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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.

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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 V2.4.0.1.0 Post-requisite Patches	Lists the ORMB patches that you need to install after installing the Oracle Revenue Management and Billing application.
Appendix C	ORMB V2.4.0.1.0 Bug Fixes	Lists the bugs fixed in Oracle Revenue Management and Billing Version 2.4.0.1.0.
Appendix D	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 2.4.0.1.0 Release Notes	Provides a brief description about the new features and enhancements made in this release. It also highlights the 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 application.
Oracle Revenue Management and Billing Database Administrator's Guide	Provides detailed information on how to install the database for the Oracle Revenue Management and Billing application.
Oracle Revenue Management and Billing Server Administration Guide	Describes the Oracle Revenue Management and Billing architecture. It also explains how to configure, deploy, and monitor web and business application servers.
Oracle Revenue Management and Billing Batch Server Administration Guide	Provides detailed information on how to configure and work with the batch component in Oracle Revenue Management and Billing.

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Document	Description
Oracle Revenue Management and Billing Security Guide	Describes how to configure security for the Oracle Revenue Management and Billing application using the default security features.

Change Log

Revision	Last Update	Updated Section	Comments
6.1	17-July-2015	Section 3.2: Requirements by Tier	Added Note
		Section 3.3: Supported Platforms	Added Note
		Section 9.4: Post Installation Tasks	Deleted Section
6.2	13-Aug-2015	Section 10.3.1: Installing Rollup Pack for ORMB Version 2.4.0.1.0	Added Section
		Appendix B : ORMB V2.4.0.1.0 Post-requisite Patches	Added Section
6.3	28-Aug-2015	Section 10.3.1: Installing Rollup Pack for ORMB Version 2.4.0.1.0	Updated Section
		Appendix B : ORMB V2.4.0.1.0 Post-requisite Patches	Updated Section
6.4	07-Sep-2015	Section 5.4.12: Database Configuration	Updated Section

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

3. Review the different types of application installations as described in the Installation Types section.
4. Plan your installation as described in the Planning the Installation section.
5. Install the database as described in the Installing the Database section, and in the document *Oracle Revenue Management and Billing Database Administrator's Guide*.
6. 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.
7. If you are using the WebSphere application server on AIX, configure your server as described in the Configuring WebSphere Application Server section.
8. Install the framework for the application as described in the Installing the Application Server Component of Oracle Utilities Application Framework section.
9. Install Oracle Revenue Management and Billing as described in the Installing the Application Server Component of Oracle Revenue Management and Billing section.
10. Follow the installation guidelines described in the Additional Tasks section.

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

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

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.

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.

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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 the document *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.

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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

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 / web browser software is supported:

- Windows 7 (32-bit or 64-bit) with Internet Explorer 9.x, 10.x or 11.x
- Windows 7 (32-bit or 64-bit) with Google Chrome 43.x

Note:

You must enable the **Compatibility View** option for Internet Explorer 9.x, 10.x, and 11.x.

You must select the **Always allow pop-ups for <IP Address>** option while accessing the application URL. This activity is a onetime activity for each application URL.

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 the *Oracle Revenue Management and Billing Server Administration Guide* on how to change the default values. The minimum resource requirements exclude third-party software installation requirements. Refer to the third- party vendors for specific requirements. The following sizing excludes the Oracle database server installation.

[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.

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Memory Requirements

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

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.

Tier 3, Database Server: Software and Hardware Requirements

See the Supported Platforms section for supported database servers.

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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

Operating Systems and Application Servers

The following table lists the operating system and application server combinations on which Oracle Revenue Management and Billing Version 2.4.0.1.0 is supported:

