Oracle® Revenue Management and Billing

Version 2.5.0.0.0

Installation Guide

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ORACLE

Oracle Revenue Management and Billing Installation Guide

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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

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	Installation Types	Provides an overview of the different types of application installation.
Section 5	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 6	Installing the Database	Explains how to install the Oracle Revenue Management and Billing database.
Section 7	Installing Application Server Prerequisite Software	Lists the software that you need to install for each supported operating system and application server combination.

Section No.	Section Name	Description
Section 8	Installing the Application Server Component of Oracle Utilities Application Framework	Explains how to install Oracle Utilities Application Framework.
Section 9	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 10	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 V2.5.0.0.0 Bug Fixes	Lists the bugs fixed in Oracle Revenue Management and Billing Version 2.5.0.0.0.
Appendix C	License and Copyright Notices	Lists all notices with reference to usage of third party products.

Related Documents

You can refer to the following documents for more information:

Document	Description
Oracle Revenue Management and Billing Version 2.5.0.0.0 Release Notes	Provides a brief description about the new features, enhancements, UI and database level changes, supported platforms, framework upgrade, supported upgrades, and technology upgrade made in this release. It also highlights the discontinued features, bug fixes, and known issues in this release.
Oracle Revenue Management and Billing Quick Installation Guide	Provides high-level information on how to install the Oracle Revenue Management and Billing (ORMB) application and selected additional software.
Oracle Revenue Management and Billing Database Administrator's Guide	Provides information about the Oracle Database Server and Client required for installing the Oracle Revenue Management and Billing database. It explains how to install database with and without demo data. It provides database configuration guidelines including recommended settings for the Oracle Exadata Database machine.

Document	Description
Oracle Revenue Management and Billing Server Administration Guide	Explains the Oracle Revenue Management and Billing (ORMB) architecture and technical know-how required for configuring and using the ORMB application. It explains how to configure and deploy web and business application servers. In addition, it explains how to monitor client machines, web and/or business application servers, and database connections.
Oracle Revenue Management and Billing Security Guide	Lists the security features available in the Oracle Revenue Management and Billing application. It explains how to configure security for the Oracle Revenue Management and Billing application using the default security features.
Oracle Utilities Application Framework Version 4.3.0.0 Release Notes	Provides a brief description about the new features and enhancements made in this release. It also highlights the supported platforms, supported upgrades, and known issues in this release.

Change Log

Revision	Last Update	Updated Section	Comments
7.1	14-Dec-2015	All sections in this document	Corrected formatting issues

Contents

1. Overview

This section provides an overview of the installation of Oracle Revenue Management and Billing (ORMB) application.

1.1 Installation Overview

Installing Oracle Revenue Management and Billing 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 *Oracle Revenue Management and Billing Database Administrator's Guide*.

3. Install the database as described in *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. If you are using the WebSphere application server on AIX, configure your server as described in the Configuring WebSphere Application Server section.
7. Install the framework for the application as described in the Installing the Application Server Component of Oracle Utilities Application Framework section.
8. Install Oracle Revenue Management and Billing as described in the Installing the Application Server Component of Oracle Revenue Management and Billing section.
9. 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.

Please see *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 Application / 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 gives an overview of the tiers on which the product is implemented, and shows each of the operating system/server combinations that the product is certified for. It includes:

- Software and Hardware Considerations
- Requirements by Tier
- Supported Platforms
- 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 the 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, please see *Oracle Utilities Application Framework Architecture Guidelines* available on My Oracle Support (Article ID 807068.1).

The final hardware and software decisions must comply with the specific requirements of the Oracle Revenue Management and Billing product, as described in the rest of 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

Configuration	Processor	Memory (RAM)	Monitor Display
Minimum	Pentium IV - 2.0 GHz	1024 MB	1024X768[1] 16-bit Color
Recommended	Pentium IV - 3.0+ GHz, Or any Core 2 Duo Or any Athlon X2	2048 MB	1280X1024[2] 32-bit Color

Web Browser Requirements

The following operating system and web browser software are supported:

- Windows 7, 8.1 (64-bit) with Internet Explorer 11.x

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

Please refer 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 *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 following sizing excludes the Oracle database server installation.

Memory Requirements

For each application server deployment, a minimum of 4 GB of real memory is required, plus 6 GB of swap space.

[1] To reduce the amount of scrolling required for pages that are longer than 768 or 1024 pixels, consider placing a monitor into vertical position (with narrow side on the bottom).
[2] The Recommended configuration improves client performance.

Disk Space Requirements

The approximate disk space requirements in a standard installation are as follows:

Location	Size	Usage
$SPLEBASE	5 GB minimum	This location is where the application and Framework get installed. Startup, shutdown and other online log files are stored here. The size and space that is used should be monitored because various debugging options can significantly affect the size of log files.
$SPLAPP	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 run and how often, and the amount of debugging information that is collected.
Location of the application web work files on the web servers	1.5 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	4 GB	The application gets installed from this location. You need enough space to uncompress the files and install the application.
Oracle data area	4 GB minimum	This location is 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.

3.2.3 Tier 3, Database Server: Software and Hardware Requirements

See the Supported Platforms section for 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, see the Installing Application Server Prerequisite Software section for more information. This section includes the following topics:

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

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 2.5.0.0.0 is supported:

Operating System and Web Browser (Client)	Operating System (Server)	Chipset	Application Server	Database Server
Windows 7[3], 8.1 (Internet Explorer 11.x)	AIX 7.1 TL1 (64-bit)	POWER 64-bit	WebSphere 8.5 (64-bit)	Oracle 12.1.0.2
	Oracle Linux 6.5 and 7.0 (64-bit)	x86_64	WebLogic 12.1.3.0 (64-bit)	Oracle 12.1.0.2
	Red Hat Enterprise Linux[4] 6.5 and 7.0 (64-bit)	x86_64	WebLogic 12.1.3.0 (64-bit)	Oracle 12.1.0.2
	Windows Server 2012 R2 (64-bit)	x86_64	WebLogic 12.1.3.0 (64-bit)	Oracle 12.1.0.2

Note:

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

[3] Oracle will not provide any support for Windows XP from 2014

[4] Oracle Revenue Management and Billing is tested and certified on Oracle Linux 6.5 and 7.0. Oracle Linux is 100% userspace-compatible with Red Hat Enterprise Linux, and therefore Oracle Revenue Management and Billing is supported on Red Hat Enterprise Linux

3.3.2 Oracle Database Servers

Oracle Revenue Management and Billing Version 2.5.0.0.0 is supported on Oracle Database Server 12.1.0.2 on all operating systems listed above. The following Oracle Database Server Editions are supported:

- Oracle Database Enterprise Edition

Oracle Database Client 12.1.0.1 is required for Oracle Database Server 12.1.0.2.

3.3.3 Oracle WebLogic Server Information

The following Oracle WebLogic Server Editions are supported:

- Oracle WebLogic Server Standard Edition 12.1.3.0
- Oracle WebLogic Server Enterprise Edition 12.1.3.0 (required if using application clustering)

3.4 Support for Software Patches and Upgrades

Due to the ongoing nature of software improvement, vendors will issue patches and service packs for the operating systems, application servers and database servers on top of specific versions that Oracle Utilities Application Framework has been tested with.

If it is necessary to apply an upgrade, please do so in a test environment that is running on the same platform as your 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 Revenue Management and Billing support prior to applying vendor updates that do not guarantee backward compatibility.

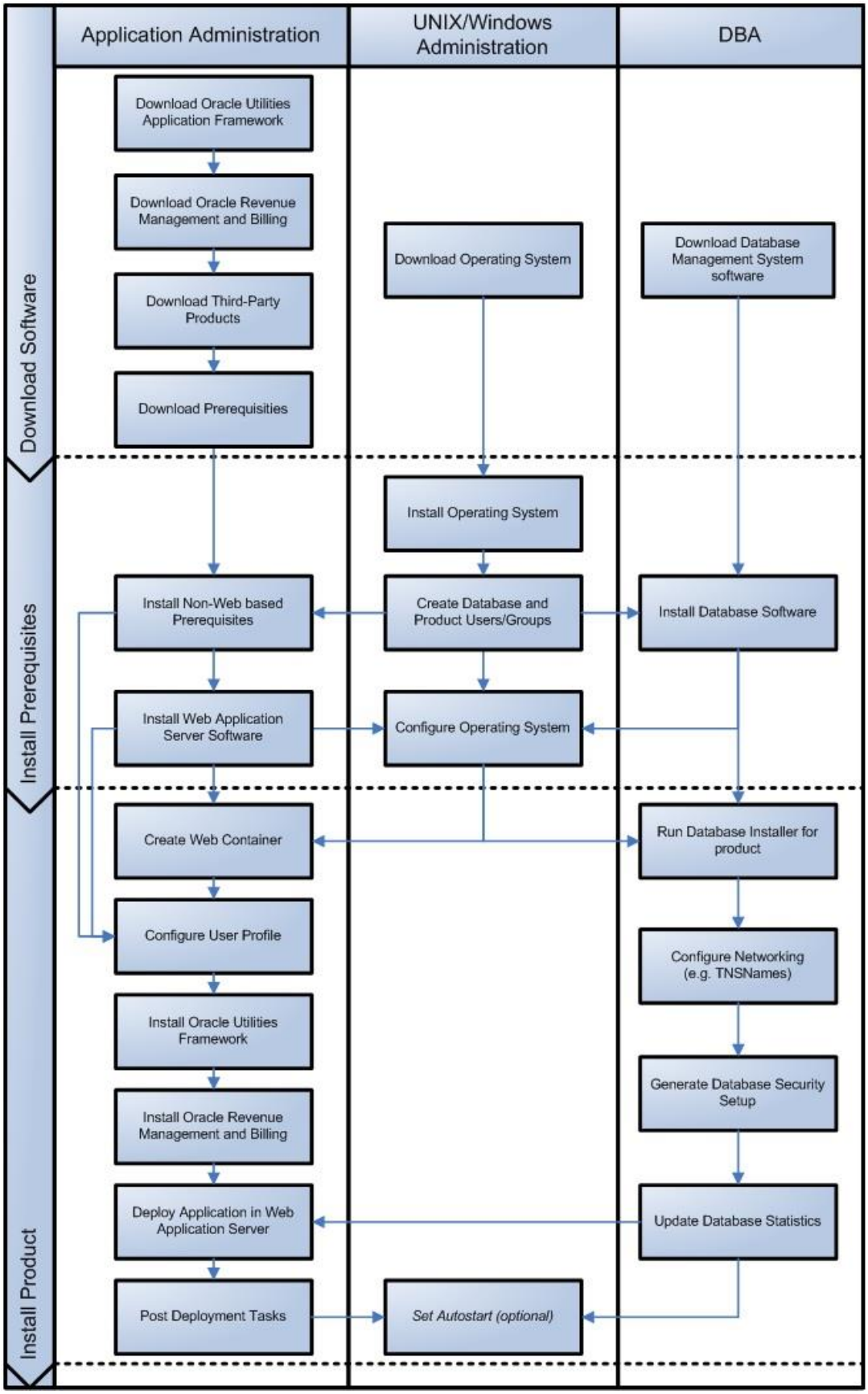
4. Planning the Installation

This section provides information for planning an Oracle Revenue Management and Billing installation, including:

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

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:



4.2 Before You Install

Refer to My Oracle Support for up-to-date additional information on installing Oracle Revenue Management and Billing.

4.2.1 Application Server Clustering

If you are considering application server clustering, refer to the following whitepapers, available on My Oracle Support, for additional information:

- Implementing Oracle ExaLogic and/or Oracle WebLogic Clustering (Doc ID: 1334558.1)
- IBM WebSphere Clustering for Oracle Utilities Application Framework (Doc ID: 1359369.1)

4.2.2 Native Mode in WebLogic

If you are planning to use Oracle Utilities Application Framework in native mode within Oracle WebLogic (as opposed to embedded mode), refer to the whitepaper "Native Installation Oracle Utilities Application Framework (Doc ID: 1544969.1)" on My Oracle Support.

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 *Oracle Revenue Management and Billing Database Administrator's Guide*.
2. Create Group/User ID.
3. Install prerequisite software (for complete details about installing and configuring the prerequisite third-party software for your specific platform, see the Installing Application Server Prerequisite Software section):
    - Oracle Database Client 12.1.0.1
    - Java 7 Update 45 or Java 8 Update 40
    - Hibernate 4.1.0
4. Install web server.
    - Oracle WebLogic 12.1.3.0
    - IBM WebSphere Basic 8.5 or IBM WebSphere Network Deployment 8.5

Note: If you are upgrading and you are currently running Oracle Application Server please contact your Global Support Representative.

5. Verify that the software is installed.
6. Set up 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. Deploy the Oracle Revenue Management and Billing application.

11. Complete the post installation tasks.
12. Optional third-party product integration (such as Self Service or 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.

4.4.1 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. In order to erase a variable value you need to enter one dot (“.”). The leading spaces will be trimmed out on each values entered.

Note:

When working with the menu you will see 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.

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'.

4.4.2 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 of 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.

In the worksheets there are three different types of values given:

- Default Values are the values that will be defaulted when running the installation utility.
- Security Values denote values that should be changed when in production.
- Example Values are values that can be used for a default installation.

Note: The production environment should not be run with default values. See *Oracle Revenue Management and Billing Server Administration Guide* for additional information about configuring these values.

When you enter passwords you will not see the password characters on the screen because they are entered in silent mode. Passwords are encrypted when the values are entered.

Install the Oracle Database Client software specified in the Supported Platforms section prior to running any of the installation utilities.

The following prompt will appear 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 in order to run Perl installation utilities.

Encryption Methods

When the application server choice is Oracle WebLogic, the Oracle Utilities Application Framework installation uses the Oracle WebLogic API to encrypt the User ID and password that perform admin functions for the WebLogic application servers. Please refer to the Oracle WebLogic documentation for further information about the encryption.

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

In each case these password are entered in the command line but the inputted values are not reflected on the screen when performing the installation.

