.0.0-<PATCH_NUMBER>.jar` and a directory named `database`.

5. Decompress the `CCB.V5.1.0.0.0-<PATCH_NUMBER>.jar` file using the following command:

```
jar -xvf CCB.V5.1.0.0.0-<PATCH_NUMBER>.jar
```

The contents include two directories - `META-INF` and `CCB.V5.1.0.0.0-<PATCH_NUMBER>`.

6. Initialize the application environment (on which you want to install the patch) using the following command:

AIX, Linux:

```
$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
```

Windows:

```
%SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
```

Where,

`$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed and `$SPLENVIRON` or `%SPLENVIRON%` is the name of the application environment.

7. Change to the `CCB.V5.1.0.0.0-<PATCH_NUMBER>` directory using the following command:

AIX, Linux:

```
cd <DESTINATION_FOLDER_1>/V5.1.0.0.0-
<PATCH_NUMBER>_MultiPlatform/CCB.V5.1.0.0.0-<PATCH_NUMBER>
```

Windows:

```
cd <DESTINATION_FOLDER_1>/V5.1.0.0.0-
<PATCH_NUMBER>_MultiPlatform\CCB.V5.1.0.0.0-<PATCH_NUMBER>
```

8. Install the patch using the following command:

AIX, Linux:

```
./installSF.sh
```

Windows:

```
installSF.cmd
```

9. Start the managed server using the Oracle WebLogic Console.

> **Points to Note:**
>
> For more information about server start and stop procedures and how to deploy the application in WebLogic, see the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Document ID: 2413918.1)* article on My Oracle Support.
>
> Ensure that you start the Node Manager and WebLogic Server before starting the Managed Server using the Node Manager.

8.3.2 Creating the billView Directory

Once you apply all required patches and single fixes, you need to create a directory named `billView` in the `$SPLAPP` directory.

8.3.3 Setting the C1-CFS Feature Configuration

The **C1-CFS** feature configuration enables you to indicate whether the application environment should use the file object storage service of Oracle Cloud Infrastructure (OCI). If the file object storage service of OCI is used, you need to specify the buckets or containers within the Object Storage namespace from where you need to read files for the On Demand Billing and Payment Upload features. Before specifying the buckets to read files from the external location for the On Demand Billing and Payment Upload features, you need to define a file storage extendable lookup value using the **File Storage Configuration (F1-FileStorage)** extendable lookup where the file adapter is set to **Oracle Cloud Object Storage**. For more information on how to define a file storage extendable lookup value, refer to the **Oracle Utilities Application Framework Administrative Processes → Configuration Tools → Miscellaneous Topics → Referencing URIs → External File Storage** in *Oracle Revenue Management and Billing Online Help*.

To set the **C1-CFS** feature configuration:

1. Login to Oracle Revenue Management and Billing Version 5.1.0.0.0.
2. Click the **Admin** link in the **Application** toolbar. A list appears.
3. From the **Admin** menu, select **F** and then click **Feature Configuration**. A sub-menu appears.
4. Click the **Search** option from the **Feature Configuration** sub-menu. The **Feature Configuration Query** screen appears.
5. In the **Feature Configuration Search** zone, enter **C1-CFS** in the **Feature Name** field.
6. Click **Search**. A list of feature configurations that meet the search criteria appears in the search results.
7. In the **Search Results** section, click the link in the **Description** column corresponding to the feature configuration whose details you want to edit. The **Feature Configuration** screen appears. It contains the following option types:

Option Type	Description	Mandatory (Yes or No)
File Object Storage Usage	Used to indicate whether the application environment should use the file object storage service of Oracle Cloud Infrastructure (OCI). The valid values are: • Y • N **Points to Note:** By default, the value is set to **N**. You must ensure that the value of this option type is set to **N** in the On Premise and Cloud Service environments.	Yes

Option Type	Description	Mandatory (Yes or No)
	If the value of this option type is set to **Y**, you need to accordingly specify the directory paths while executing the **DWLDBILC**, **C1-PUPSG**, **C1-APACK**, and **C1-RECUP** batches. For more information, refer to the *Oracle Revenue Management and Billing Batch Guide*.	
ODB Extendable Lookup and Bucket	Used to specify the following information in the <File Storage Extendable Lookup Value>/<Object Storage Bucket> format: • The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while uploading the files through the On Demand Billing feature. • The bucket or container from where you want to upload the file using the On Demand Billing feature. **Note:** This option type is required only when the **File Object Storage Usage** option type is set to **Y** and you want to use the On Demand Billing feature.	Yes (Conditional)
Payment Upld Extendable Lookup and Bucket	Used to specify the following information in the <File Storage Extendable Lookup Value>/<Object Storage Bucket> format: • The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while uploading the files through the Payment Upload feature. • The bucket or container from where you want to upload the file using the Payment Upload feature. **Note:** This option type is required only when the **File Object Storage Usage** option type is set to **Y** and you want to use the Payment Upload feature.	Yes (Conditional)