Operating System and Web Browser (Client)	Operating System (Server)	Chipset	Application Server	Database Server
Windows 7[3] (IE 9.x, 10.x, or 11.x Google Chrome 43.x)	AIX 6.1 TL5 (64-bit), AIX 7.1 TL1 (64-bit)	POWER 64-bit	WebSphere 8.5 (64-bit)	Oracle 11.2.0.4 Oracle 12.1.0.1
	Oracle Linux 5.8, 6.2, 6.4, 6.5, 6.6 and 7.0 (64-bit)	x86_64	WebLogic 10.3.6.0.8 (64-bit)	Oracle 11.2.0.4 Oracle 12.1.0.1
			WebLogic 12.1.2 (64-bit)	
	Red Hat Enterprise Linux[4] 5.8, 6.2, 6.4 and 6.5 (64-bit)	x86_64	WebLogic 10.3.6.0.8 (64-bit)	Oracle 11.2.0.4 Oracle 12.1.0.1
			WebLogic 12.1.2 (64-bit)	
	Windows Server 2008 R2 (64-bit)	x86_64	WebLogic 10.3.6.0.8 (64-bit)	Oracle 11.2.0.4 Oracle 12.1.0.1
			WebLogic 12.1.2 (64-bit)	

Note:

You must enable the **Compatibility View** option for Internet Explorer 9.x, 10.x, and 11.x.

You must select the **Always allow pop-ups for <IP Address>** option while accessing the application URL. This activity is a onetime activity for each application URL.

[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 5.8, 6.2, 6.4, 6.5, 6.6, 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

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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.

Note: 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.

Oracle Database Servers

Oracle Revenue Management and Billing Version 2.4.0.1.0 is supported on Oracle Database Server 11.2.0.4 and 12.1.0.1 on all operating systems listed above. The following Oracle Database Server Editions are supported:

- Oracle Database Enterprise Edition

Oracle Database Client 11.2.0.1 is required for Oracle Database Server 11.2.0.4 and Oracle Database Client 12.1.0.1 is required for Oracle Database Server 12.1.0.1.

Oracle WebLogic Server Information

The following Oracle WebLogic Server Editions are supported:

- Oracle WebLogic Server Standard Edition
- Oracle WebLogic Server Enterprise Edition

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 exceptions from this rule are Hibernate software 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.

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4. Installation Types

This section provides an overview of the different types of application installation.

4.1 Initial Installation

The installation process will create files as well as a database on your system. Depending on what data you choose to install in the database, the database install process is referred to as either initial install or demo install.

4.2 Database Installation: Initial Install Compared with Demo Install

An initial install and demo install both starts with an empty database. In the case of initial install, demo data is not populated into the database by the installation process. This installation type is typically used for production environments.

In contrast, the demo install process populates the database with demo data. This installation type is typically used for demo and testing environments.

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5. 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

5.1 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:

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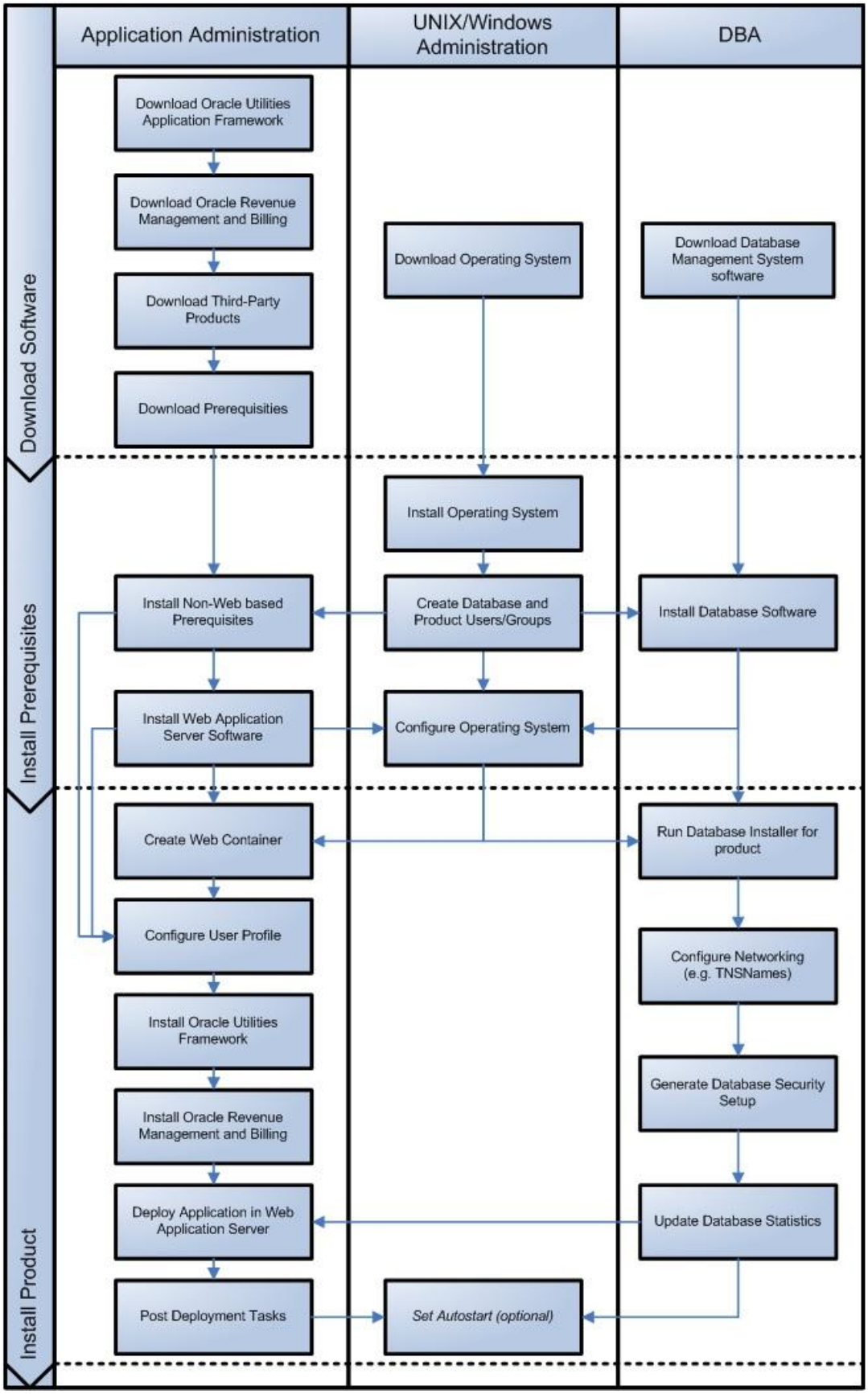

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5.2 Before You Install

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

5.3 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. Create Group/User ID.
2. 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 11.2.0.1 or 12.1.0.1
    - Java 6
    - Hibernate 4.1.0
    - Micro Focus Server 5.1 WrapPack 7 Update or WrapPack 8 Update
3. Install Optional Software.

    The following software is not required for Oracle Revenue Management and Billing to operate:

    - Micro Focus Server Express, with patches (required for recompiling COBOL)
4. Install web server.
    - Oracle WebLogic
    - IBM WebSphere

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

5. Verify that the software installed.
6. Set up environment variables.
7. Install Oracle Utilities Application Framework.
8. Install Oracle Utilities Application Framework prerequisite single fixes.
9. Install Oracle Utilities Application Framework post-requisite single fixes (if any).
10. Install Oracle Revenue Management and Billing.
11. Deploy Oracle Revenue Management and Billing application.
12. Complete post installation tasks.
13. Optional third-party product integration (such as web self service or reporting tools).

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5.4 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. No Customer Install Value fields should be left blank.

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.

5.4.1 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'.

5.4.2 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.

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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 the *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 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.

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5.4.3 Third Party Software Configuration

```
**********************************
* Environment Installation Options *
**********************************
1. Third Party Software Configuration

   Oracle Client Home Directory:
   Web Java Home Directory:
   Child JVM Home Directory:
   COBOL Home Directory:
   Hibernate JAR Directory:
   ONS JAR Directory:
   Web Application Server Home Directory:
   ADF Home Directory:
   OIM OAM Enabled Environment:
```

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/11.2.0.1`	
Web Java Home Directory	JAVA_HOME	Java home that will be used by the web application server. Example Location: `/ouaf/java/jdk1.6.0_20`	
Child JVM Home Directory	CHILD_JVM_JAVA_HOME	Java home that will be used by the child java process that handles COBOL related requests. Example Location: `/ouaf/java/jdk1.6.0_20`	
COBOL Home Directory	COBDIR	COBOL installation location directory. Example Location: `/opt/SPLcobAS51WP6`	
Hibernate JAR Directory	HIBERNATE_JAR_ DIR	Location on the disk where the hibernate4 jar files are installed.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
ONS JAR Directory[5]	ONS_JAR_DIR	Location on the disk where the `ons.jar` file is installed. Required for Oracle RAC installation. See the *Oracle Revenue Management and Billing Server Administration Guide* for more information.[6]	