4.4.3 Third Party Software Configuration

1. Third Party Software Configuration

The following menu options appear when you select the 1. Third Party Software Configuration menu while executing the `install` utility:

Menu Option	Default Value
Oracle Client Home Directory	
Web Java Home Directory	

Menu Option	Default Value
Hibernate JAR Directory	
ONS JAR Directory	
Web Application Server Home Directory	
ADF Home Directory	
OIM OAM Enabled Environment	false

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

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Oracle Client Home Directory	ORACLE_CLIENT_HOME	The home directory of Oracle Database Client. The application will use Perl included under Oracle Database Client. Example Location: `/oracle/client/product/12.1.0.1.0`	
Web Java Home Directory	JAVA_HOME	Java home that will be used by the web application server. Example Location: `/ouaf/java/jdk1.7.0_45`	
Hibernate JAR Directory	HIBERNATE_JAR_ DIR	Location on the disk where the hibernate410.jar is installed.	
ONS JAR Directory[5]	ONS_JAR_DIR	Location on the disk where the `ons-12.1.0.1.jar` file is installed. Required for Oracle RAC installation. See *Oracle Revenue Management and Billing Server Administration Guide* for more information.[6]	

[5] Denotes optional Menu Options that may be required for the product installation and variables.

[6] In order to activate the RAC FCF, the application needs the external ons.jar file. This ons.jar is located under the Oracle Database Software at the following path:

`$ORACLE_HOME/opmn/lib/ons.jar`

The `ons.jar` should be copied to the Application Server. During the OUAF installation, the relevant option should be populated with the folder location of the `ons.jar`.

Menu Option	Name Used in Documentation	Usage	Customer Install Value

Web Application Server Home Directory	WEB_SERVER_ HOME	Location on the disk where the application server is installed.
		Example Location:
		WebLogic:
		`/ouaf/middleware/wlserver_12.1.3`
		To validate the home directory, check if the following jar files exist in the appropriate path:
		• `$WEB_SERVER_HOME/server/lib/weblogic.jar`
		• `%WEB_SERVER_HOME%\server\lib\weblogic.jar`
		WebSphere:
		`/ouaf/IBM/WebSphere/AppServer`
		WebSphere ND:
		`/ouaf/IBM/WebSphereND/`	

ADF Home Directory[7]	ADF_HOME	Location on the disk where ADF is installed. Example Location: `/ouaf/jdev11_1_1_8` **Note**: This is an optional menu option.	
OIM OAM Enabled Environment	OPEN_SPML_ENABLED_ENV	Denotes if an environment will be integrating with Oracle Identity Manager for user propagation. Valid values: • true • false Default Value: false	

[7] Denotes optional Menu Options that may be required for the product installation and variables.

4.4.4 Keystore Options

2. Keystore Options

The following menu options appear when you select the 2. Keystore Options menu while executing the `install` utility:

Menu Option	Default Value
Import Keystore Directory	
Store Type	JCEKS
Alias	ouaf.system
Alias Key Algorithm	AES
Alias Key Size	128
HMAC Alias	ouaf.system.hmac
Padding	PKCS5Padding
Mode	CBC

The following table describes the keystore menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Import Keystore Directory	`KS_IMPORT_KEYSTORE_FOLDER`	Specify this option if you want to import the keystore files from an external location or directory, during the installation process. This is needed when the customer has an existing environment that has a keystore and the database your new application server. After installation is complete, to configure keystore options, perform the following in sequence: 1. configureEnv.sh|cmd –i (enter keystore options) 2. initialSetup.sh|cmd –s (loads keystore) 3. configureEnv.sh|cmd (reenter ouaf encrypted security information such as passwords) 4. initialSetup.sh|cmd (distribute the encrypted data) If this option is left empty, the install	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
		process creates a new keystore from scratch.	
Store Type	KS_STORETYPE	Value used for keytool option named storetype. Default Value: JCEKS	
Alias	KS_ALIAS	Value used for keytool option named alias. Default Value: ouaf.system	
Alias Key Algorithm	KS_ALIAS_KEYALG	Value used for keytool option named keyalg.	
Alias Key Size	KS_ALIAS_KEYSIZE	Value used for keytool option named keysize.	
HMAC Alias	KS_HMAC_ALIAS	Value used for keytool option named alias. The following values are fixed: • HMAC Alias Key Algorithm: HmacSHA256 • HMAC Alias Key Size: 256 Default Value: ouaf.system.hmac	
Padding	KS_PADDING	Value used for encryption/decryption Default Value: PKCS5Padding	
Mode	KS_MODE	Value used for encryption/decryption Default Value: CBC	

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

4.4.5 Environment Installation Options

50. Environment Installation Options

The following menu options appear when you select the 50. Environment Installation Options menu while executing the `install` utility:

Menu Option	Default Value
Environment Mount Point	
Log Files Mount Point	
Environment Name	
Web Application Server Type	WLS
Install Application Viewer Module	true
Install Demo Generation Cert Script	true
Install Sample CM Source Code	true

The following table describes the environment installation menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Environment Mount Point	`<SPLDIR>`	The mount point into which the application is installed. For example: `/ouaf` for UNIX and `C:\ouaf` for Windows. This mount point must exist and the ORMB administrator user ID must be able to write to this directory. (This is the user ID that is created specifically to administer the ORMB environments; the default is `cissys`). The installation sets permissions on all subdirectories installed under this directory. See `<SPLENVIRON>` below for more information on how this mount point is used.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Log Files Mount Point	<SPLDIROUT>	A mount point that will contain any application output or application logs. Example value is /ouaf/sploutput for UNIX installation or C:\ouaf\sploutput for Windows. This mount point must exist and the ORMB administrator user ID must be able to write to this directory. (This is the user ID that is created specifically to administer the ORMB environments; the default is cissys). For each environment initialized the application logs will be written to the directory <SPLDIROUT>/<SPLENVIRON>. **Note**: Later in the installation the splenviron.sh (splenviron.cmd) script will set the $SPLOUTPUT (%SPLOUTPUT%) environment variable to point to: <SPLDIROUT>/<SPLENVIRON>	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Environment Name	<SPLENVIRON>	A descriptive name to be used as both a directory name under the mount point <SPLDIR> and an environment descriptor. This value typically identifies the purpose of the environment. For example, DEV01 or CONV. On installation a directory <SPLDIR>/<SPLENVIRON> is created, under which the Oracle Utilities Application Framework and Oracle Revenue Management and Billing software resides. When multiple environments are set up on the machine you will typically have directories such as: /ouaf/DEV01/.... /ouaf/CONV/.... Each of these contains a complete version of the Oracle Utilities Application Framework and Oracle Revenue Management and Billing. **Note**: Later in the installation process, the splenviron.sh (splenviron.cmd) script will set $SPLEBASE (%SPLEBASE%) environment variable to point to <SPLDIR>/<SPLENVIRON>.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Application Server Type	<SPLWAS>	A web application server for the environment to be used. The following value must be selected: Valid values: WLS: WebLogic WAS: WebSphere WASND: WebSphere ND **Note**: Not all web application servers are supported on all platforms; refer to the Supported Platforms section for details.	
Install Application Viewer Module	<WEB_ISAPPVIEWER>	Denotes if the Application Viewer Web Module will be installed in the environment. When this value is set to false the application viewer will not be accessible in the environment. Valid values: • true: Application Viewer module will be installed. • false: Application Viewer module will not be installed. Default Value: true **Note**: When the value of false is selected, the Application Viewer will only be installed at a later date by a complete reinstall of the application.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Install Demo Generation Cert Script	CERT_INSTALL_SCRIPT	You can install/uninstall later by executing the following script: perl [INSTALL_PACKAGE_FOLDER]/installAR.plx Valid values: • true: Demo Generation Cert Script will be installed. • false: Demo Generation Cert Script will not be installed. Default Value: true	
Install Sample CM Source Code	CM_INSTALL_SAMPLE	You can install/uninstall later by executing the following script: perl [INSTALL_PACKAGE_FOLDER]/installAR.plx Valid values: • true: Sample CM Source Code will be installed. • false: Sample CM Source Code will not be installed. Default Value: true	

4.4.6 Environment Description

1. Environment Description

The following menu options appear when you select the 1. Environment Description menu while executing the `install` utility:

Menu Option	Default Value
Environment Description:	

The following table describes the environment menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Environment Description	DESC	This is a free form text field to describe the purpose of the environment.	

4.4.7 WebLogic Business Application Server Configuration

2. Business Application Server Configuration

The following menu options appear when you select the 2. Business Application Server Configuration menu while executing the `install` utility:

Menu Option	Default Value
Business Server Host	<machine_name>
WebLogic Server Name	myserver
Business Server Application Name	SPLService
MPL Admin Port Number	
MPL Automatic startup	false

The following table describes the WebLogic Business Application Server installation menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Business Server Host	BSN_WLHOST	The host name on which the business application server resides. Default Value: `<current server name>`	
WebLogic Server Name	BSN_WLS_SVRNAME	The name of the WebLogic server where the business application resides. Default Value: myserver **Note**: If there is not a previously created WebLogic server, take the default value of "myserver".	
Business Server Application Name	BSN_APP	The name of the business application server. Default Value: SPLService	
MPL Admin Port Number	MPLADMINPORT	The port number for the Multi Purpose Listener (MPL) Admin Server. Example value: 6502	
MPL Automatic Startup	MPLSTART	Automatically starts the MPL Listener whenever environment starts. Default Value: false	

Note:

To work with native, managed or clustered WebLogic application servers, the following additional setting must be appended to the Server Start Arguments, within the Oracle WebLogic console, for COBOL sockets to be used:

AIX, Linux:

```
-Djava.library.path=<SPLEBASE>/runtime
```

Windows:

```
-Djava.library.path=<SPLEBASE>\runtime
```

Where, `<SPLEBASE>` is the path where the application environment is installed. This setting does not support environment variables.

4.4.8 WebSphere ND Business Application Server Configuration

2. Business Application Server Configuration

The following menu options appear when you select the 2. Business Application Server Configuration menu while executing the `install` utility:

Menu Option	Default Value
Business Server Host	<machine_name>
Bootstrap Port	
WebSphere Server Name	
WebSphere Node Name	
Business Server Application Name	SPLService
MPL Admin Port Number	
MPL Automatic startup	

The following table describes the WebSphere ND Business Application Server installation menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Business Server Host	BSN_WLHOST	The host name on which business application server resides. Default Value: `<current server name>`	
Bootstrap Port	BSN_WASBOOTSTRAPPORT	The boot strap port number allows the web module to communicate with the EJB module.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebSphere Server Name	BSN_SVRNAME	The WebSphere ND Application Server to host the OUAF application. Each OUAF must be installed in a unique WebSphere ND Application Server. Default Value: server2	
WebSphere Node Name	BSN_NODENAME	The name of the WebSphere ND Node Name where the WebSphere ND Application Server is running.	
Business Server Application Name	BSN_APP	The name of the business application server. Default Value: SPLService	
MPL Admin Port Number	MPLADMINPORT	The port number for the Multi Purpose Listener (MPL) Admin Server. Example value: 6502	
MPL Automatic startup	MPLSTART	Automatically starts the MPL Listener whenever environment starts. Default Value: false	

4.4.9 WebSphere Basic Business Application Server Configuration

2. Business Application Server Configuration

The following menu options appear when you select the 2. Business Application Server Configuration menu while executing the `install` utility:

Menu Option	Default Value
Business Server Host	<machine_name>
Bootstrap Port	
WebSphere Server Name	
WebSphere Node Name	
Business Server Application Name	SPLService
MPL Admin Port Number	
MPL Automatic startup	

The following table describes the WebSphere Basic Business Application Server installation menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Business Server Host	BSN_WLHOST	The host name on which business application server resides. Default Value: <current server name>	
Bootstrap Port	BSN_WASBOOTSTRAPPORT	The boot strap port number allows the web module to communicate with the EJB module.	
WebSphere Server Name	BSN_SVRNAME	The WebSphere Application Server to host the OUAF application. Each OUAF must be installed in a unique WebSphere Application Server. Default Value: server2	
WebSphere Node Name	BSN_NODENAME	The name of the WebSphere Node Name where the WebSphere Application Server is running. **Note:** This is a security value: it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm.	
Business Server Application Name	BSN_APP	The name of the business application server. Default Value: SPLService	
MPL Admin Port Number	MPLADMINPORT	The port number for the Multi Purpose Listener (MPL) Admin Server. Example value: 6502	
MPL Automatic startup	MPLSTART	Automatically starts the MPL Listener whenever environment starts. Default Value: false	

4.4.10 WebLogic Web Application Server Configuration

3. Web Application Server Configuration

The following menu options appear when you select the 3. Web Application Server Configuration menu while executing the `install` utility:

Menu Option	Default Value
Web Server Host	<machine_name>
WebLogic SSL Port Number	
WebLogic Console Port Number	
WebLogic Additional Stop Arguments	
Web Context Root	
WebLogic JNDI User ID	
WebLogic JNDI Password	
WebLogic Admin System User ID	
WebLogic Admin System Password	
WebLogic Server Name	myserver
Web Server Application Name	SPLWeb
Application Admin User ID	
Application Admin Password	
Deploy using Archive Files	true
Deploy Application Viewer Module	true