8. Set the **File Object Storage Usage** option type to **N**.

9. Click the **Save** button in the **Page Title** area. The changes made to the feature configuration are saved.

8.3.4 Setting the C1-REPORTVW Feature Configuration

You need to set the **C1-REPORTVW** feature configuration only when you are using the Apache FOP Reporting framework in ORMB. It enables you to define the following properties which were earlier derived from the `spl.properties` file:

- `ouaf.runtime.billView.directoryPath`
- `ouaf.runtime.reportView.directoryPath`
- `ouaf.application.reportingDir`

To set the **C1-REPORTVW** feature configuration:

1. Login to Oracle Revenue Management and Billing Version 5.1.0.0.0.

2. Click the **Admin** link in the **Application** toolbar. A list appears.

3. From the **Admin** menu, select **F** and then click **Feature Configuration**. A sub-menu appears.

4. Click the **Search** option from the **Feature Configuration** sub-menu. The **Feature Configuration Query** screen appears.

5. In the **Feature Configuration Search** zone, enter **C1-REPORTVW** in the **Feature Name** field.

6. Click **Search**. A list of feature configurations that meet the search criteria appears in the search results.

7. In the **Search Results** section, click the link in the **Description** column corresponding to the feature configuration whose details you want to edit. The **Feature Configuration** screen appears. It contains the following option types:

Option Type	Description	Mandatory (Yes or No)
Report Download HTTP URL	Used to specify the HTTP servlet using which you want to download and view the FOP reports that are generated in the online mode. You must specify the URL in the following format: https://ipaddress:port/ouaf/reportView **Note:** You must override the default value as per the requirement.	Yes
Report Generation (FOP) File Path	Used to specify the directory or bucket where you want to store the FOP reports which are generated either from the user interface or through a batch process. If the application environment is an On Premise or Cloud Service environment, you can specify the directory name along with the following relative path: • **@SHARED_DIR** – Used when you want to store the FOP reports in the shared directory on the server.	Yes

Option Type	Description	Mandatory (Yes or No)
	For example, you can set the value to @SHARED_DIR/output.	
	However, if the application environment is a Cloud Service Premium Edition environment, you must specify the following information in the file-storage://<File Storage Extendable Lookup Value>/<Object Storage Bucket> format:	
	• The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while storing the FOP reports on OCI	
	• The bucket or container where you want the system to store the FOP reports which are generated in the different formats.	
	Points to Note: By default, the value is set to **@SHARED_DIR/splapp/reporting/output**. You must change the value as per the requirement. The shared directory variable (i.e. **SHARED_DIR**) is case-sensitive.	
Report Generation XSL Template File Path	Used to specify the directory or bucket from where the respective XSL file should be fetched while generating the FOP report. If the application environment is an On Premise or Cloud Service environment, you can specify the directory name along with the following relative path: • **@SHARED_DIR** – Used when you want to fetch the XSL file from the shared directory on the server. For example, you can set the value to @SHARED_DIR/xsl. However, if the application environment is a Cloud Service Premium Edition environment, you must specify the following information in the file-storage://<File Storage Extendable Lookup Value>/<Object Storage Bucket> format:	Yes

Option Type	Description	Mandatory (Yes or No)
	• The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while fetching the XSL file for an FOP report. • The bucket or container from where you want the system to fetch the XSL file while generating the FOP report.	
	Points to Note: By default, the value is set to **@SHARED_DIR/splapp/reporting/xsl**. You must change the value as per the requirement. The shared directory variable (i.e. **SHARED_DIR**) is case-sensitive. Before generating an FOP report, you need to ensure that the XSL files are copied from the **@INSTALL_DIR/splapp/reporting/xsl** directory to the specified shared directory.	
Report Generation XML Data File Path	Used to specify the directory or bucket where you want to extract the data from the system in the XML format for an FOP report. If the application environment is an On Premise or Cloud Service environment, you can specify the directory name along with the following relative path: • **@SHARED_DIR** – Used when you want to store the XML file in the shared directory on the server. For example, you can set the value to @SHARED_DIR/extractxml. However, if the application environment is a Cloud Service Premium Edition environment, you must specify the following information in the file-storage://<File Storage Extendable Lookup Value>/<Object Storage Bucket> format: • The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while storing the XML file on OCI.	Yes

Option Type	Description	Mandatory (Yes or No)
	• The bucket or container where you want the system to store the XML file for an FOP report.	
	Points to Note: By default, the value is set to **@SHARED_DIR/splapp/reporting/extractxml**. You must change the value as per the requirement. The shared directory variable (i.e. **SHARED_DIR**) is case-sensitive.	