Web Application Server Home Directory	WEB_SERVER_ HOME	Location on the disk where the application server is installed.
		Example Location:
		WebLogic:
		`/ouaf/middleware/wlserver_10.3`
		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/WebSphere7/AppServer`
		WebSphere ND:
		`/ouaf/IBM/WebSphere70ND/`	

ADF Home Directory[7]	ADF_HOME	Location on the disk where ADF is installed. Example Location: `/ouaf/jdev11_1_1_4`	

[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, Version 11.2.0.4. This ons.jar is located under the Oracle Database Software 11.2.0.4, 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`.
[7] Denotes optional Menu Options that may be required for the product installation and variables.

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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 Defaulted value: false	

5.4.4 Environment Installation Options

```
50. Environment Installation Options

    Environment Mount Point:
    Log Files Mount Point:
    Environment Name:
    Web Application Server Type:
    Install Application Viewer Module:
```

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.	

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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>	

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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>.	

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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. Defaulted 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.	

5.4.5 Environment Description

1. Environment Description

   Environment Description:

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.	

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5.4.6 WebLogic Business Application Server Configuration

The WebLogic parameters below and in the worksheet are for a WebLogic installation.

```
2. Business Application Server Configuration

   Business Server Host: <machine_name>
   WebLogic Server Name: myserver
   Business Server Application Name: SPLService
   MPL Admin Port Number:
   MPL Automatic startup: false
```

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>`	
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
```


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Windows:

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

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

5.4.7 WebSphere ND Business Application Server Configuration

The WebSphere Network Deployment parameters below and in the worksheet are for a WebSphere ND installation.

```
2. Business Application Server Configuration

   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:
```

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 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.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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	

5.4.8 WebSphere Basic Business Application Server Configuration

The WebSphere parameters below and in the worksheet are for a WebSphere installation.

```
2. Business Application Server Configuration

   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:
```

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.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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.	
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	

5.4.9 WebLogic Web Application Server Configuration

The WebLogic parameters below and in the worksheet are for a WebLogic installation.

```
3. Web Application Server Configuration

   Web Server Host: <machine_name>
   Web Server Port Number:
   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:
   Expanded Directories: true
   Application Viewer Module: true
```

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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>	
Web Server Port Number	WEB_WLPORT	A unique port number within the system that will be assigned to the HTTP port. This is the port number that is used as a part of the client URL request to connect to the host. Example value: 6500	
Web ContextRoot	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.	
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.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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.	
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.	
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".	

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Menu Option	Name Used in Documentation	Usage	Customer Install 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**: 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.	
Application Admin Userid 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.	
Expanded Directories	WEB_ISEXPANDED	When the value is "true" the web application will be deployed in exploded directory format (no WAR files). When the value is "false", the web application will be deployed in ear file format. Valid values: true: Environment expanded (no WAR files) false: Environment with WAR/EAR files Default Value: false	

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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	

5.4.10 WebSphere ND Web Application Server Configuration

The WebSphere ND parameters below and in the worksheet are for a WebSphere ND installation.

```
3. Web Application Server Configuration

   Web Server Host: <machine_name>
   Web Server Port Number:
   Web Context Root:
   WebSphere Server Name:
   WebSphere Node Name:
   Web Server Application Name:
   WebSphere JNDI System User ID:
   WebSphere JNDI System Password:
   Application Admin User ID:
   Application Admin Password:
   Expanded Directories:
   Application Viewer Module:
```

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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>	
Web Server Port Number	WEB_WLPORT	The WC_defaulthost 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
WebSphere JNDI 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.	

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Menu Option	Name Used in Documentation	Usage	Customer Install 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.	
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 Userid 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.	
Expanded Directories	WEB_ISEXPANDED	When the value is “true” the web application will be deployed in exploded directory format (no WAR files). When the value is “false”, the web application will be deployed in ear file format. Valid values: true: Environment expanded (no WAR files) false: Environment with WAR/EAR files Default Value: false	

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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	

5.4.11 WebSphere Basic Web Application Server Configuration

The WebSphere parameters below and in the worksheet are for a WebSphere installation.