The following table describes the WebLogic Web Application Server installation menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Server Host	WEB_WLHOST	The host name on which the web application server resides. Default Value: `<current server name>`	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic SSL Port Number	WEB_WLSSLPORT	The port number assigned to WebLogic Secure Sockets connection. This is the port number that is used for Secure Sockets connecting to the WebLogic server. For Production, additional actions are required. Do NOT run production with Demo certificates. Example value: 6501	
WebLogic Console Port Number	WLS_ADMIN_PORT	The port number to access the WebLogic Console using https. You will use this port when accessing the WebLogic Console Example value: 6500	
WebLogic Additional Stop Arguments	ADDITIONAL_STOP_WEBLOGIC	This value will be needed when running the WebLogic Console using a different port number (e.g)-Dweblogic.security.TrustKeyStore=DemoTrust-Dweblogic.security.TrustKeystoreType=CustomTrust	
Web Context Root	WEB_CONTEXT_ROOT	A context root name that allows customers to run multiple instances of web application on the same server. Default Value: ouaf	
WebLogic JNDI User ID	WEB_WLSYSUSER	The user ID the application uses to connect to the EJB component through JNDI. This is the EJB container user ID. **Note**: The required value for an initial installation is “system”. This is a security value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic JNDI Password	WEB_WLSYSPASS	The password the application uses to connect to the EJB component through JNDI. **Note**: The required value for an initial installation is “ouafadmin”. This value will be saved in encrypted format. This is a security value; it will be encrypted with the Oracle Application Framework Encryption Algorithm.	
WebLogic Admin System User ID	WLS_WEB_WLSYSUSER	The user ID to log in to the Oracle WebLogic console and to administer Oracle WebLogic. The Oracle WebLogic startup and stop script also utilizes this user ID. **Note**: The installation utility will prompt you to enter “Y” to encrypt. For an initial installation, enter Y/y and specify the required value “system”. This is a security value; it will be encrypted with the WebLogic Encryption Algorithm.	
WebLogic Admin System Password	WLS_WEB_WLSYSPASS	The password to login to Oracle WebLogic console and to administer Oracle WebLogic. The Oracle WebLogic startup and stop script also utilize this password. **Note**: The installation utility will prompt you to enter “Y” to encrypt. For an initial installation, enter Y/y, and specify the required value “ouafadmin”. This is a security value; it will be encrypted with the WebLogic Encryption Algorithm.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic Server Name	WEB_WLS_SVRNAME	The name of the WebLogic server where the web application resides. Default Value: myserver **Note**: For an initial installation, use the default value of "myserver".	
Web Server Application Name	WEB_APP	The name of the web application server. Default Value: SPLWeb **Note**: For an initial installation, use the default value of "SPLWeb".	
Application Admin User ID	WEB_SPLUSER	This is the default user ID to login to the application through the browser. Example value: SYSUSER **Note**: The required value for an initial installation is "SYSUSER". This value is also used in communication within the XAI application. This is a security value; it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm.	
Application Admin Password	WEB_SPLPASS	This is the password of the application admin user. Example value: sysuser00 **Note**: The required value for an initial installation is "sysuser00". This value will be saved in encrypted format. This is a Security Value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Deploy Using Archive Files	WEB_DEPLOY_EAR	When the value is “false” the web application will be deployed in exploded directory format (no WAR/EAR files). When the value is “true”, the web application will be deployed in ear file format. **Note:** The expanded application folders will always exist under the application folder (<SPLEBASE>/splapp/applications), regardless of the setting of this option. Valid values: true (Deploy EAR files) false (Deploy expanded application folders) Default value: true	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	When the value is “true”, the application viewer will be deployed to the web server. When the value is “false”, the application viewer will not be deployed to the web server. **Note:** With either value the application viewer module will still be managed by the upgrade process. When the ‘Install Application Viewer module’ value is set to false from the installation menu, you will not be able to change this value to true, to deploy the application viewer. Valid values: • true: The application viewer module will be deployed to the web server. • false: The application viewer module will not be deployed to the web server. Default value: true	

4.4.11 WebSphere ND Web Application Server Configuration

3. Web Application Server Configuration

The following menu options appear when you select the 3. WebSphere ND Web Application Server Configuration menu while executing the `install` utility:

Menu Option	Default Value
Web Server Host	<machine name>
WebSphere SSL Port Number	
Web Context Root	
WebSphere Server Name	
WebSphere Node Name	

Menu Option	Default Value
Web Server Application Name	
WebSphere JNDI System User ID	
WebSphere JNDI System Password	
Application Admin User ID	
Application Admin Password	
Deploy Using Archive Files	
Deploy Application Viewer Module	

The following table describes the WebSphere ND Web Application Server Configuration menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Server Host	WEB_WLHOST	The host name on which the web application server resides. Default Value: <machine_name>	
WebSphere SSL Port Number	WEB_WLPORT	The WC_defaulthost_secure number for your WebSphere ND server. This is the port number that is used as a part of the client URL request to connect to the host. Example value: 9081	
Web Context Root	WEB_CONTEXT_ROOT	A context root name that allows customers to run multiple instances of web application on the same installation of WebSphere ND server. Default Value: ouaf	
WebSphere Server Name	WEB_SVRNAME	The WebSphere Application Server to host the ORMB application. Each ORMB must be installed in a unique WebSphere Application Server. Default Value: server2	
WebSphere Node Name	WEB_NODENAME	The name of the WebSphere Node Name where the WebSphere Application Server is running.	
Web Server Application Name	WEB_APP	The name of the web application server. Default Value: SPLWeb	Web Server Application Name

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebSphere JNDI System User ID	WEB_WASUSER	User ID the application utilizes to connect to the EJB component through JNDI. This is the EJB container user ID. **Note**: This value must be a valid User in the WebSphere ND console.	
WebSphere JNDI System Password	WEB_WASPASS	The password the application utilizes to connect to the EJB component through JNDI. **Note**: This value will be saved in encrypted format.	
Application Admin User ID	WEB_SPLUSER	This is the default user ID to login to the application through the browser. Example value: SYSUSER **Note:** This value is also used in communication within the XAI application. This value must be a valid User in the WebSphere ND console. This is a security value.	
Application Admin Password	WEB_SPLPASS	This is the password of the application admin user. Example value: sysuser00 **Note**: This value will be saved in encrypted format. This is a security value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Application Viewer Module	WEB_ISAPPVIEWER	When the value is "true" the application viewer will be deployed to the web server. When the value is "false", the application viewer will not be deployed to the web server. **Note**: With either value the application viewer module will still be managed by the upgrade process. When this value is set to false from the initial install menu you will not be able to change this value to true to re-enable the application viewer. Valid values: true: The application viewer module will be deployed to the web server) false: The application viewer module will not be deployed to the web server) Default Value: true	
Deploy Using Archive Files	WEB_DEPLOY_EAR	When the value is "false" the web application will be deployed in exploded directory format (no WAR/EAR files). When the value is "true", the web application will be deployed in ear file format. **Note:** The expanded application folders will always exist under the application folder (<SPLEBASE>/splapp/applications), regardless of the setting of this option. Valid values: true (Deploy EAR files) false (Deploy expanded application folders) Default value: true	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	When the value is "true", the application viewer will be deployed to the web server. When the value is "false", the application viewer will not be deployed to the web server. **Note:** With either value the application viewer module will still be managed by the upgrade process. When the 'Install Application Viewer module' value is set to false from the installation menu, you will not be able to change this value to true, to deploy the application viewer. Valid values: • true: The application viewer module will be deployed to the web server. • false: The application viewer module will not be deployed to the web server. Default value: true	

4.4.12 WebSphere Basic Web Application Server Configuration

3. Web Application Server Configuration

The following menu options appear when you select the 3. WebSphere Basic Web Application Server Configuration menu while executing the `install` utility:

Menu Option	Default Value
Web Server Host	<machine name>
WebSphere SSL Port Number	
Web Context Root	
WebSphere Server Name	
WebSphere Node Name	
Web Server Application Name	
WebSphere JNDI System User ID	

Menu Option	Default Value
WebSphere JNDI System Password	
Application Admin User ID	
Application Admin Password	
Deploy Using Archive Files	
Deploy Application Viewer Module	

The following table describes the WebSphere Basic Web Application Server Configuration menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Server Host	WEB_WLHOST	The host name on which the web application server resides. Default Value: <machine_name>	
WebSphere SSL Port Number	WEB_WLPORT	The WC_defaulthost_secure number for your WebSphere Basic server. This is the port number that is used as a part of the client URL request to connect to the host. Example value: 9081	
Web Context Root	WEB_CONTEXT_ROOT	A context root name that allows customers to run multiple instances of web application on the same installation of WebSphere server. Default Value: ouaf	
WebSphere Server Name	WEB_SVRNAME	The WebSphere Basic Application Server to host the ORMB application. Each ORMB must be installed in a unique WebSphere Basic application server. Default Value: server2	
WebSphere Node Name	WEB_NODENAME	The name of the WebSphere Basic Node Name where the WebSphere Basic application server is running.	
Web Server Application Name	WEB_APP	The name of the web application server. Default Value: SPLWeb	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebSphere JNDI System User ID	WEB_WASUSER	User ID the application utilizes to connect to the EJB component through JNDI. This is the EJB container user ID. **Note**: This value must be a valid User in the WebSphere console. This is a security value.	
WebSphere JNDI System Password	WEB_WASPASS	The password the application utilizes to connect to the EJB component through JNDI. **Note**: This value will be saved in encrypted format. This is a security value.	
Application Admin User ID	WEB_SPLUSER	This is the default user ID to login to the application through the browser. Example value: `SYSUSER` **Note**: This value is also used in communication within the XAI application. This value must be a valid User in the WebSphere console. This is a security value.	
Application Admin Password	WEB_SPLPASS	This is the password of the application admin user. Example value: sysuser00 **Note**: This value will be saved in encrypted format. This is a security value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Deploy Using Archive Files	WEB_DEPLOY_EAR	When the value is “false” the web application will be deployed in exploded directory format (no WAR/EAR files). When the value is “true”, the web application will be deployed in ear file format.	
		Note: The expanded application folders will always exist under the application folder (<SPLEBASE>/splapp/applications), regardless of the setting of this option.	
		Valid values: true (Deploy EAR files) false (Deploy expanded application folders) Default value: true	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Deploy Application Viewer Module	WEB_DEPLOY_APPVIEWER	When the value is “true”, the application viewer will be deployed to the web server. When the value is “false”, the application viewer will not be deployed to the web server. **Note:** With either value the application viewer module will still be managed by the upgrade process. When the ‘Install Application Viewer module’ value is set to false from the installation menu, you will not be able to change this value to true, to deploy the application viewer. Valid values: • true: The application viewer module will be deployed to the web server. • false: The application viewer module will not be deployed to the web server. Default value: true	

4.4.13 Database Configuration

4. Database Configuration

The following menu options appear when you select the 4. Database Configuration menu while executing the `install` utility:

Menu Option	Default Value
Application Database User ID	
Application Database Password	
MPL Database User ID	
MPL Database Password	
XAI Database User ID	

Menu Option	Default Value
XAI Database Password	
Batch Database User ID	
Batch Database Password	
Database Name	
Database Server	
Database Port	
ONS Server Configuration	
Database Override Connection String	
Oracle Client Character Set NLS_LANG	AMERICAN_AMERICA.AL32UTF8

Note:

If any of the database menu option items below are changed, the system displays the following warning next to the actual option that has been changed:

"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 *Oracle Revenue Management and Billing Security Guide* for more information.

The following table describes the database configuration menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Application Database User ID	DBUSER	The database user ID that has been configured on the database for the application server connection. **Note:** This is a security value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Application Database Password	DBPASS	The database password that has been configured on the database for the application connection. **Note**: This value will be saved in encrypted format. This is a security value; it will be encrypted with the Oracle Utilities Framework Encryption Algorithm.	
MPL Database User ID	MPL_DBUSER	The database user ID that has been configured on the database for the MPL server connection. **Note:** This is a security value.	
MPL Database Password	MPL_DBPASS	The database password that has been configured on the database for the MPL server connection. **Note**: This value will be saved in encrypted format. This is a security value; it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm.	
XAI Database User ID	XAI_DBUSER	The database user ID that has been configured on the database for the XAI server connection. **Note:** This is a security value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
XAI Database Password	XAI_DBPASS	The database password that has been configured on the database for the XAI server connection. **Note**: This value will be saved in encrypted format. This is a security value; it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm.	
Batch Database User ID	BATCH_DBUSER	The database user ID that has been configured on the database for the batch connection. **Note:** This is a security value.	
Batch Database Password	BATCH_DBPASS	The database password that has been configured on the database for the batch connection. **Note**: This value will be saved in encrypted format. This is a security value; it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm.	
Database Name	DBNAME	The name of the database instance that the application will be connecting to.	
Database Server	DBSERVER	Host name of the server where database resides.	
Database Port	DBPORT	Database port number on the database server used for connecting to the database	
ONS Server Configuration	ONSCONFIG	ONS Server Configuration is required for Oracle RAC FCF. See *Oracle Revenue Management and Billing Server Administration Guide* for more information. This is an optional value.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Database Override Connection String	DB_OVERRIDE_CONNECTION	It is used to specify custom JDBC URL. This connection string overrides the standard database connection string which is specified during RAC installation. If the database SID and service name are different, it is mandatory to specify the database override connection string. In addition, if there is a need to configure a Scan IP in JDBC URL (for a RAC database); it is mandatory to specify the database override connection string. See *Oracle Revenue Management and Billing Server Administration Guide* for more information.	
Oracle Client Character Set NLS_LANG	NLS_LANG	The Oracle Database Character Set. Select the Language and Territory that are in use in your country. Default Value: AMERICAN_AMERICA.AL32UTF8	

4.4.14 General Configuration Options

5. General Configuration Options

The following menu options appear when you select the 5. General Configuration Options menu while executing the `install` utility:

Menu Option	Default Value
Batch RMI Port	
RMI Port number for JMX Business	
RMI Port number for JMX Web	
JMX Enablement System User ID	
JMX Enablement System Password	
Batch Mode	CLUSTERED
Coherence Cluster Name	

Menu Option	Default Value
Coherence Cluster Address	
Coherence Cluster Port	
Coherence Cluster Mode	dev

Note: See *Oracle Revenue Management and Billing Batch Server Administration Guide* for additional details on this configuration.

The following table describes the general configuration menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Batch RMI Port	BATCH_RMI_PORT	Unique port used by the Batch RMI. Example value: 6540	
RMI Port number for JMX Business	BSN_JMX_RMI_PORT_PERFORMANCE	Example value: 6550 **Note:** This is an optional value.	
RMI Port number for JMX Web	WEB_JMX_RMI_PORT_PERFORMANCE	Example value: 6570 **Note:** This is an optional value.	
JMX Enablement System User ID	BSN_JMX_SYSUSER	This is used to authenticate incoming JMX requests. Populate if RMI Port numbers are set. **Note:** This is an optional value.	
JMX Enablement System Password	BSN_JMX_SYSPASS	This is used to authenticate incoming JMX requests. Populate if RMI Port numbers are set. This is a security value; it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm. **Note:** This is an optional value.	
Batch Mode	BATCH_MODE	Valid values: CLUSTERED or DISTRIBUTED Default Value: CLUSTERED **Note**: CLUSTERED is currently the only supported mode for production environments.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Coherence Cluster Name	COHERENCE_CLUSTER_NAME	Unique name for the batch CLUSTER **Note**: Value is required when batch mode is CLUSTERED.	
Coherence Cluster Address	COHERENCE_CLUSTER_ADDRESS	Unique multicast address. **Note**: Value is required when batch mode is CLUSTERED.	
Coherence Cluster Port	COHERENCE_CLUSTER_PORT	Unique port for the batch CLUSTER **Note**: Value is required when batch mode is CLUSTERED.	
Coherence Cluster Mode	COHERENCE_CLUSTER_MODE	Valid values: dev (Development) prod (Production) Default Value: dev	

4.4.15 SSL Certificate Keystore (WebLogic Only)

6. SSL Certificate Keystore

The following menu options appear when you select the 6. SSL Certificate Keystore menu while executing the `install` utility:

Menu Option	Default Value
Certificate Keystore Type	CUSTOM
Identify Keystore File	
Identify Keystore File Type	jks
Identify Keystore Password	
Identify Private Key Alias	ouaf demo cert
Trust Keystore File	
Trust Keystore File Type	jks
Trust Keystore Password	
Trust Private Key Alias	ouaf demo cert

Note: See *Oracle Revenue Management and Billing Security Guide* for additional details on this configuration. By default, SSL (Secure Sockets Layer) certificates are required for authentication. The product provides demo certificates generated with 1024 byte keys. For production environments, please use your own custom certificates.