8. Enter the values for the required option types in the **Feature Configuration** screen.

9. Click the **Save** button in the **Page Title** area. The changes made to the feature configuration are saved.

8.3.5 Setting the C1-FLUPLD Feature Configuration

You need to set the **C1-FLUPLD** feature configuration only when you want to decrypt the encrypted files on the SFTP server while uploading and transforming the files through the **C1-FTRAN** batch. The **C1-FRDALG** algorithm is used to decrypt the file using the keystore. Earlier, the following properties were derived from the `FW_spl.properties.keystore.truststore.include` file to encrypt or decrypt the files using the keystore:

*   com.oracle.ouaf.system.keystore.file
*   com.oracle.ouaf.system.keystore.passwordFileName
*   com.oracle.ouaf.system.keystore.type
*   com.oracle.ouaf.system.keystore.padding
*   com.oracle.ouaf.system.keystore.mode
*   com.oracle.ouaf.system.keystore.alias
*   ouaf.system.fileupload.pgp.pvt.key.filepath

Now, the **C1-FLUPLD** feature configuration enables you to specify the required details to encrypt or decrypt the files using the keystore.

To set the **C1-FLUPLD** feature configuration:

1. Login to Oracle Revenue Management and Billing Version 5.1.0.0.0.

2. Click the **Admin** link in the **Application** toolbar. A list appears.

3. From the **Admin** menu, select **F** and then click **Feature Configuration**. A sub-menu appears.

4. Click the **Search** option from the **Feature Configuration** sub-menu. The **Feature Configuration Query** screen appears.

5. In the **Feature Configuration Search** zone, enter **C1-FLUPLD** in the **Feature Name** field.

6. Click **Search**. A list of feature configurations that meet the search criteria appears in the search results.

7. In the **Search Results** section, click the link in the **Description** column corresponding to the feature configuration whose details you want to edit. The **Feature Configuration** screen appears. It contains the following option types:

Option Type	Description	Mandatory (Yes or No)
File Decryption Key Alias	Used to specify the alias (i.e. key defined in the keystore) using which you want to encrypt or decrypt the files. **Note:** By default, the value is set to **ouaf.system**. You can change the value as per the requirement.	Yes
Key Store File Path	Used to specify the directory or bucket from where you want to fetch the keystore file. If the application environment is an On Premise or Cloud Service environment, you can specify the directory name along with the following relative path: • **@SHARED_DIR** – Used when you want to fetch the keystore file from the shared directory on the server. For example, you can set the value to @SHARED_DIR/.ouaf_keystore. However, if the application environment is a Cloud Service Premium Edition environment, you must specify the following information in the file-storage://<File Storage Extendable Lookup Value>/<Object Storage Bucket> format: • The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while fetching the keystore file on OCI. • The bucket or container from where you want the system to fetch the keystore file. **Points to Note:** By default, the value is set to **@SHARED_DIR/ks/.ouaf_keystore**. You must change the value as per the requirement. The shared directory variable (i.e. **SHARED_DIR**) is case-sensitive.	Yes

Option Type	Description	Mandatory (Yes or No)
Key Store Mode	Used to specify the mode using which you want to encrypt or decrypt the files. **Note:** By default, the value is set to **CBC** (i.e. Cipher-block Chaining).	Yes
Key Store Padding	Used to specify the padding using which you want to encrypt or decrypt the files. **Note:** By default, the value is set to **PKCS5Padding**.	Yes
Key Store Password File Path	Used to specify the directory or bucket from where you want to fetch the keystore password file. If the application environment is an On Premise or Cloud Service environment, you can specify the directory name along with the following relative path: • **@SHARED_DIR** – Used when you want to fetch the keystore password file from the shared directory on the server. For example, you can set the value to @SHARED_DIR/.ouaf_storepass. However, if the application environment is a Cloud Service Premium Edition environment, you must specify the following information in the file-storage://<File Storage Extendable Lookup Value>/<Object Storage Bucket> format: • The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while fetching the keystore password file on OCI. • The bucket or container from where you want the system to fetch the keystore password file. **Points to Note:** By default, the value is set to **@SHARED_DIR/ks/.ouaf_storepass**. You must change the value as per the requirement. The shared directory variable (i.e. **SHARED_DIR**) is case-sensitive.	Yes