```
3.   Web Application Server Configuration

    Web Server Host: <machine_name>
    Web Server Port Number:
    Web Context Root:
    WebSphere Server Name:
    WebSphere Node Name:
    Web Server Application Name:
    WebSphere JNDI System User ID:
    WebSphere JNDI System Password:
    Application Admin User ID:
    Application Admin Password:
    Expanded Directories:
    Application Viewer Module:
```


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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>	
Web Server Port Number	WEB_WLPORT	The WC_defaulthost 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	
WebSphere JNDI 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.	

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Menu Option	Name Used in Documentation	Usage	Customer Install 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 Userid 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.	
Expanded Directories	WEB_ISEXPANDED	When the value is “true” the web application will be deployed in exploded directory format (no WAR files). When the value is “false”, the web application will be deployed in ear file format. Valid values: true: Environment expanded (no WAR files) false: Environment with WAR/EAR files Default Value: false	

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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	

5.4.12 Database Configuration

```
4. Database Configuration

   Web Application Database User ID:
   Web Application Database Password:
   MPL Database User ID:
   MPL Database Password:
   XAI Database User ID:
   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
```

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Application Database User ID	DBUSER	The database user ID that has been configured on the database for the web application server connection. **Note:** This is a security value.	
Web Application Database Password	DBPASS	The database password that has been configured on the database for the web application connection. **Note**: This is a security value. This value will be saved in encrypted format.	
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 is a security value. This value will be saved in encrypted format.	
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.	
XAI Database Password	XAI_DBPASS	The database password that has been configured on the database for the XAI server connection. **Note**: This is a security value. This value will be saved in encrypted format.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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 is a security value. This value will be saved in encrypted format.	
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 the *Oracle Revenue Management and Billing Server Administration Guide* for more information. This is an optional value.	

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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 the *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	

5.4.13 General Configuration Options

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

```
5. General Configuration Options

   Batch RMI Port:
   Batch Mode: CLUSTERED
   Coherence Cluster Name:
   Coherence Cluster Address:
   Coherence Cluster Port:
   Coherence Cluster Mode: dev
```


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Menu Option	Name Used in Documentation	Usage	Customer Install Value
Batch RMI Port	BATCH_RMI_PORT	Unique port used by the Batch RMI.	
Batch Mode	BATCH_MODE	Valid values: CLUSTERED or DISTRIBUTED Default Value: CLUSTERED **Note**: CLUSTERED is currently the only supported mode for production environments.	
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	

5.4.14 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
```

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Advanced Environment Miscellaneous Configuration

```
50.  Advanced Environment Miscellaneous Configuration

     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
     JMX Enablement System User ID:
     JMX Enablement System Password:
     RMI Port number for JMX Business:
     RMI Port number for JMX Web:
     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:
     Server Express Cobol Home Directory:
```

Menu Option	Name Used in Documentation	Usage	Customer Value Install
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.	

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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	

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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	
JMX Enablement System User ID	BSN_JMX_SYSUSER	Example value: user This value is optional.	
JMX Enablement System Password	BSN_JMX_SYSPASS	Example value: admin **Note**: This value will be saved in encrypted format. This value is optional.	
RMI Port number for JMX Business	BSN_JMX_RMI_PORT_PERFORMACE	JMX Port for business application server monitoring. This needs to be set to an available port number on the machine. This value is optional.	

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Menu Option	Name Used in Documentation	Usage	Customer Value Install
RMI Port number for JMX Web	WEB_JMX_RMI_PORT_PERFORMACE	JMX Port for web application server monitoring. This needs to be an available port number for the environment running on the machine. This value is optional.	
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.	
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 value is optional.	
Online Display Software Home	ONLINE_DISPLAY_HOME	The location of the Online Display Software installation directory. This value is optional.	
Server Express Cobol Home Directory	COBDIR	Used to specify the location where the Micro Focus Server Express is installed. Example: /opt/SPLcobAS51WP6	