The following table describes the SSL certificate keystore menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Certificate Keystore Type	CERT_KS	If you choose demo, you need to execute the following script at least once perl[SPLEBASE]/bin/demo_gen_cert.plx If you change DEFAULT/CUSTOM to DEMO you need to have installed the demo_gen_cert.plx script, it is part of the demo source in the installation package. Default value: CUSTOM Valid values: DEFAULT, DEMO, CUSTOM The demo_gen_cert.plx script is available if you select the 'Install Demo Generation Cert Script' option during installation. It automates the creation of the WebLogic provided demo certificate using 1024 byte keys.	
Identify Keystore Type	CERT_IDENT_KS_FILE	Mandatory if the type is CUSTOM. No need to populate if type is DEMO, it will use: [SPLEBASE]/splapp/certs/ouaf_demo_ident.jks	
Identify Keystore File Type	CERT_IDENT_KS_TYPE	Default value: jks	
Identify Keystore Password	CERT_IDENT_KS_PWD	This is a security value; it will be encrypted with the WebLogic Encryption Algorithm.	
Identity Private Key Alias	CERT_IDENT_KS_ALIAS	Default value: ouaf_demo_cert	
Trust Keystore File	CERT_TRUST_KS_FILE	Mandatory if the type is CUSTOM. No need to populate if type is DEMO, it will use: [SPLEBASE]/splapp/certs/ouaf_demo_trust.jks	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Trust Keystore File Type	CERT_TRUST_KS_TYPE	Default value: jks	
Trust Keystore Password	CERT_TRUST_KS_PWD	This is a security value; it will be encrypted with the WebLogic Encryption Algorithm.	
Trust Private Key Alias	CERT_TRUST_KS_ALIAS	Default value: ouaf_demo_cert	

4.4.16 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
```

4.4.16.1 Advanced Environment Miscellaneous Configuration

50. Advanced Environment Miscellaneous Configuration

The following menu options appear when you select the 50. Advanced Environment Miscellaneous Configuration menu while executing the `configureEnv` utility:

Menu Option	Default Value
Populate the Web Server SOAP Port	SOAP_CONNECTOR_ADDRESS
Populate the Business Server SOAP Port	SOAP_CONNECTOR_ADDRESS
Enter the location of the Application Server Profile Home	
WebSphere Deployment Manager Host Name	
Online JVM Batch Server Enabled	false
Online JVM Batch Number of Threads	5
Online JVM Batch Scheduler Daemon Enabled	false
Enable Batch Edit Functionality	false
Enable Web Services Functionality	false
Web Services War File Name	Webservices
GIS Service Running on the same Web Server	true
GIS Service URL	
GIS WebLogic System User ID	
GIS WebLogic System Password	
Online Display Software Home	

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

Menu Option	Name Used in Documentation	Usage	Customer Value Install
Populate the Web Server SOAP Port - SOAP_CONNECTOR _ADDRESS	WAS_WEB_SOAP_PORT	WebSphere Web Server SOAP Port Number This is the SOAP port used for WebSphere Basic when executing wsadmin.sh commands. **Note:** This value will only appear for WebSphere Basic and WebSphere ND	

Menu Option	Name Used in Documentation	Usage	Customer Value Install
Populate the Business Server SOAP Port - SOAP_CONNECTOR _ADDRESS	WAS_BSN_SOAP_PORT	WebSphere Business Server SOAP Port Number. This is the SOAP port used for WebSphere Basic when executing wsadmin.sh commands. **Note:** This value will only appear for WebSphere Basic and WebSphere ND	
Enter the location of the Application Server Profile Home	WAS_PROFILE_NAM E_HOME	The profile home will be used when tracking log files, under WebSphere home. **Note:** This value will only appear for WebSphere Basic and WebSphere ND	
WebSphere Deployment Manager Host Name	WASND_DMGR_HOST	WebSphere Deployment Manager Host name, this value is used for WebSphere ND, when connecting to the WebSphere Deployment Manager. **Note**: This value will only appear for WebSphere ND.	
Online JVM Batch Server Enabled	BATCHENABLED	When starting a web application server JVM, this property can be set to “true” to allow the on-line application server to also act as a batch worker in the grid. Default Value: false **Note**: This functionality should only be used in low volume environments.	

Menu Option	Name Used in Documentation	Usage	Customer Value Install
Online JVM Batch Number of Threads	BATCHTHREADS	The maximum number of batch processing threads to be executed within a worker JVM when no explicit Distributed Thread Pool is specified. The "DEFAULT" distributed thread pool is used by the batch-scheduling daemon when it initiates processing on batch jobs (typically added via the online system) where no thread pool is specified). Default Value: 5 **Note**: This will be only used and activated when BATCHENABLED is set to true.	
Online JVM Batch Scheduler Daemon Enabled	BATCHDAEMON	In a distributed batch environment, this property can be set to "true" to allow a worker JVM to host the batch scheduling daemon. The daemon accepts online batch submissions requests and automatically submits the work for them. Valid values: true, false Default Value: false **Note**: This will be only used and activated when BATCHENABLED is set to true.	
Enable Batch Edit Functionality	BATCHEDIT_ENABLED	Used to indicate whether you want to enable the batch edit functionality. If this functionality is enabled, you can use the `bedit.sh` or `bedit.cmd` utility to configure the batch. The valid values are: true, false Default Value: false	

Menu Option	Name Used in Documentation	Usage	Customer Value Install
Enable Web Services Functionality	WEBSERVICES_ENABLED	If you enable the Web Services functionality, you can execute the following command to re-deploy the Web services without specifying the user name and password: java weblogic.Admin -username [USER NAME] -password [PASSWORD] STOREUSERCONFIG -userconfigfile [SPLEBASE]/etc/.wlsuserconfig -userkeyfile [SPLEBASE]/etc/.wlsuserkey This command is executed successfully only when the weblogic.jar is added in the CLASSPATH. The valid values are: true, false Default Value: false	
Web Services War File Name	IWSWAR	Used to specify the name of Web Services War file. The file name must not be suffixed with the .WAR extension. Default Value: Webservices	
GIS Service Running on the same Web Server	GIS	Geographical information (GEOCODING) - GIS Service running on the same web application server. Valid values: true, false This value is optional.	
GIS Service URL	GIS_URL	This is the URL of the external web server. **Note**: This value will be only be used when GIS is set to true. This value is optional.	
GIS WebLogic System User ID	GIS_WLSYSUSER	GIS WebLogic System User ID **Note**: This value will be only be used when GIS is set to true. This value is optional.	

Menu Option	Name Used in Documentation	Usage	Customer Value Install
GIS WebLogic System Password	GIS_WLSYSPASS	GIS WebLogic System Password. **Note**: This value will be only be used when GIS is set to true. This is a security value; it will be encrypted with the Oracle Utilities Application Framework Encryption Algorithm.	
Online Display Software Home	ONLINE_DISPLAY_HOME	The location of the Online Display Software installation directory. This value is optional.	

4.4.16.2 Advanced Environment Memory Configuration

51. Advanced Environment Memory Configuration

The following menu options appear when you select the 51. Advanced Environment Memory Configuration menu while executing the `configureEnv` utility:

Menu Option	Default Value
Web Application Java Initial Heap Size	2048
Web Application Java Max Heap Size	2048
Web Application Java Max Perm Size	1024
Web Application Additional Options	
Ant Min Heap Size	200
Ant Max Heap Size	800
Ant Additional Options	
Thread Pool Worker Java Min Heap Size	512
Thread Pool Worker Java Max Heap Size	1024
Thread Pool Worker Java Max Perm Size	512
Thread Pool Worker Additional Options	
Additional Runtime Classpath	

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

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Application Java Initial Heap Size	WEB_MEMORY_OPT_MIN	Initial heap size for the application server. Default Value: 2048 **Note**: For WebLogic installation only.	
Web Application Java Max Heap Size	WEB_MEMORY_OPT_MAX	Maximum heap size for the application server. Default Value: 2048 **Note**: For WebLogic installation only.	
Web Application Java Max Perm Size	WEB_MEMORY_OPT_MAXPERMSIZE	Maximum Perm Size for the application server. Default Value: 1024 MB (Linux) 1024 MB (Windows) **Note**: For WebLogic installation only.	
Web Application Additional Options	WEB_ADDITIONAL_OPT	Additional options that will be passed in to the web application server JVM. This is optional. **Note**: For WebLogic installation only.	
Ant Min Heap Size	ANT_OPT_MIN	Minimum Heap Size passed to ANT JVM. Default Value: 200	
Ant Max Heap Size	ANT_OPT_MAX	Maximum Heap Size passed to ANT JVM. Default Value: 800	
Ant Additional Options	ANT_ADDITIONAL_OPT	Additional options that are passed into the ANT JVM.	
Thread Pool Worker Java Min Heap Size	BATCH_MEMORY_OPT_MIN	Minimum heap size passed to the Thread Pool Worker. Default Value: 512	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Thread Pool Worker Java Max Heap Size	BATCH_MEMORY_OPT_MAX	Maximum heap size passed to the Thread Pool Worker. Default Value: 1024	
Thread Pool Worker Java Max Perm Size	BATCH_MEMORY_OPT_MAXPERMSIZE	Maximum perm size passed to the Thread Pool Worker Default Value: 512	
Thread Pool Worker Additional Options	BATCH_MEMORY_ADDITIONAL_OPT	Additional Memory Options passed into the Thread Pool Worker. This is an optional free form field.	
Additional Runtime Classpath	ADDITIONAL_RUNTIME_CLASSPATH	Additional Classpath Options passed in when starting the WebLogic JVM **Note**: For WebLogic installation only. This is an optional value.	

4.4.16.3 Advanced Web Application Configuration

52. Advanced Web Application Configuration

The following menu options appear when you select the 52. Advanced Web Application Configuration menu while executing the `configureEnv` utility:

Menu Option	Default Value
Web Application Cache Settings	off
Web Server Port Number	
WebLogic Overload Protection	system-exit
Domain Home Location	
Batch Cluster URL	
Strip HTML Comments	false
Authentication Login Page Type	FORM
Web Form Login Page	/loginPage.jsp
Web Form Login Error Page	/formLoginError.jsp
Application Viewer Form Login Page	/loginPage.jsp
Application Viewer Form Login Error Page	/formLoginError.jsp
Help Form Login Page	/loginPage.jsp
Help Form Login Error Page	/formLoginError.jsp

Menu Option	Default Value
Web Security Role	cisusers
Web Principal Name	cisusers
Application Viewer Security Role	cisusers
Application Viewer Principal Name	cisusers
This is a development environment	false
Preload All Pages on Startup	false
Maximum Age of a Cache Entry for Text	28800
Maximum Age of a Cache Entry for Images	28800
JSP Recompile Interval (s)	43200

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

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Application Cache Settings	WEB_L2_CACHE_MODE	Default Value: off Valid Values: off read_write read_only	
Web Server Port Number	WEB_WLPORT	The port number assigned to WebLogic connection. Set this port if the environment is not configured as SSL. Note: For WebLogic installation only. Example Value: 6500 This value is optional.	
WebLogic Overload Protection	WLS_OVERRIDE_PROTECT	The overload protection allows for a WebLogic server to be “stopped / exited” when there is an out of memory exception Valid Values: system-exit (Exit the server process) no-action (Ignore take no action) Default Value: system-exit **Note:** For WebLogic installation only.	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Domain Home Location	WLS_DOMAIN_HOME	The WebLogic Domain Home location, when this parameter is populated you will need to use the native WebLogic tools for maintenance (starting, stopping, deployment, and undeployment). **Note:** For WebLogic installation only This value is optional	
Batch Cluster URL	WEB_BATCH_CLUSTER_URL	Used to specify the batch cluster URL. Example: service:jmx:rmi:///jndi/rmi://[host]:[TPW JMX port]/oracle/ouaf/batchConnector	
Strip HTML Comments	STRIP_HTML_COMMENTS	Stripping HTML (and JavaScript) comments will increase the security of the system. Default Value: false Valid values: true, false	
Authentication Login Page Type	WEB_WLAUTHMETHOD	Specifies which authentication mode should be used. To switch off OUAF Login Page enter: BASIC Valid values: FORM, BASIC Default Value: FORM	
Web Form Login Page	WEB_FORM_LOGIN_PAGE	Specify the jsp file used to login into the application. Default Value: /loginPage.jsp	
Web Form Login Error Page	WEB_FORM_LOGIN_ERROR_PAGE	Specify the jsp file used when there is an error when logging into the application. Default Value: /formLoginError.jsp	
Application Viewer Form Login Page	WEB_APPVIEWER_FORM_LOGIN_PAGE	Used to specify the JSP file name. The contents of this file appear when you want to login to the application viewer. Default Value: /loginPage.jsp	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
Application Viewer Form Login Error Page	WEB_APPVIEWER_FORM_LOGIN_ERROR_PAGE	Used to specify the JSP file name. The contents of this file appear when an error occurs while logging into the application viewer.	
Help Form Login Page	WEB_HELP_FORM_LOGIN_PAGE	Used to specify the JSP file name. The contents of this file appear when you want to login to the online help. Default Value: /loginPage.jsp	
Help Form Login Error Page	WEB_HELP_FORM_LOGIN_ERROR_PAGE	Used to specify the JSP file name. The contents of this file appear when an error occurs while logging into the online help. Default Value: /formLoginError.jsp	
Web Security Role	WEB_PRINCIPAL_NAME	Specify the name of the security role. Default Value: cisusers	
Web Principal Name	WEB_PRINCIPAL_NAME	Specify the name of a principal that is defined in the security realm. Default Value: cisusers	
Application Viewer Security Role	WEB_APPVIEWER_ROLE_NAME	Used to specify the name of the security role. Default Value: `cisusers`	
Application Viewer Principal Name	WEB_APPVIEWER_PRINCIPAL_NAME	Used to specify the name of a principal that is defined in the security realm. Default Value: `cisusers`	

Menu Option	Name Used in Documentation	Usage	Customer Install Value
This is a development environment	WEB_ISDEVELOPMENT	If the value is “true”, the web application may be used for application development, which will trigger certain generation processes. If the value is “false” the environment will be used as a runtime environment. When you choose “true” (development environment) the startup preload pages will be disabled, and the application security will be less strict. This value also controls the amount of logging information written to the application log files. Valid values: true, false Default Value: false	
Preload All Pages on Startup	WEB_PRELOADALL	This controls if the pages should be pre- loaded during the startup of the application or not. Valid values: true, false Default Value: false	
Maximum Age of a Cache Entry for Text	WEB_MAXAGE	Default Value: 28800	
Maximum Age of a Cache Entry for Images	WEB_MAXAGEI	Default Value: 28800	
JSP Recompile Interval (s)	WEB_wlpageCheckSeconds	Default Value: 43200	

4.4.16.4 OIM Configuration Settings

53. OIM Configuration Settings

The following menu options appear when you select the 53. OIM Configuration Settings menu while executing the `configureEnv` utility:

Menu Option	Default Value
SPML SOAP Trace Setting	false
SPML IDM Schema Name	F1-IDMUser
SPML OIM Name Space	http://xmlns.oracle.com/OIM/provisioning
SPML OIM Enclosing Element	sOAPElement

The following table describes the OIM configuration menu options:

Menu Option	Name Used in Documentation	Usage	Customer Install Value
SPML SOAP Trace Setting	OIM_SPML_SOAP_DEBUG_SETTING	Name of Oracle Identity Manager library for debug. Default Value: false Valid values: true, false	
SPML IDM Schema Name	OIM_SPML_UBER_SCHEMA_NAME	Name of Oracle Identity Manager library for schema. Default Value: F1-IDMUser	
SPML OIM Name Space	OIM_SPML_NAME_SPACE	Default Namespace for Oracle Identity Manager integration. Default Value: http://xmlns.oracle.com/OIM/provisioning	
SPML OIM Enclosing Element	OIM_SPML_SOAP_ELEMENT	Default top level SOAP Element name for Oracle Identity Manager integration. Default Value: sOAPElement	

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 7.1 Application Server
- Oracle Linux 6.5 or 7.0 and Red Hat Enterprise Linux 6.5 or 7.0 Application Server
- Windows 2012 Application Server

5.1 AIX 7.1 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 7.1 TL1 (64-bit)	POWER 64-bit	WebSphere 8.5 64-bit version

5.1.2 Web/Application Server Tier

AIX 7.1 TL1 Operating System Running on Power5 and Power6 Architecture

UNIX Administrator User ID

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

Description	Default Value	Customer Defined Value
ORMB Administrator UserID	`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, the `cissys` user ID is the only one given access to the installed files.

1. Create a group called `cisusr` (user group).
2. Create a user called `cissys`. Primary group `cisusr`. Set the primary shell for the `cissys` user to Korn Shell.

The shell scripts use the ">" to overwrite shell functionality. Your operating system may be configured to not allow this functionality by default in the users shell.

To avoid file access permission problems when 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 022 to ensure files created during normal operation have the correct permissions.

Please 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 and 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 generated log files.
`cisoper`	-------	Low level operator. This user will only be able to read logs files and collect information for debugging and investigative purposes. Care should be taken in production to disable debugging as debugging information could contain potential sensitive data which this user should not have privy to.

Note: The Oracle Database Client and 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, the use cissys to stop it as well.

Oracle Database Client 12.1.0.1

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.

IBM Java Software Development Kit Version 7.0 or 7.1 (64-bit)

If you use WebSphere, the Java runtime engine from the Web application server is used. At the time of release, AIX Java packages could be obtained from:

http://www.ibm.com/developerworks/java/jdk/aix/service.html

The web server requires the 64-bit Java platform in order 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 environment variable JAVA_HOME is set up, and that "java" can be found in `cissys`' PATH variable.

Hibernate 4.1.0

You must install Hibernate 4.1.0 before installing Oracle Revenue Management and Billing.

To install Hibernate:

1. Create a Hibernate jar external depot:

   ```
   export HIBERNATE_JAR_DIR=<Hibernate 3rd party jars depot>
   ```

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

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

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

3. Extract the contents of the archive file:

   ```
   jar xvf hibernate-release-4.1.0.Final.zip
   ```

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

4. Copy the jar files to your Hibernate jar directory ($HIBERNATE_JAR_DIR) using the following commands:

   ```
   cp hibernate-release-4.1.0.Final/lib/optional/ehcache/ehcache-core-2.4.3.jar $HIBERNATE_JAR_DIR