Option Type	Description	Mandatory (Yes or No)
Key Store Type	Used to indicate the type of keystore file. **Note:** By default, the value is set to **JCEKS**.	Yes
Private Key File Path	Used to specify the directory or bucket from where you want to fetch the private key file. If the application environment is an On Premise or Cloud Service environment, you can specify the directory name along with the following relative path: • **@SHARED_DIR** – Used when you want to fetch the private key file from the shared directory on the server. For example, you can set the value to @SHARED_DIR/.ouaf_storepass. However, if the application environment is a Cloud Service Premium Edition environment, you must specify the following information in the file-storage://<File Storage Extendable Lookup Value>/<Object Storage Bucket> format: • The file storage extendable lookup value from where the cloud storage compartment and connection details are retrieved while fetching the private key file on OCI. • The bucket or container from where you want the system to fetch the private key file. **Points to Note:** By default, the value is set to **@SHARED_DIR/ks/.ouaf_storepass**. You must change the value as per the requirement. The shared directory variable (i.e. **SHARED_DIR**) is case-sensitive.	Yes

8. Enter the values for the required option types in the **Feature Configuration** screen.
9. Click the **Save** button in the **Page Title** area. The changes made to the feature configuration are saved.

8.4 Integrating Customer Modifications into This Release

To integrate customer modifications from previous release into this version of the Oracle Revenue Management and Billing, the customer modifications must be re-applied to a new environment using the source code and database utilities provided with the software development kit.

Refer to the *Oracle Utilities Application Framework Software Development Kit* documentation for detailed information.

8.5 User Documentation

User manuals and other technical documents are available in the Portable Document Format (PDF) format. You can download the release-specific documentation from either of the following locations:

- **Oracle Technology Network (OTN)** – You can access the ORMB release-specific documentation libraries from OTN using the following URL:

  http://www.oracle.com/technetwork/indexes/documentation/fsgbu-1364781.html

  It contains the **Documentation Library for Oracle Revenue Management and Billing On-Premise Solution** section. You can view and download a release-specific documentation library by clicking the **View Library** and **Download** links, respectively, corresponding to the respective ORMB version.

- **Oracle Help Center (OHC)** – You can access the ORMB release-specific documentation from OHC using the following URL:

  https://docs.oracle.com/en/industries/financial-services/revenue-management-billing/index.html

  The ORMB OHC page contains a drop-down list which allows you to select the ORMB version for which you want to access the documentation.

Points to Note:

You can access the documentation of a release prior to 5.0.0.0.0 from OHC by selecting the **Previous Releases** option from the list.

Always ensure that you download latest revision of the document from **OTN** or **OHC**.

The online help is provided in the HTML format. It is located inside the Oracle Revenue Management and Billing application server installation package. It is automatically installed and can be launched from the user interface. The online help files are available under the `applications` directory. In case of Oracle WebLogic application server, the online help is packaged in the file named ohelp.ear. The online help is provided in English (ENG).

8.6   Operating the Application

At this point your installation and custom integration process is complete. Refer to the *Oracle Revenue Management and Billing Server Administration Guide* for more information on further configuring and operating the Oracle Revenue Management and Billing system.

8.7   Installing Service Packs and Patches

Periodically, Oracle Revenue Management and Billing releases a service pack of single fixes for its products. A service pack is an update to an existing release that includes solutions to known problems and other product enhancements. A service pack is not a replacement for an installation, but a pack consisting of a collection of changes and additions for it. The service pack may include changes to be applied to the application server, the database, or both. The service pack includes all files necessary for installing the collection of changes, including installation instructions.

Between services packs, Oracle Revenue Management and Billing releases patches to fix individual bugs. For information on installing patches, refer to the *How To Install Patches On Oracle Utilities Application Framework Based Products (Document ID: 974985.1)* article on My Oracle Support. Service packs and patches can be downloaded from My Oracle Support.

9.   Additional Tasks

This section describes the tasks that should be completed after installing Oracle Revenue Management and Billing, including:

- Importing Self-Signed Certificates
- Customizing Configuration Files
- Centralized Properties Customization
- Integrating Existing Customer Modifications
- Generating the Application Viewer
- Building Javadocs Indexes
- Configuring the Environment for Batch Processing
- Customizing the Logo
- Deploying Inbound Web Services (IWS)
- Domain Templates
- Database Patching Process
- Invoking Custom Batch Notifier

9.1   Importing Self-Signed Certificates

If you are using self-signed certificates and the Inbound Web Services (IWS) feature, then it is necessary to import these certificates into the OUAF truststore file. To import the self-signed certificates:

1. Start Oracle WebLogic.

2. Initialize a command shell and setup the environment by running the following:

    AIX, Linux:

    ```
    $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
    ```

    For example:

    ```
    /ouaf/TEST_ENVIRON1/bin/splenviron.sh -e TEST_ENVIRON1
    ```

    Windows:

    ```
    %SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
    ```

    For example:

    ```
    D:\ouaf\TEST_ENVIRON1\bin\splenviron.cmd -e TEST_ENVIRON1
    ```

3. Execute the following script to generate all the information.

    AIX, Linux:

    ```
    $SPLEBASE/bin/initialSetup.sh -i [<server>:<port>]
    ```

    Windows:

    ```
    %SPLEBASE%\bin\initialSetup.cmd -i [<server>:<port>]
    ```

Points to Note:

If the server name and port number are not specified, these details are retrieved from the `ENVIRON.INI` file.

This step is required before deploying the IWS application.

9.2   Customizing Configuration Files

You may wish to modify various configuration files. If you wish to make custom modifications in configuration files, create a 'CM copy' of the template file or user exit. This preserves your changes whenever initialSetup is executed; otherwise, your changes to the delivered template files will be lost if it is patched in the future.

For example, to customize hibernate properties of the SPLWeb web application, perform the following:

1. Locate the `hibernate.properties.template` file in the `$SPLEBASE/templates` directory.
2. Copy the file and rename it to `cm.hibernate.properties.template`.
3. Make the required changes in the `cm.hibernate.properties.template` file.
4. Update the application war file with the latest changes by executing the following command:

   AIX, Linux:

   `$SPLEBASE/bin/initialSetup.sh`

   Windows:

   `%SPLEBASE%\bin\initialSetup.cmd`

Refer to the *Oracle Utilities Application Framework Software Development Kit* documentation for more details.

9.3   Centralized Properties Customization

This feature gives the ability to add, modify, and remove properties in one file. The properties are propagated to the specified property files. The template process, which is part of the `initialSetup` step, will look at the `etc/cm_properties.ini` file (this can be created as a Customer Customization). If the file exists, the content will be processed for the relevant properties.

Note: Product teams might use the `etc/<PROD>_properties.ini` file format (where <PROD> could be one of the lists of installed products included in the `etc/PRODUCT.txt` file). If it exits, it will be processed as well.

cm_properties.ini examples

Type of entries that could be included into the **cm_properties.ini** file and relevant type of action:

`<PROPERTIES_FILE>:<PROPERTY_NAME>=<VALUE>`

- Override <PROPERTY_NAME> in <PROPERTIES_FILE> with <VALUE> if exists.
- Insert <PROPERTY_NAME> in <PROPERTIES_FILE> with <VALUE> if it doesn't exist.

`<PROPERTY_NAME>=<VALUE>`

- Override <PROPERTY_NAME> in all property files with <VALUE>, if <PROPERTY_NAME> exists

```
<PROPERTIES_FILE>:<PROPERTY_NAME>=[DELETE]
```

- Remove <PROPERTY_NAME> from <PROPERTIES_FILE> if it exists.

```
<PROPERTY_NAME>=[DELETE]
```

- Remove <PROPERTY_NAME> from all property files, if <PROPERTY_NAME> exists.

Template example -> hibernate.service.properties.template:

```
hibernate.user = @DBUSER@
hibernate.pass = @DBPASS@
hibernate.ucp.validate_connection = true
```

ENVIRON.INI example:

```
DBUSER=cisadm
```

cm_properties.ini example:

```
hibernate.service.properties.template:hibernate.user=clouduser
```

```
hibernate.password=cloudpwd
```

```
hibernate.iws.properties.template:hibernate.user=clouduser
```

```
hibernate.service.properties.template:hibernate.ucp.validate_connectio
n=[DELETE]
```

```
hibernate.service.properties.template:new.property=test
```

hibernate.service.properties generated properties file result:

```
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.user=clouduser
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.password=cloudpwd
### The following line was deleted because of the <PROD>_properties.ini
file setting:
# hibernate.ucp.validate_connection = true
### The following line was appended because of the <PROD>_properties.ini
file setting:
new.property = test
```

hibernate.iws.properties generated properties file result:

```
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.user=clouduser
### The following line was overridden because of the
<PROD>_properties.ini file setting:
hibernate.password=cloudpwd
```

9.4   Integrating Existing Customer Modifications

Existing Customer Modifications (CM) applied to an application server on an earlier release cannot be applied directly to a later release. CM code needs to be applied from an SDK version compatible with this release.

Refer to the *Oracle Utilities Application Framework Software Development Kit* documentation for more information about migrating CM code.

9.5   Generating the Application Viewer

You may extend the application viewer capabilities within an environment by generating additional items. These items that can be generated include information about algorithm types, algorithms, maintenance objects, and data dictionary information. The Javadoc indexes are also rebuilt.