   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-logging-3.1.0.CR2.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
   ```

IBM WebSphere Application Server 8.5 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.

IBM WebSphere Application Server 8.5 supports SDK 1.6 as the basic configuration but with SDK 1.7 or 1.7.1_64 as an optional configuration. For Oracle Revenue Management and Billing, the implementation requires SDK 1.7 or 1.7.1_64 as the default run-time configuration for WebSphere Application Server 8.5. Therefore, after WebSphere Application Server is installed with the basic configuration, you MUST change the default SDK to 1.7 or 1.7.1_64.

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 8.5 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.

IBM WebSphere Application Server 8.5 supports SDK 1.6 as the basic configuration but with SDK 1.7 or 1.7.1_64 as an optional configuration. For Oracle Revenue Management and Billing, the implementation requires SDK 1.7 or 1.7.1_64 as the default run-time configuration for WebSphere Application Server 8.5. Therefore, after WebSphere Application Server is installed with the basic configuration, you MUST change the default SDK to 1.7 or 1.7.1_64.

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 Chapter 5: Configuring WebSphere Application Server for the configuration steps.

5.2 Oracle Linux 6.5 or 7.0 and Red Hat Enterprise Linux 6.5 or 7.0 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 6.5 and 7.0 (64-bit) Red Hat Enterprise Linux 6.5 and 7.0 (64-bit)	x86_64	WebLogic 12.1.3.0 (64-bit)

5.2.2 Web/Application Server Tier

Oracle Linux 6.5 or 7.0 or Red Hat Enterprise Linux 6.5 or 7.0 Operating System Running on x86_64 (64-bit) Architecture

UNIX Administrator User ID

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

Description	Default Value	Customer Defined Value
ORMB Administrator UserID	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, the cissys user ID is the only one given access to the files installed.

1. Create a group called cisusr (user group).
2. Create a user called cissys. Primary group cisusr. Set the primary shell for the cissys user to Korn Shell.

The shell scripts use the ">" to overwrite shell functionality. Your operating system may be configured to not allow this functionality by default in the users shell.

To avoid file access permission problems when 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.

Please 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 and 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 generated log files.
cisoper	-------	Low level operator. This user will only be able to read logs files and collect information for debugging and investigative purposes. Care should be taken in production to disable debugging as debugging information could contain potential sensitive data which this user should not have privy to.

Note: The Oracle Database Client and 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, the use cissys to stop it as well.

Oracle Database Client 12.1.0.1

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.

Oracle Java Development Kit Version 7.0 Update 45 or Later, 64-Bit

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

http://www.oracle.com/technetwork/java/javase/downloads/jre7-downloads-1880261.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 user ID cissys, ensure that the environment variable JAVA_HOME is setup, and that java_home/bin and java_home/lib can be found in cissys' PATH variable.

Oracle Java Development Kit Version 8.0 Update 40 or Later, 64-Bit

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

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.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 user ID cissys, ensure that the environment variable JAVA_HOME is setup, and that java_home/bin and java_home/lib can be found in cissys' PATH variable.

Hibernate 4.1.0

You must install Hibernate 4.1.0 before installing Oracle Revenue Management and Billing.

To install Hibernate:

1. Create a Hibernate jar external depot:

   ```
   export HIBERNATE_JAR_DIR=<Hibernate 3rd party jars depot>
   ```

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

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

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

3. Extract the contents of the archive file:

   ```
   jar xvf hibernate-release-4.1.0.Final.zip
   ```

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

4. Copy the jar files to your Hibernate jar directory (`$HIBERNATE_JAR_DIR`) using the following commands:

   ```
   cp hibernate-release-4.1.0.Final/lib/optional/ehcache/ehcache-core-2.4.3.jar $HIBERNATE_JAR_DIR

   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-logging-3.1.0.CR2.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
   ```

Oracle WebLogic Server 12.1.3.0 (64-bit)

Oracle WebLogic software can be downloaded from the Oracle web site. This application server will run as a 64-bit application.

- Download and install 64-bit Java (as documented above) before installing WebLogic.
- Download and install WebLogic Server 12.1.3.0 (64-bit), as required.

Note: If you plan on using the Oracle Utilities Application Framework in native mode within Oracle WebLogic (as opposed to embedded mode), refer to the whitepaper "Native Installation Oracle Utilities Application Framework" (Doc ID: 1544969.1) on My Oracle Support.

5.3 Windows 2012 Application Server

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

5.3.1 Supported Application Servers

Operating System	Chipsets	Application Server
Windows Server 2012 R2 (64-bit)	x86_64	WebLogic 12.1.3.0 (64-bit)

5.3.2 Web/Application Server Tier

Oracle Database Client 12.1.0.1 — Runtime Option

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.

Oracle Java Development Kit Version 7.0 Update 45 or Later, 64-Bit

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

http://www.oracle.com/technetwork/java/javase/downloads/jre7-downloads-1880261.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 user ID `cissys`, ensure that the environment variable JAVA_HOME is setup, and that java_home/bin and java_home/lib can be found in `cissys`' PATH variable.

Oracle Java Development Kit Version 8.0 Update 40 or Later, 64-Bit

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

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.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 user ID cissys, ensure that the environment variable JAVA_HOME is setup, and that java_home/bin and java_home/lib can be found in cissys' PATH variable.

Hibernate 4.1.0

You must install Hibernate 4.1.0 before installing Oracle Revenue Management and Billing.

To install Hibernate:

1. Create a Hibernate jar external depot:

   ```
   set HIBERNATE_JAR_DIR=<Hibernate 3rd party jars depot>
   ```

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

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

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

3. Extract the contents of the archive file:

   ```
   jar xvf hibernate-release-4.1.0.Final.zip
   ```

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

4. Copy the jar files to your Hibernate jar directory ($HIBERNATE_JAR_DIR) using the following commands:

   ```
   cp hibernate-release-4.1.0.Final/lib/optional/ehcache/ehcache-core-2.4.3.jar $HIBERNATE_JAR_DIR

   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-logging-3.1.0.CR2.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
   ```

Oracle WebLogic Server 12.1.3.0 (64-bit)

Oracle WebLogic software can be downloaded from the Oracle web site. This application server will run as a 64-bit application.

- Download and install 64-bit Java (as documented above) before installing WebLogic.
- Download and install WebLogic Server 12.1.3.0 (64-bit).

6. Configuring WebSphere Application Server

Note: This section applies only to installations using WebSphere as an 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 Preinstallation 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 configuration 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 WebSphere Application Server documentation for more details.

1. Start the WebSphere Administrative Console and log in.
2. Go to Security, Global security.
    - Check Enable administrative security.
    - Check Enable application security.
    - 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.
    - 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.
    - Create the user Id of `SYSUSER` (example user)
    - 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.
    - Create the user id of JNDI (example user).
    - 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 Setting WebSphere JNDI Users - CORBA Naming Service Users

1. Start the WebSphere Administrative Console and log in.
2. Go to Environment, Naming, CORBA Naming Service Users.
    - Add the user id of JNDI (example user).
    - Highlight all of the Roles (Cos Naming Read, Cos Naming Write, Cos Naming Create, Cos Naming Delete)
3. Click Apply.

Note: Prior to this step you will need to restart the server1 since when adding CORBA Naming Service Users, the User is not recognized.

4. Note the values for JNDI User and Password. The Oracle Utilities Application Framework will prompt you for this information during the installation.

6.1.1.6 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 a 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 -port8889 -conntype SOAP
```

2. Create the server instance:

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

6.1.1.7 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 name.
4. Under the section General Properties.
   - Deselect Parallel start.
   - Deselect Run in development mode.
5. Click OK.
6. Click Save to commit the setting.