To generate the additional items in the application viewer:

1. Shut down the environment.

2. Initialize a command shell and setup the environment:

   AIX, Linux:

   ```
   $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
   ```

   For example:

   ```
   /ouaf/TEST_ENVIRON1/bin/splenviron.sh -e TEST_ENVIRON1
   ```

   Windows:

   ```
   %SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
   ```

   For example:

   ```
   D:\ouaf\TEST_ENVIRON1\bin\splenviron.cmd -e TEST_ENVIRON1
   ```

3. Execute the following script to generate all information:

   AIX, Linux:

   ```
   ksh $SPLEBASE/bin/genappvieweritems.sh
   ```

   Windows:

   ```
   %SPLEBASE%\bin\genappvieweritems.cmd
   ```

4. Restart your application.

9.6   Building Javadocs Indexes

Rebuilding Javadoc indexes is already part of generating application viewer above. However, there are times when you need to run it separately. For example, this is required after customer modifications (CM) have been applied to an environment when it includes Java code.

To rebuild the Javadoc indexes, you need to execute the following command:

Windows:

```
%SPLEBASE%\bin\buildJavadocsIndex.cmd
```

AIX, Linux:

```
ksh $SPLEBASE/bin/buildJavadocsIndex.sh
```

9.7   Configuring the Environment for Batch Processing

Refer to the *Oracle Revenue Management and Billing Server Administration Guide* for information about configuring the environment for batch processing.

9.8   Customizing the Logo

To replace the Oracle Utilities logo on the main menu with another image, put the new image `<customer_logo_file>.png` file into the directory `$SPLEBASE/etc/conf/root/cm` and create a new "External" Navigation Key called CM_logoImage. To do that, run the Oracle Utilities application from the browser with the parameters:

```
http://<hostname>:<port>/cis.jsp?utilities=true&tools=true
```

From the Admin menu, select Navigation Key. Add the above Navigation Key with its corresponding URL Override path. The syntax for the URL path is:

Windows:

```
http://<hostname>:<port>/<Web_Context>/cm/<customer_logo_file>.png
```

AIX, Linux:

```
http://<hostname>:<port>/<Web_Context>/cm/<customer_logo_file>.png
```

The root directory may be deployed in war file format for runtime environment (`SPLApp.war`). Use provided utilities to incorporate your cm directory into `SPLApp.war` file.

9.9   Deploying Inbound Web Services (IWS)

All existing XAI Inbound Services have been duplicated as inbound web services. The application no longer supports XAI. The duplicated services are designed to work seamlessly in this release, and customers providing custom services are encouraged to migrate to inbound web services to take full advantage of the new, more efficient Web service technology.

For more information on migrating from XAI to IWS, refer to the *Migrating from XAI to IWS Oracle Utilities Application Framework (Document ID: 1644914.1)* article on My Oracle Support. For detailed instructions on how to deploy inbound web services, refer to the *Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework (Document ID: 2413918.1)* article on My Oracle Support.

Note: This is an optional step for customers using IWS instead of XAI services.

To deploy inbound web services:

1. Execute the following command:

   AIX, Linux:

   `$SPLEBASE/bin/configureEnv.sh –a`

   Windows:

   `%SPLEBASE%\bin\configureEnv.cmd –a`

2. Type 50 and set the **IWS Deployment Target** and **Web Admin Server Host** menu options.

3. Type 52 and set the **This is a development environment** menu option.

4. Type **P** to proceed with the setup.

5. Execute the following command:

   AIX, Linux:

   `$SPLEBASE/bin/initialSetup.sh`

   Windows:

   `%SPLEBASE%\bin\initialSetup.cmd`

6. Create an Oracle WebLogic user configuration file (i.e. `<SPLEBASE>/etc/.wlsuserconfig`) and an associated key file (i.e. `<SPLEBASE>/etc/.wlsuserkey`).

Note: Refer to the Oracle WebLogic documentation for more information about the storeUserConfig WLST command.

7. Ensure that the admin server and web service target managed server(s) are running.

8. Execute the following command to import the Oracle WebLogic server certificate into Oracle Utilities Application Framework trust key store.

   AIX, Linux:

   `$SPLEBASE/bin/initialSetup.sh -i`

   Windows:

   `%SPLEBASE%\bin\initialSetup.cmd -i`

9. Execute the following utility in `$SPLEBASE/bin` to deploy the web service EAR file. Note that the application server should be up before running the below command.

   AIX, Linux:

   `ksh ./iwsdeploy.sh`

   Windows:

   `iwsdeploy.cmd`

9.10 Domain Templates

Configure the Oracle WebLogic application server to deploy it. Refer to the _Oracle WebLogic 12.2.1.x Configuration Guide for Oracle Utilities Framework_ (Document ID: 2413918.1) article on My Oracle Support.

9.11 Database Patching Process

The Database Patching is a Java-based process, and therefore you can create a standalone jar which helps to install database patches on a separate server that has Java 8 installed. To install database patches on a separate server, you will need to create a jar file which contains the utilities and supporting files that allow you to run the database patch installer on another server.