6.1.1.8 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
   ```

   Edit the property lines as follows:

   com.ibm.SOAP.requestTimeout=0

   com.ibm.SOAP.loginUserid=< WebSphere_User_Id >

   com.ibm.SOAP.loginPassword=< WebSphere_Password >

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

2. 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.

3. Save and close the file.

6.1.1.9 Enabling RMI Communication with WebSphere (Webservices Enable Environment)

The IWS (Inbound Web Services Deployment) configuration scripts communicate with WebSphere using RMI for IWS commands to perform actions for IWS (for example, deploy, 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 no 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:

   ```
   com.ibm.CORBA.loginSource=properties
   com.ibm.CORBA.loginUserid=<websphere user id>
   com.ibm.CORBA.loginPassword=<websphere user password>
   ```

Note: Refer to 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.

6.1.1.10 Obtaining the Bootstrap Port and WC_defaulthost_secure

You must also provide these port numbers during OUAF 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.

6.1.1.11 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:
    - Host Name: *
    - Port: WC_defaulthost_secure Port Number

6.1.1.12 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.

6.1.1.13 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 has write and execute permissions on the directories in which WebSphere will be installed.

6.1.2 Post Installation Tasks

This sections 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 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:
    - Name: SPLENVIRON
    - Value: `<$SPLENVIRON>`

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

    - Name: SPLEBASE
    - Value: `<$SPLEBASE>`

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

- Name: LIBPATH
- Value: <$SPLEBASE >/runtime

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.

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 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 2048 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.login.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 need 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 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:
    - Name: javax.xml.transform.TransformerFactory
    - 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 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:
    - Name: com.ibm.ws.webcontainer.invokefilterscompatibility
    - 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 Using Supplied Script

The application deployment script is `initialSetup.sh.-d`, located in `$SPLEBASE/bin` (this script deploys both the SPLService.ear and SPLWeb.ear)

Note: Before running the script ensure you have initialized the environment by running `splenviron.sh`

6.1.2.7 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

Deploy SPLService.ear

1. Select the ear file to deploy.
    - Select Applications, Install New Application.
    - Select Remote file system.
    - Browse to the SPLService.ear or enter the full path to the file.
    - The ear files can be found under `$SPLEBASE/splapp/applications`.
    - 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 can take more than 20 minutes.

Deploying SPLWeb.ear

1. Select the ear file to deploy.
    - Select Applications, Install New Application.
    - Select Remote file system.
    - Browse to the SPLWeb.ear or enter the full path to the file.
    - The ear files can be found under `$SPLEBASE/splapp/applications`.
    - 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.

Configure 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):
    - Select the SPLWeb application from Applications, Enterprise Applications.
    - Select Startup behavior.
    - Change the startup order to 2.
    - Click OK.
    - 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.
    - Set Polling interval to 0.
    - 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:
    - SPLService only: Set the Starting weight to 1.
    - 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:
    - EJB module: SPLServiceBean

      JNDI name for all interfaces

      Target Resource JNDI Name: [Web Context Root]/servicebean
    - EJB module: TUGBULiteServiceBean

      JNDI name for all interfaces

      Target Resource JNDI Name: [Web Context Root]/liteservicebean
5. Click Ok.

Configure 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` and add to the Selected users list.

Click OK.

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

Restart 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:

http://<hostname>:<WC_defaulthost_secure>/<context_root>/loginPage.jsp

For example, http://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 configuration 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 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.
    - Check Enable administrative security.
    - Check Enable application security.

- 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.
    - 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.
    - Create the user Id of `SYSUSER` (example user).
    - 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.
    - Create the user id of JNDI (example user).
    - Add the Group Membership of cisusers to the user id of JNDI (created above)
3. Click Create.

6.2.1.5 Setting WebSphere ND JNDI Users - CORBA Naming Service Users

1. Start the WebSphere ND Administrative Console and log in.
2. Go to Environment, Naming - CORBA Naming Service Users.
    - Add the user id of JNDI (example user).
    - Highlight all of the Roles (Cos Naming Read, Cos Naming Write, Cos Naming Create, Cos Naming Delete).
3. Click Apply.

Note: the values for JNDI User and Password. The Oracle Utilities Application Framework will prompt you for this information during the installation.

6.2.1.6 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 name.
4. Under the section General Properties.
    - Deselect Parallel start.
    - Deselect Run in development mode.

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

6.2.1.7 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`

   Edit the property lines as follows:

   com.ibm.SOAP.requestTimeout=0

   com.ibm.SOAP.loginUserid=<WebSphere_User_Id>

   com.ibm.SOAP.loginPassword=<WebSphere_Password>

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

2. 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.

3. Save and close the file.

6.2.1.8 Enabling RMI Communication with WebSphere (Webservices Enable Environment)

The IWS (Inbound Web Services Deployment) configuration scripts communicate with WebSphere using RMI for IWS commands to perform actions for IWS (for example, deploy, 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 no 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:

   `com.ibm.CORBA.loginSource=properties`

   `com.ibm.CORBA.loginUserid=<websphere user id>`

   `com.ibm.CORBA.loginPassword=<websphere user password>`

Note: Refer to 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.

6.2.1.9 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.

   Enter the Server name.

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

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

6.2.1.10 Obtaining the Bootstrap Port and WC_defaulthost_secure

You must also provide these port numbers during OUAF 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.

6.2.1.11 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:
   - Host Name:
   - Port: WC_defaulthost_secure Port Number

6.2.1.12 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.

Note:

The value for the Node Name.

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

6.2.1.13 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 sections 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 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:
    - Name: SPLENVIRON
    - Value: <$SPLENVIRON>

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

    - Name: SPLEBASE
    - Value: <$SPLEBASE>

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

    - Name: LIBPATH
    - Value: <$SPLEBASE>/runtime

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.

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 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 2048 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.login.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 need 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 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:
    - Name: javax.xml.transform.TransformerFactory
    - 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 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:
    - Name: com.ibm.ws.webcontainer.invokefilterscompatibility
    - 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 script spl.sh does not stop or start the IBM WebSphere ND servers. It only stops and starts the Oracle Revenue Management and Billing applications.

6.2.2.6 Deployment Using Supplied Script

The application deployment script is initialSetup.sh.-d, located in $SPLEBASE/bin (this deploys both the SPLService.ear and SPLWeb.ear).

Note: Before running the script ensure you have initialized the environment by running splenviron.sh

6.2.2.7 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.

Deploy 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.

    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 the Deploy enterprise beans option is selected. 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.

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.

    Click Next.
2. Select Option Fast Path - Prompt only when additional information is required. Click Next.
3. Assign the module to the IBM WebSphere ND server instance.
4. 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 can take about more than 20 minutes.

Configure 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.

    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:
    - EJB module: SPLServiceBean

      JNDI name for all interfaces

      Target Resource JNDI Name: [Web Context Root]/servicebean
    - EJB module: TUGBULiteServiceBean

JNDI name for all interfaces

Target Resource JNDI Name: [Web Context Root]/liteservicebean

5. Click Ok.

Configure 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:

1. Check All Authenticated.
2. Check Select and click Look up users:
3. Search for `SYSUSER` and add to the Selected users list.
4. Click OK.

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

Restart 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:

http://<hostname>:<WC_defaulthost_secure>/<context_root>/loginPage.jsp

For example, http://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 for installing a framework-based application such as Oracle Revenue Management and Billing. This section describes the process for installing the Oracle Utilities Application Framework, including:

- Installation Overview
- Preinstallation Tasks
- Installing Oracle Utilities Application Framework

7.1 Installation Overview

The installation packages for your Oracle Utilities Application Framework-based application must be downloaded 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:

1. Complete the database installation process. For more information, refer to *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, Oracle Revenue Management and Billing can be installed on top of the framework environment.

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

This section describes how to install a working Oracle Utilities Application Framework Server, which can then be further configured manually to allow for production performance levels.

Application server installation packages delivered for this version are multi-platform and are ready to install on any supported platform (as described in the Supported Platforms section). We recommend that you complete the database installation before installing the application server.

7.2 Preinstallation Tasks

7.2.1 Hardware and Software Version Prerequisites

The Supported Platforms section contains all of the available platforms that are required with this release of the product.

7.2.2 Database Installation

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

7.2.3 Installation Prerequisites

The Installing Application Server Prerequisite Software section describes all preparations that need to be done on the server prior to installing the application server. Please read carefully the server setup requirements and make sure that all prerequisite software is installed and that all required environment variables are set. Correct server setup and proper environment variable settings are an essential prerequisite for successful environment installation.

7.2.4 System Architecture Overview

Oracle Utilities Application Framework V4.3.0.0.1 is a decoupled system architecture involving a business service application tier and a web application tier. Typically both will run on the same server, but the design does allow each tier to be installed on separate servers.

The design implements a stateless session bean (EJB technology, under Java EE 7), to provide remote access to service invocations. The root web app and XAI web apps can be configured to access service processing locally (as in previous versions), or to make a remote EJB call to perform the service request. In the latter case, the served containers, effectively, run as very thin servlet wrappers around the remote call.

For all supported application servers except for WebLogic expanded configuration (SDK environment), the deployment is in the form of two Enterprise Archive (ear) Files: SPLService.ear and SPLWeb.ear. Web Archive (war) files are created during the installation process but are not deployed.

7.2.5 Copying and Decompressing Install Media

The Oracle Utilities Application Framework V4.3.0.0.1 installation file is delivered in jar format for both UNIX and Windows platforms.

If you are planning to install multiple Oracle Utilities Application Framework V4.3.0.0.1 environments operated by different Oracle Utilities administrator user IDs, you must complete each of the following installation steps for each administrator user ID.

To copy and decompress the install media, perform the following steps:

1. Log in to the application server host with the Oracle Utilities Application Framework administrator user ID.
2. Download the Oracle Utilities Application Framework V4.3.0.0.1 Multiplatform package from the Oracle Revenue Management and Billing V2.5.0.0.0 media pack which is available on Oracle Software Delivery Cloud. A zip file is downloaded.
3. 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 completing a successful installation.

4. Unzip the downloaded file in your local folder. The contents include the `FW-V4.3.0.0.1-MultiPlatform.jar` file.
5. Copy the `FW-V4.3.0.0.1-MultiPlatform.jar` file from your local folder to `<TEMPDIR>`. If you are using FTP to transfer this file, remember to use the BINARY option for the FTP transfer.
6. Decompress the file:

   ```
   cd <TEMPDIR>
   jar -xvf FW-V4.3.0.0.1-MultiPlatform.jar
   ```

Note: You will need to have Java JDK installed on the machine used to (un)jar the application server installation package. Please install the JDK that is supported for the install on your platform to be able to use the jar command. This is the location of Java packages:

http://www.oracle.com/technetwork/java/archive-139210.html

The contents of the JAR file include a sub-directory named FW.V4.3.0.0.1.

7.2.6 Set 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.V4.3.0.0.1` 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 4.3.0.0.1

To install Oracle Utilities Application Framework (OUAF) Version 4.3.0.0.1:

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

Note: On UNIX machine, login using the `cissys` credentials. And, on 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`

Note:

The <Java_Home> is the location where you have installed Java 1.7.

The above command is applicable only for UNIX platform.

4. Change to the <TEMPDIR>/FW.V4.3.0.0.1 directory.

Note: The <TEMPDIR> folder is the location where you have extracted the contents of the FW-V4.3.0.0.1-MultiPlatform.jar file.

5. Execute the install 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 options appear in the command line:
   - 1. Third Party Software Configuration
   - 2. Keystore Options
   - 50. Environment Installation Options

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**.

Note: For more details about these menu options, refer to the 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**.

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.

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 options 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. SSL Certificate Keystore

Note: The options appear depending on the type of application server that you have selected while configuring the environment installation options. The above options appear when you set the **Web Application Server Type** parameter to **WLS** (i.e. WebLogic). If you set the **Web Application Server Type** parameter to **WAS** (i.e. WebSphere), the following options 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

However, if you set the **Web Application Server Type** parameter to **WASND** (i.e. WebSphere ND), the following options 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

For more information about the menu options that you need to set for each option, refer to the respective worksheet in the Installation and Configuration Worksheets section.

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**.

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**.
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**.
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**.

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**.

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

24. Type **6** to define values for the SSL certificate keystore 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**.

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

26. Type **P** to proceed with the installation. The Oracle Utilities Application Framework Version 4.3.0.0.1 is installed on the application server.

Note:

The utility contains default values for some of the parameters. If required, you can change these parameter values. While executing the `install` utility, you must set the value for all parameters. Otherwise, the installation process will not be completed successfully.

Once the installation process is completed, the following utilities are automatically executed in the specified order:

1. `initialSetup` - The `initialSetup` utility updates the configuration files including the WAR files on the system. On the UNIX machine, this utility is available in the `$SPLEBASE/bin` directory. And, on the Windows machine, this utility is available in the `%SPLEBASE%\bin` directory.
2. `splenviron` – The `splenviron` utility sets the environment variables using the `ENVIRON.INI` file. On the UNIX machine, this utility is available in the `$SPLEBASE/bin` directory. And, on the 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 connect your session to the new environment:

UNIX:

```
$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, startup 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, see the Planning the Installation section for settings and configuration.

7.4 Post Installation Tasks

Once you install Oracle Utilities Application Framework V4.3.0.0.1, you need to do the following:

1. Install Rollup Pack for Oracle Utilities Application Framework Version 4.3.0.0.1

7.4.1 Installing Rollup Pack for OUAF Version 4.3.0.0.1

To install the rollup pack for Oracle Utilities Application Framework Version 4.3.0.0.1:

1. Download the Oracle Utilities Application Framework V4.3.0.0.1 Single Fix Prerequisite Rollup for RMB V2.5.0.0.0 package from the Oracle Revenue Management and Billing V2.5.0.0.0 media pack which is available on Oracle Software Delivery Cloud. A zip file is downloaded.
2. Unzip the downloaded file in the `TEMPDIR` directory. The contents include the `ORMB-V25000-FW-PREREQ-MultiPlatform.jar` file.
3. Decompress the JAR file using the following command:

   ```
   cd TEMPDIR
   jar -xvf ORMB-V25000-FW-PREREQ-MultiPlatform.jar
   ```

   A sub-directory named FW-V4.3.0.0.1-Rollup is extracted. It contains the following two sub-folders:

   - Application
   - Database
4. Initialize the application environment where you want to install the rollup pack using the following command:

   UNIX:

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

   Windows:

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

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

   ```
   cd TEMPDIR/FW-V4.3.0.0.1-Rollup/Application
   ```

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

   UNIX:

   ```
   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 for installing Oracle Revenue Management and Billing on top of the previously created Oracle Utilities Application Framework environment. This section includes:

- Preinstallation Tasks
- Installing the Application
- Updating and Synchronizing the `mfcobol.jar` File
- Installing 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. See the detailed installation instructions in the following section.

You must initialize the Framework environment along with the required Patch Set prior to proceeding with Oracle Revenue Management and Billing Application product installation.

8.1 Preinstallation Tasks

This section describes the steps that should be taken before installing Oracle Revenue Management and Billing.

8.1.1 Copying and Decompressing Install Media

The installation file is delivered in zip format for AIX, Linux and Windows platforms. Oracle Revenue Management and Billing is delivered in a separate installation package for each supported Operating System.

Please refer to the Supported Platforms section for version and installation details regarding the database and operating system versions. Also refer Installing Application Server Prerequisite Software section for prerequisite third-party software installation instructions.

To copy and decompress the install media, perform the following steps:

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 the Oracle Utilities Application Framework.

2. Download the Oracle Revenue Management and Billing V2.5.0.0.0 Multiplatform package from the Oracle Revenue Management and Billing V2.5.0.0.0 media pack which is available on Oracle Software Delivery Cloud. A zip file is downloaded.
3. Unzip the downloaded file in the `<TEMPDIR>` directory.

Note:

You will need to have Java JDK installed on the machine used to unjar the application server installation package. Please install the JDK that is supported for the install on your platform to be able to use the jar command. This is the location of Java packages:

http://java.sun.com/products/archive/index.html.

For Windows installs, include the location of the JDK in your path before you execute the jar command.

The contents of the zip file include a directory named ORMB.V2.5.0.0.0.

8.2 Installing the Application

To install Oracle Revenue Management and Billing (ORMB) Version 2.5.0.0.0:

1. Login to the application server using the administrator's credentials.
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 application environment using the following command:

   AIX, Linux:

   ```
   $SPLEBASE/bin/spl.sh stop
   ```

   Windows:

   ```
   %SPLEBASE%\bin\spl.cmd stop
   ```

Note: If you have the WebLogic application server, you need to stop the application environment before you proceed with the installation. However, if you have the WebSphere application server, you need to stop the application server before you proceed with the installation. To stop the application server, use the following command:

```
/opt/IBM/WebSphere/AppServer/bin/stopServer.sh <Server_Name>
```

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

   AIX, Linux:

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

Note:

The <Java_Home> is the location where you have installed Java 1.7.

The above command is applicable only for UNIX platform.

5. Change to the ORMB.V2.5.0.0.0 folder using the following command:

   AIX, Linux:

   ```
   cd <TEMPDIR>/ORMB.V2.5.0.0.0
   ```

   Windows:

   ```
   cd <TEMPDIR>\ORMB.V2.5.0.0.0
   ```

6. Execute the install utility using the following command:

   AIX, Linux:

   ```
   ./install.sh
   ```

   Windows:

   ```
   install.cmd
   ```

   The following message appears in the command line:

   ```
   Do you wish to proceed with the installation? Y/N:
   ```

7. Type **Y** and then press **Enter**. A message appears informing you to type P if you want to proceed with the installation.
8. Type **P**, and then press **Enter**. The installation process might take some time to generate the WAR files. Once the build is deployed successfully, the following message appears in the command line:

   ```
   Do you wish to start the environment now? Y/N:
   ```

9. Type **N** and then press **Enter**.

Note:

If you are installing application on the WebSphere application server, the following message appears before you are prompted to start the environment:

```
Would you wish to deploy web application to WebSphere now? Y/N:
```

Type **N** and then press **Enter**.

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.

10. Execute the `initialSetup` utility using the following command:

    AIX, Linux:

    ```
    $SPLEBASE/bin/initialSetup.sh
    ```

    Windows:

    ```
    %SPLEBASE%\bin\initialSetup.cmd
    ```

Note:

In case you are using demo certificates, please execute the below command before starting the environment:

```
cd $SPLEBASE/bin
perl demo_gen_cert.plx
```

11. Start the application environment using the following command:

    AIX, Linux:

    ```
    $SPLEBASE/bin/spl.sh start
    ```

    Windows:

    ```
    %SPLEBASE%\bin\spl.cmd start
    ```

    A log file is generated. It indicates whether the application environment has started successfully or not. If any error occurred during startup, the same is recorded in the log file. By default, the log file is stored in the `$SPLSYSTEMLOGS (%SPLSYSTEMLOGS%` on Windows) directory.

Note: If you have the WebLogic application server, you need to start the application environment. However, if you have the WebSphere application server, you need to start the application server. To start the application server, use the following command:

```
/opt/IBM/WebSphere/AppServer/bin/startServer.sh <Server_Name>
```

But, before you start the server, you need to manually deploy the application on the WebSphere application server. For more information on how to deploy the application on the WebSphere Basic application server, refer to the Deployment via the Admin Console section. And, for more information on how to deploy the application on the WebSphere ND application server, refer to the Deployment via the Admin Console section.

8.3 Installing User Documentation

User manuals and other technical documents are available in the Portable Document Format (PDF) format. You can download Oracle Revenue Management and Billing release specific documentation library (for example, Oracle Revenue Management and Billing Version 2.5.X.X.X Documentation Library) using the following URL:

http://www.oracle.com/technetwork/indexes/documentation/fsgbu-1364781.html

The documentation is also provided in HTML format 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 and packaged in the file named help.war. The online help is provided in English (ENG). The online help files are categorized into the following subdirectories underneath the language directory:

- C1: Contains Oracle Revenue Management and Billing Administration and Business Process HTML Files
- F1: Contains Oracle Utilities Application Framework Administration and Business Process HTML Files
- Banking: Contains Oracle Revenue Management and Billing Banking Process HTML Files

8.3.1 Installing Stand-Alone Online Help

You can also use the Oracle Revenue Management and Billing online help in stand-alone mode (that is, you do not have to launch it from the Oracle Revenue Management and Billing application or access it on the application server).

To install the Oracle Revenue Management and Billing help for stand-alone operation, copy the help.war from the Oracle Revenue Management and Billing server (environment) or from the Oracle Revenue Management and Billing installation package to the server or machine on which you want to access the help. If you want to copy the file from any installed Oracle Revenue Management and Billing environment, you can locate the file in the `$SPLEBASE/splapp/applications` directory on the server.

Unzip the `help.war` file to any directory on your machine. To launch the Oracle Revenue Management and Billing help in stand-alone mode, open the `SPLHelp.html` file (located inside the language directory that you wish to use).

Note: Do not change the subdirectory names. The documents use relative path names to link to other documents. Changing the subdirectory names will result in broken links.

8.3.1.1 Customizing Help for Stand-Alone Operation

You can customize the `SPLHelp.html` file to open to the file and topic that you most frequently use. To do so, edit the `SPLHelp.html` file and change the DEFAULT_BOOKMARK to the desired location. The default DEFAULT_BOOKMARK is `'helpHome.html'`.

8.3.1.2 Installing Stand-Alone Help Under Web Server

You can also install Oracle Revenue Management and Billing online help as a stand-alone web application. Use any Web Application server like WebLogic or WebSphere. Configure the configuration file for your web application server to use web application help.

For example,

- For WebLogic, configure config.xml file for deployed application Name="help" with URI="help.war" and set WebServer DefaultWebApp="help"
- For WebSphere, configure application.xml with module id="WebModule_help" and <web-uri>help.war</web-uri>

Access the documentation from the browser by the following URL:

http://<host name>:<port name>/SPL/<Lang>/SPLHelp.html, where <hostname>:<portname> is the URL of the web server, <Lang> is the name of the language directory, for example, ENG.

Note: Stand-alone online help files are not automatically updated when changes are made to the help files on the application server. You will have to re-install the stand-alone online help files.

8.4 Operating the Application

At this point your installation and custom integration process is complete. Be sure to read *Oracle Revenue Management and Billing Server Administration Guide* for more information on further configuring and operating the Oracle Revenue Management and Billing system.

8.5 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, see knowledge base article ID 974985.1 on My Oracle Support. Service packs and patches can be downloaded from My Oracle Support.

Service packs and patches can be downloaded from My Oracle Support (https://support.oracle.com/).

9. Additional Tasks

This section describes tasks that should be completed after installing Oracle Revenue Management and Billing, including:

- Customizing Configuration Files
- Generating the Application Viewer
- Building Javadocs Indexes
- Configuring the Environment for Batch Processing
- Customizing the Logo
- Configuring Secure Sockets Layer (SSL)
- Setting Up an Application Keystore
- Deploying Inbound Web Services (IWS)
- Domain Templates (Linux WebLogic 12.1.3.0 only)
- Database Patching

9.1 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
   ```

Note:

It is recommended that you set the following properties in the spl.properties template file for Java memory management:

- **com.oracle.XPath.LRUSize** – Used to specify the maximum number of PreparedXQuery objects that can be preserved in the cache. The number of the PreparedXQuery objects across all threads must not exceed the value specified in this property. If you enter the value as - 1 (default), it means no maximum (default value). If you enter the value as 0, it means no caching at all (this may adversely impact performance).
- **com.oracle.XPath.flushTimeout** – Used to indicate the interval after which the PreparedXQuery cache must be flushed. If you enter the value as 0 (default), it means no automatic flushing.

Refer to the Oracle Utilities Application Framework SDK documentation for more details.

9.2 Generating the Application Viewer

You may extend application viewer capabilities within an environment by generating additional items. The items that can be generated include information about algorithm types and algorithms, maintenance object information and data dictionary information. The Javadoc indexes are also re- built.

To generate the additional items in the application viewer:

1. Shut down the environment.
2. Initialize a command shell:

   The scripts that are provided with the system need to be run from a shell prompt on the machine that you installed the application on. Before such scripts can be run the shell must be "initialized" by running the splenviron script provided with the system.

   AIX, Linux:

   You will need to logon to your UNIX box as the Oracle Utilities Administrator (default `cissys`) and open a shell prompt. In the following example you should replace the variables

   `$SPLEBASE` with the Full directory name that you installed the application into and

   `$SPLENVIRON` with the name you gave to the environment at installation time.

   To initialize the environment enter:

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

   For example:

   ```
   /ouaf/TEST_ENVIRON1/bin/splenviron.sh -e TEST_ENVIRON1
   ```

   Windows:

   The command window should be opened on the Windows server that you installed the application on.

   In the below example you should replace the following variables:

   `%SPLEBASE%` : The Full directory name that you installed the application into

`%SPLENVIRON%`: The name you gave to the environment at installation time.

To initialize the environment type the following in your command prompt:

```
%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.

9.3 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.

Perform the following to rebuild the Javadoc indexes.

Windows:

```
%SPLEBASE%\bin\buildJavadocsIndex.cmd
```

AIX, Linux:

```
ksh $SPLEBASE/bin/buildJavadocsIndex.sh
```

9.4 Configuring the Environment for Batch Processing

See *Oracle Revenue Management and Billing Batch Server Administration Guide* for information on configuring the environment for batch processing.

9.5 Customizing the Logo

To replace the Oracle Utilities logo on the main menu with another image, put the new image `<customer_logo_file>.gif` 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://<host name>:<port>/<Web Context>/cm/<customer_logo_file>.gif

AIX, Linux:

http://<host name>:<port>/<Web Context>/cm/<customer_logo_file>.gif.

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`.

9.6 Configuring Secure Sockets Layer (SSL)

Secure Sockets Layer (SSL) provides secure connections by allowing two applications connecting over a network to authenticate each other's identity and by encrypting the data exchanged between the applications. Authentication allows a server, and optionally a client, to verify the identity of the application on the other end of a network connection. Encryption makes data transmitted over the network intelligible only to the intended recipient.

Follow these steps to configure Secure Sockets Layer:

1. Obtain an identity (private key and digital certificates) and trust (certificates of trusted certificate authorities) for WebLogic Server.

   Use the digital certificates, private keys, and trusted CA certificates provided by the WebLogic Server, the CertGen utility, the keytool utility, or a reputable vendor such as Entrust or Verisign to perform this step.

2. Store the identity and trust.

   Private keys and trusted CA certificates which specify identity and trust are stored in keystores.

3. Configure the identity and trust keystores for WebLogic Server in the WebLogic Server Administration Console.

   See "Configure keystores" in the Oracle WebLogic Server Administration Console Online Help.

   For additional information on configuring keystores, refer to the following URL:

   http://docs.oracle.com/middleware/1213/wls/WLACH/taskhelp/security/ConfigureKeystoresAndSSL.html

4. Set SSL configuration options for the private key alias and password in the WebLogic Server Administration Console.

   Optionally, set configuration options that require the presentation of client certificates (for two-way SSL).

   For additional information, refer to the following topics:

Topic Name	Refer To
Servers: Configuration: SSL	http://docs.oracle.com/middleware/1213/wls/WLACH/pagehelp/Corecoreserverserverconfigssltitle.html
Configure two-way SSL	http://docs.oracle.com/middleware/1213/wls/WLACH/taskhelp/security/ConfigureTwowaySSL.html
Obtaining and Storing Certificates for Production Environments	http://docs.oracle.com/middleware/1213/wls/SECMG/identity_trust.htm#SECMG798

Topic Name	Refer To
Configuring Keystores with WebLogic Server	http://docs.oracle.com/middleware/1213/wls/SECMG/identity_trust.htm#SECMG383

Note: Depending on your choice of implementation you may need to change some configuration files. These files are managed by templates and will be overwritten if the procedures documented in "Customizing Configuration Files" are not followed.

The identity and trust keystore files and other SSL certificate related options are configured using the configureEnv.sh|cmd utility.

9.7 Setting Up an Application Keystore

This section describes how to set up a keystore in your system. The keystore is used for functionality such as digital signatures for document numbers, and encryption for credit card security.

Note: This different from the Oracle Utilities Application Framework (also called the system) keystore and the weblogic SSL keystores.

For additional information about using the Java keytool utility, see the following section of the Oracle Java SE documentation:

http://docs.oracle.com/javase/7/docs/technotes/tools/solaris/keytool.html

Follow this procedure to set up the keystore in your environment:

1. Generate the keystore. The following command creates the file ".mykeystore" in directory ${SPLEBASE}:

   ```
   keytool -genkeypair -alias <keyalias> -keyalg RSA -sigalg
   SHA256withRSA -keystore ${SPLEBASE}/<filename> -keysize 1024
   -storetype JCEKS -dname "CN=<name>, OU=<unit>, O=<organization>,
   C=<country>" -validity 365
   ```

   For example:

   ```
   keytool -genkeypair -alias ouaf.application -keyalg RSA -sigalg
   SHA256withRSA -keystore ${SPLEBASE}/.mykeystore -keysize 1024
   -storetype JCEKS -dname "CN=Mark Jones, OU=TUGBU, O=Oracle, C=US"
   -validity 365
   ```

   The utility will prompt you for the keystore and key passwords. Make sure that they are the same.

2. Configure the following template files by adding the following entries:

   For WebLogic Server:

   To enable in WebLogic, edit the following in ${SPLEBASE}/templates/startWeblogic.sh.template:

   ```
   JAVA_OPTIONS="$JAVA_OPTIONS
   -Dcom.oracle.ouaf.keystore.file=$SPLEBASE/<filename>"
   JAVA_OPTIONS="$JAVA_OPTIONS
   ```



```
-Dcom.oracle.ouaf.keystore.password=<keystore_password>"
```

For <keystore_password>, use the same password entered in the keytool utility.

To enable this in batch, edit the threadpoolworker.properties.template:

```
com.oracle.ouaf.keystore.file=@force_forward_slash(SPLEBASE)@/.mykeystore
com.oracle.ouaf.keystore.password=<keystore_password>
```

Note: Because the path needs to be passed with forward slashes even on Windows platforms, the force_forward_slash function will convert any "\" to "/".

For <keystore_password>, use the same password entered in the keytool utility.

For WebSphere Server:

Create the password file.