To generate the jar file which helps to install database patches on a separate sever:

1. Initialize a command shell:

    The scripts that are provided with the system need to be run from a shell prompt on the machine where you have installed the application server. Before such scripts can be run, the shell must be "initialized" by running the `splenviron` script provided with the system.

    AIX, Linux:

    Login to the Linux machine as the Oracle Utilities Administrator (default cissys) and open a shell prompt.

    In the following example, you should replace the following variables:

    - `$SPLEBASE` with the full directory name where you have installed the application
    - `$SPLENVIRON` with the name that you gave to the environment at the time of installation

    To initialize the environment, use the following command:

    `$SPLEBASE/bin/splenviron.sh –e $SPLENVIRON`

    For example:

    `/ouaf/DEMO/bin/splenviron.sh –e DEMO`

    Windows:

    You should open the command window on the Windows server where you have installed the application.

    In the below example, you should replace the following variables:

    - `%SPLEBASE%` with the full directory name where you have installed the application
    - `%SPLENVIRON%` with the name that you gave to the environment at the time of installation

    To initialize the environment, use the following command:

    `%SPLEBASE%\bin\splenviron.cmd –e %SPLENVIRON%`

For example:

```
D:\ouaf\DEMO\bin\splenviron.cmd -e DEMO
```

2. Execute the following script to generate the JAR file:

   AIX, Linux:

   ```
   ksh $SPLEBASE/bin/createDBStandlone.sh
   ```

   Windows:

   ```
   %SPLEBASE%\bin\createDBStandlone.cmd
   ```

> **Note:** By default, the `db_patch_standalone.jar` file is created in the `SPLEBASE/tools/dbstandalone` folder. You can use the `-l` option to change the default directory.

3. Copy the `db_patch_standalone.jar` file to the machine where you want to apply the database patches.

4. Extract the contents of the JAR file using the following command:

   ```
   jar -xvf db_patch_standalone.jar
   ```

> **Note:** You must have Java 8 JDK installed on the machine to use the `jar` command. Ensure that you install JDK that is supported on your platform.

9.11.1 Applying the Database Patches

On applying the database patches, the system checks whether the `$SPLEBASE` environment variable is set. If the `$SPLEBASE` environment variable is set, the utility uses the libraries under `$SPLEBASE` to apply the patch. If the `$SPLEBASE` environment variable is not set, the utility checks whether the `TOOLSBIN` environment variable is set. If the `TOOLSBIN` environment variable is set, the utility uses the libraries under the `TOOLSBIN` location to apply the patch. If both `SPLEBASE` and `TOOLSBIN` environment variables are not set, the utility prompts for the location of the `TOOLSBIN` directory. The `TOOLSBIN` is the location where the `ouafDatabasePatch.sh` and `ouafDatabasePatch.cmd` scripts are available.

Linux Example:

The `TOOLSBIN` environment variable should be set to `/ouaf/dbpatch/bin` using the following command:

```
export TOOLSBIN=/ouaf/dbpatch/bin
```

Database Patch Utility (`ouafDatabasePatch.sh`)

Linux Sample Usage:

```
ouafDatabasePatch.sh [-h] [-u] [-v] [-x] [-t tools dir] [-p ouafparms]
```

Where,

Command Line Option	Description
-h	Used to display help of the `ouafDatabasePatch` utility.
-u	Used to display usage of the `ouafDatabasePatch` utility.
-v	Used to display version of the `ouafDatabasePatch` utility.

Command Line Option	Description
-x	Used to specify password for the `ouafDatabasePatch` utility.
-b	Used to specify the location of the `TOOLSBIN` directory.
-p	Used to specify parameters for the `ouafDatabasePatch` utility. The parameters must be enclosed within quotes.

Note: Ensure that you have the required permissions to execute the `ouafDatabasePatch.sh` utility while applying the database patches.

Sample Command with Password

```
./ouafDatabasePatch.sh   -x   <password>   -p   "-t   O   -d   DBNAME,
DBSERVER:DBPORT:DBSID"
```

Sample Command without Password

```
./ouafDatabasePatch.sh -p "-t O -d DBNAME, DBSERVER:DBPORT:DBSID"
```

Windows Example:

The `TOOLSBIN` environment variable should be set to `c:\ouaf\dbpatch\bin` using the following command:

```
SET TOOLSBIN=c:\ouaf\dbpatch\bin
```

Database Patch Utility (`ouafDatabasePatch.cmd`)

Windows Sample Usage:

```
ouafDatabasePatch.cmd[-h] [-u] [-v] [-x] [-b tools dir] [- p ouafparms]
```

Where,

Command Line Option	Description
-h	Used to display help of the `ouafDatabasePatch` utility.
-u	Used to display usage of the `ouafDatabasePatch` utility.
-v	Used to display version of the `ouafDatabasePatch` utility.
-x	Used to specify password for the `ouafDatabasePatch` utility.
-b	Used to specify the location of the `TOOLSBIN` directory.
-p	Used to specify parameters for the `ouafDatabasePatch` utility. The parameters must be enclosed within quotes.