```
echo ab987c | tr -d '\n'>$SPLEBASE/.passFile
```

Note: In above command, please replace "ab987c" with your password string.

Add Keystore entries to spl.properties templates:

- Open each of the five spl.properties templates mentioned below and add the following two lines in each of the templates

```
com.oracle.ouaf.keystore.file=@SPLEBASE@/.mykeystore
com.oracle.ouaf.keystore.passwordFileName=@force_forward_slash(SPLEBASE)@/.passFile
```

- List of spl.properties templates (located in ${SPLEBASE}/templates/ folder):
  - spl.properties.iws.template
  - spl.properties.template
  - spl.properties.service.template
  - spl.properties.XAIApp.template
  - spl.properties.standalone.template

3. Re-initialize the environment to propagate these changes by executing the `initialSetup.sh/cmd`.
4. Restart the environment.

9.8 Deploying Inbound Web Services (IWS)

All existing XAI Inbound Services have been duplicated as Inbound Web Services as the application moves toward deprecation of XAI and full transition to IWS in the next release. The duplicated services are designed to work seamlessly in this release, and customers providing custom services are encouraged to migrate to IWS to take full advantage of the new, more efficient Web service technology.

For more information on migrating from XAI to IWS, please refer to Migrating from XAI to IWS Oracle Utilities Application Framework (Doc ID 1644914.1) on My Oracle Support.

Note: This is an optional step for customers using IWS instead of XAI services.

For deploying IWS, please follow the steps below:

UNIX:

1. Enable the Web Services Functionality as shown below:
    a. cd $SPLEBASE/bin
    b. Execute configureEnv.sh –a

       Select option 50 and set the option “Enable Web Services Functionality” to true. Enter "P" to process.
2. Execute initialSetup.sh as shown below:
    a. cd $SPLEBASE/bin
    b. ksh ./initialSetup.sh
3. Set the classpath as shown below:
    a. $ CLASSPATH=$WL_HOME/server/lib/weblogic.jar:$CLASSPATH
    b. $ export CLASSPATH
    c. $ cd $SPLEBASE/bin
4. Execute the following command:
    a. $ java weblogic.Admin -username <username> -password <password> STOREUSERCONFIG -userconfigfile $SPLEBASE/etc/.wlsuserconfig - userkeyfile $SPLEBASE/etc/.wlsuserkey
    b. Select y
5. Execute the below step in $SPLEBASE/bin. Please note that the application server should be up before running the below command.
    a. ksh ./iwsdeploy.sh

WINDOWS:

1. Enable the Web Services Functionality as shown below:

   cd %SPLEBASE%\bin
2. Execute configureEnv.cmd –a

   Select option 50 and set the option “Enable Web Services Functionality” to true. Enter "P" to process.
3. Execute initialSetup.cmd as shown below:

   cd %SPLEBASE%\bin initialSetup.cmd
4. Set the classpath as shown below:

   set CLASSPATH=%WL_HOME%\server\lib\weblogic.jar;%CLASSPATH%
5. Execute the following command:

   java weblogic.Admin -username system -password ouafadmin STOREUSERCONFIG -userconfigfile %SPLEBASE%\etc\.wlsuserconfig - userkeyfile %SPLEBASE%\etc\.wlsuserkey

   Select y

6. Execute the below step in %SPLEBASE%\bin. Please note that the application server should be up before running the below command.

   iwsdeploy.cmd

9.9 Domain Templates (Linux WebLogic 12.1.3.0 only)

The intended use of the domain templates is for “native” installation of the Oracle Utilities Application Framework (OUAF) environment into a WebLogic domain. The domain template(s) defines the core set of resources within a WebLogic domain, including an Administration Server along with the basic configuration information for an Oracle Utilities Application Framework based application. The domain template is a “snapshot” of the delivered embedded “splapp” domain. When working with domain templates you will need to manage the application (stopping, starting, deployment, undeployment) utilizing the WebLogic delivered utilities.

- Install and configure application stack (OUAF and Edge Product)

Note: Environment will need to be configuring to deploy in ear format.

- Review domain templates (Simple /Complex)
- Execute config.sh
- Configure domain
- Complete domain configuration

Note: Configure nodemanager.properties and setDomainEnv.sh

- Update SPLEBASE (ENVIRON.INI)

Detailed Description

The product installation includes a two predefined WebLogic Server Domain templates. The delivered domain templates are located under the SPLEBASE:

$SPLEBASE/tools/domaintemplates

- Oracle-Utilities-Simple-Linux-12.1.3.0.0.jar
- Oracle-Utilities-Complex-Linux-12.1.3.0.0.jar

The Simple Domain Template is for use with one machine not included in a weblogic clustered, this domain configuration is similar to current delivered embedded splapp domain, with the exception that there will be two weblogic servers (utilities_server1 and a "Admin Server").

The Complex Domain Template is configured for use with a pre-configured WebLogic cluster, with one machine configured, node manager settings, and one managed server configured.

You are able to create a custom domain template from the existing domain by using the Domain Template Builder or the pack command. By using the Domain Template Builder, you can also create a custom domain template from an existing template.

The delivered domain templates define the full set of resources within an Oracle Utilities Application Framework domain including:

- Demo certificates (the demo certificates will need to be updated for production use)

- Setting of XML Registry Settings
- Setting of Default users and groups
- Machine configuration
- Default Users and Groups

Note: The Users and Groups match the delivered values delivered with the embedded domain.

- JTA Settings
- Node Manager Settings
- WebLogic Server

Configure Node Manager Properties to allow SSL

Follow the steps below to update the nodemanager.properties with the correct Private Key Passphrase. Under the following location: DOMAIN_HOME/nodemanager update the following properties in the nodemanager.properties file:

- CustomIdentityKeyStorePassPhrase=
- CustomIdentityPrivateKeyPassPhrase=

Set these to the value “0uaf_demo_c3rt”

Note: At first when the node manager is started, the values in the file will be encrypted. These values will need to be updated in production configuration with the proper values based on your configuration.

Configure setDomainEnv.sh Script

Set the value of SPLEBASE with the proper value as per your configuration. Under DOMAIN_HOME/bin location, update the following file:

setDomainEnv.sh:SPLEBASE="${SPLEBASE}"

Update SPLEBASE

The following update in the configuration indicates if the embedded configuration is being utilized or if the environment is a native installation to WebLogic. When this item is populated in the environment, the delivered base tools will be able to identify that the starting and stopping of the environment are being done under the domain home.

1. Initialize the Environment: splenviron.sh –e <Environment_Name>
2. Execute: configureEnv.sh –a
3. Select Menu Item: 52. Advanced Web Application Configuration
4. 02. Configuration Option: Domain Home Location
5. Current Value <ENTER>:

   The WebLogic Domain Home location, when this parameter is populated you will need to use the native WebLogic tools for maintenance (starting, stopping, deployment, and undeployment).

6. Enter Value: <Enter your domain home location>
7. Once the Domain Home location has been completed, Enter <P> Process

9.10 Database Patching

The database patching utility is delivered under SPLEBASE. Using this utility, you are able to create a standalone package to be able to install database patches on a separate server that has Java 7 installed on the server, or you are also able to install database patches using the components that are delivered under SPLEBASE without the need to move the database patching utility to a different server.

The following is an overview of the process. To install database patches on a separate server, you must create a jar file to copy onto a separate server where you would like to install the database patches.

To generate the jar file to be able 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 that you installed the application on. Before such scripts can be run the shell must be "initialized" by running the splenviron script provided with the system.

   UNIX:

   Log on to your UNIX box as the Oracle Utilities Administrator (default cissys) and open a shell prompt.

   In the following example, replace the variables

   - $SPLEBASE with the Full directory name that you installed the application into
   - $SPLENVIRON with the name you gave to the environment at installation time

   To initialize the environment enter:

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

   For example:

   /ouaf/DEMO/bin/splenviron.sh -e DEMO

   Windows:

   The command window should be opened on the Windows server that you installed the application on.

   In the below example you should replace the following variables:

   - %SPLEBASE%: The Full directory name that you installed the application into
   - %SPLENVIRON%: The name you gave to the environment at installation time

   To initialize the environment, type the following in your command prompt:

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

   For example:

   D:\ouaf\DEMO\bin\splenviron.cmd -e DEMO

2. Execute the following script to generate all information.

   UNIX:

   ksh $SPLEBASE/bin/createDBStandlone.sh

Windows:

%SPLEBASE%\bin\createDBStandlone.cmd

3. Transfer the package (db_patch_standalone.jar) created to the Windows /Unix box
4. Extract the contents of the archive file:

   jar xvf db_patch_standalone.jar

Note: You must have Java 7 JDK installed on the machine to use the jar command. Be sure to install the JDK that is supported for your platform.

Script Overview

createDBStandlone.sh[cmd] [-h] [-l]

- Creates the following file (db_patch_standalone.jar) the file contains the needed components to be able to patch database fixes on a different server.
- Packages bin directory
- Packages lib directory
- Packages config file

Sample execution

createDBStandlone.sh # complete setup

createDBStandlone.sh -h # display usage information

createDBStandlone.sh -l # output location for jar file

Note: When Option -l is not passed the default output location is SPLEBASE/tools/dbstandalone

Overview of Database Patching Application

The database patching utility requires you have Java 7 JDK installed on the machine to execute the database patch application process.

The patch application process will perform following items to account for executing patch application under SPLEBASE or on a standalone server.

The database patch application utility will look do the following when it is executed:

- Checks to see if the environment variable splebase is set.

  If the splebase variable is set, the utility uses the libraries under splebase to apply the patch.

- When the splebase is not set, the utility checks to see if the TOOLSBIN environment variable is set.

  If the TOOLSBIN is set, the utility uses the libraries under the TOOLSBIN location.

- When both SPLEBASE and TOOLSBIN environment are not set, the utility prompts for the location of the TOOLSBIN.

The TOOLSBIN is the location of the of the application scripts ouafDatabasePatch.sh[cmd]

Unix Example: - The TOOLSBIN location would be set to /ouaf/dbpatch/bin

export TOOLSBIN=/ouaf/dbpatch/bin

/ouaf/dbpatch/lib/commons-cli-1.1.jar

/ouaf/dbpatch/lib/commons-collections-3.2.1.jar

/ouaf/dbpatch/lib/ojdbc7-12.1.0.2.jar

/ouaf/dbpatch/lib/commons-io-1.3.2.jar

/ouaf/dbpatch/lib/log4j-1.2.17.jar

/ouaf/dbpatch/lib/spl-shared-4.3.0.0.1.jar

/ouaf/dbpatch/lib/commons-codec-1.6.jar

/ouaf/dbpatch/lib/spl-dbpatch-4.3.0.0.1.jar

/ouaf/dbpatch/config/

/ouaf/dbpatch/config/log4j.properties

/ouaf/dbpatch/bin/

/ouaf/dbpatch/bin/ouafDatabasePatch.cmd

/ouaf/dbpatch/bin/ouafDatabasePatch.sh

Unix Sample - Database Patch Application (ouafDatabasePatch.sh)

Note: The default permissions (ouafDatabasePatch.sh) may need to be adjusted to be executed by your user and group, when applying database fixes.

- Sample Execution – Passing a Password

  ./ouafDatabasePatch.sh -x ouafadm -p "-t O –d CISADM_Z1_12C_43001_BLD001,slc04lds:1522:Z143Q12C"

- Sample Execution – Prompting for a Password

  ./ouafDatabasePatch.sh -p "-t O –d CISADM_Z1_12C_43001_BLD001,slc04lds:1522:Z143Q12C"

- Sample Execution - passing in the tools bin location

  /ouafDatabasePatch.sh –u

  ouafDatabasePatch.sh [-h] [-u] [-v] [-x] [-t tools dir] [-p ouafparms]

  - -h displays help of ouafpatch
  - -u displays usage of ouafDatabasePatch.sh
  - -v displays version of ouafpatch
  - -x password to be passed to ouafpatch
  - -b location of the tools bin directory
  - -p parameters directly passed to ouafpatch must be the last parameter passed and be enclosed with quotes

WINDOWS Example: - The TOOLSBIN location would be set to c:\ouaf\dbpatch\bin

SET TOOLSBIN=c:\ouaf\dbpatch\bin

c:\ouaf\dbpatch\lib\commons-cli-1.1.jar

c:\ouaf\dbpatch\lib\commons-collections-3.2.1.jar

c:\ouaf\dbpatch\lib\ojdbc7-12.1.0.2.jar

c:\ouaf\dbpatch\lib\commons-io-1.3.2.jar

c:\ouaf\dbpatch\lib\log4j-1.2.17.jar

c:\ouaf\dbpatch\lib\spl-shared-4.3.0.0.1.jar

c:\ouaf\dbpatch\lib\commons-codec-1.6.jar

c:\ouaf\dbpatch\lib\spl-dbpatch-4.3.0.0.1.jar

c:\ouaf\dbpatch\config/log4j.properties

c:\ouaf\dbpatch\bin\ouafDatabasePatch.cmd

c:\ouaf\dbpatch\bin\ouafDatabasePatch.sh

Windows Sample - Database Patch Application (ouafDatabasePatch.cmd)

- Sample Execution – Passing a Password

  ouafDatabasePatch.cmd -x password -p "-t O –d SCHEMA_NAME,DBSERVER:DBPORT:DBSID"

- Sample Execution – Prompting for a Password

  ouafDatabasePatch.cmd –p “-t O -d SCHEMA_NAME,DBSERVER:DBPORT:DBSID C”

- Sample Execution - passing in the tools bin location

  ouafDatabasePatch.cmd -b "C:\temp\db_patch_standalone\bin" -p "-t O –d SCHEMA_NAME, DBSERVER:DBPORT:DBSID –c C:\temp\dbrollup\CDXPatch2\CDXPatch.ini"

Windows Sample Usage

ouafDatabasePatch.cmd -u

USAGE: ouafDatabasePatch.cmd[-h] [-u] [-v] [-x] [-b tools dir] [- p ouafparms]

Where:

- -h: displays help of ouafpatch
- -u: displays usage of ouafDatabasePatch.cmd
- -v: displays version of ouafpatch
- -x: password to be passed to ouafpatch
- -b: location of the tools bin directory
- -p: parameters directly passed to ouafpatch must be enclosed with quotes: " "

9.11 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.CustomBatchNotifier
   ```

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 Utilities Application Framework V4.3.0.0.1 Single Fix Prerequisite Rollup for RMB V2.5.0.0.0. The BUGLIST.txt file in the `FW-V4.3.0.0.1-Rollup\Application` directory lists the bugs for which patches are available in the rollup pack.

Appendix B : ORMB V2.5.0.0.0 Bug Fixes

To view a list of bugs fixed in the current release, refer to *Oracle Revenue Management and Billing Version 2.5.0.0.0 Release Notes*.

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