Sample Command with Password

```
ouafDatabasePatch.cmd   -x   <password>   -p   "-t   O   -d   DBNAME,
DBSERVER:DBPORT:DBSID"
```

Sample Command without Password

```
ouafDatabasePatch.cmd -p "-t O -d DBNAME, DBSERVER:DBPORT:DBSID"
```

Sample Command with the TOOLSBIN Location

```
ouafDatabasePatch.cmd -b "C:\temp\db_patch_standalone\bin" -p "-t O -d
DBNAME,                    DBSERVER:DBPORT:DBSID                    -c
C:\temp\dbrollup\CDXPatch2\CDXPatch.ini"
```

9.12 Invoking Custom Batch Notifier

You need to do this additional task to ensure that the To Dos are generated once the following batches are executed:

- Upload and Validate Usage Data File (C1-ODFU)
- Billable Charge Creation (C1-ODBCH)
- Adhoc Billing (C1-FABL)
- Freeze and Complete Adhoc Bills (C1-FCADH)
- Any other standard or custom batch which is configured to generate notification once the batch is completed.

To generate custom notification once a batch is completed, you need to do the following:

1. Add the following line in the
   `../$SPLEBASE/templates/threadpoolworker.properties.template` file:

   ```
   com.splwg.batch.custom.notifier=com.splwg.ccb.domain.batch.Custom
   BatchNotifier
   ```

2. Re-initialize the environment using the following command:

   AIX, Linux:

   ```
   $SPLEBASE/bin/initialSetup.sh
   ```

   Windows:

   ```
   %SPLEBASE%\bin\initialSetup.cmd
   ```

3. Restart your application.

Appendix A :   Application Framework Prerequisite Patches

Oracle Utilities Application Framework patches must be installed prior to installing Oracle Revenue Management and Billing. These patches are available in the rollup pack named **Oracle Financial Services Revenue Management and Billing 5.1.0.0.0 - Oracle Utilities Application Framework (4.5.0.0.0) Single Fix Prerequisite Rollup**. The `BUGLIST.txt` file in the `FW-V4.5.0.0.0-Rollup\Application` directory lists the bugs for which patches are available in the rollup pack.

Appendix B :   ORMB V5.1.0.0.0 Rollup Packs

Instead of individually applying the patches, you can download and apply the release-specific rollup packs. To view the list of rollup packs that you need to apply on the application environment, refer to the *ORMB V5.1.0.0.0 Patch Guide (Document ID: 2941754.1)* on My Oracle Support.

B.1   Applying a Rollup Pack

Once you install Oracle Revenue Management and Billing Version 5.1.0.0.0, you need to apply the rollup packs listed in the *ORMB V5.1.0.0.0 Patch Guide (Document ID: 2941754.1)*. To apply a rollup pack:

1. Download the rollup pack from My Oracle Support. A zip file is downloaded.
2. Unzip the downloaded file in your local directory. The contents include `README.txt` and three directories named `RMB_V5.1.0.0.0_App_Rollup`, `RMB_V5.1.0.0.0_DB_Rollup`, and `RMB_V5.1.0.0.0_PFDs`.
3. Initialize the application environment (on which you want to install the rollup pack) using the following command:

    AIX, Linux:

    `$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON`

    Windows:

    `%SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%`

    Where,

    `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed and `$SPLENVIRON` or `%SPLENVIRON%` is the name of the application environment.
4. Change to the `RMB_V5.1.0.0.0_App_Rollup` directory using the following command:

    AIX, Linux:

    `cd <DESTINATION_FOLDER_1>/RMB_V5.1.0.0.0_App_Rollup`

    Windows:

    `cd <DESTINATION_FOLDER_1>\RMB_V5.1.0.0.0_App_Rollup`

Note: The `<DESTINATION_FOLDER_1>` directory is the location where you have extracted the contents of the rollup pack.

5. Install the patch using the following command:

    AIX, Linux:

    `./installSFgroup.sh`

    Windows:

    `installSFgroup.cmd`

Appendix C : ORMB V5.1.0.0.0 Bug Fixes

To view a list of bugs fixed in the current release, refer to the *Oracle Revenue Management and Billing Version 5.1.0.0.0 Release Notes*.

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jQuery BBQ: Back Button & Query Library - v1.2.1 - 2/17/2010

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By Jeremy Dorn - https://github.com/jdorn/json-editor/

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Written by Kristof Coomans

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