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Advanced Environment Memory Configuration

```
51. Advanced Environment Memory Configuration

    JVM Child Memory Allocation:              512
    JVM Child Additional Options:
    Web Application Java Initial Heap Size: 1024
    Web Application Java Max Heap Size:     1024
    Web Application Java Max Perm Size:      500
    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:   768
    Thread Pool Worker Additional Options:
    Additional Runtime Classpath:
    Release Cobol Thread Memory Options:
    -Dspl.runtime.cobol.remote.releaseThreadMemoryAfterEachCall=...
```

Menu Option	Name Used in Documentation	Usage	Customer Install Value
JVM Child Memory Allocation	JVMMEMORYARG	Heap size for the JVM Child. Default Value: 512	
JVM Child Additional Options	JVM_ADDITIONAL_OPT	Additional JVM options that are passed to the Child JVM. **Note**: For WebLogic installation only.	
Web Application Java Initial Heap Size	WEB_MEMORY_OPT_MIN	Initial heap size for the application server. Default Value: 1024 **Note**: For WebLogic installation only.	
Web Application Java Max Heap Size	WEB_MEMORY_OPT_MAX	Maximum heap size for the application server. Default Value: 1024 **Note**: For WebLogic installation only.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
Web Application Java Max Perm Size	WEB_MEMORY_OPT_MAXPERMSIZE	Maximum Perm Size for the application server. Default Value: 500 MB (Linux) 300 MB (Windows, HP-UX) **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. Optional Entry. **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	
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: 768	
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.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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.	
Release Cobol Thread Memory Options	REL_CBL_THREAD_MEM	Allow for child JVMs to be optionally configured to release thread-bound memory when each thread is returned to its thread pool. This will increase the number of memory allocations and memory free calls performed by the Micro focus runtime. It will also lower the amount of C-heap memory consumed by child JVMs. Valid values: true, false Default Value: false	

Advanced Web Application Configuration

52. Advanced Web Application Configuration

```
WebLogic SSL Port Number:
WebLogic Console Port Number:
WebLogic Additional Stop Arguments:
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
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
```


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Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic SSL Port Number	WEB_WLSSPORT	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. The Secure Sockets implementation is disabled in the default configuration. For Production additional actions are required. Do NOT run Production with Demo certificates Refer to the WLS installation guide - Configuring Identity and Trust When this value is populated http will be disabled. Example value: 6501 **Note**: For WebLogic installation only. This value is optional.	
WebLogic Console Port Number	WLS_ADMIN_PORT	The port number assigned to WebLogic Console connection. This is the port number that is used for Secure Sockets connecting to the WebLogic Console server. **Note**: For WebLogic installation only. This value is optional.	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
WebLogic Additional Stop Arguments	ADDITIONAL_STOP_WEBLOGIC	WebLogic Additional Stop Arguments. This value is required when running the WebLogic Console Port Number and the Application using SSL. Example values: -Dweblogic.security.TrustKeyStore = DemoTrust -Dweblogic.security.TrustKeystoreType = CustomTrust **Note**: For Production additional actions are required. Do NOT run Production with Demo certificates Refer to the WLS installation guide - Configuring Identity and Trust **Note**: For WebLogic installation only. This is an optional value.	
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	

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
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 login to the application viewer. Default Value: /loginPage.jsp	
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 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`	

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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	

OIM Configuration Settings

53. OIM Configuration Settings

```
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
```


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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	

Keystore Options

```
54. Keystore options

    Store Type:                    JCEKS
    Alias:                         ouaf.system
    Alias Key Algorithm:          AES
    Alias Key Size:                128
    HMAC Alias:                    ouaf.system.hmac
    Padding:                       PKCS5Padding
    Mode:                          CBC
```

Note: If keystore options are modified, you must execute `initialSetup.sh/cmd -k` in order to recreate the keystore.

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Menu Option	Name Used in Documentation	Usage	Customer Install Value
Store Type	KS_STORETYPE	The keystore type. By default this is set to JCEKS.	
Alias	KS_ALIAS	The alias used to encrypt/decrypt passwords by the Oracle Utilities Application Framework to access the keystore. By default this is set to	
Alias Key Algorithm	KS_ALIAS_KEYALG	The algorithm to be used by the KS_ALIAS entry in keystore to encrypt the passwords. By default this is set to AES.	
Alias Key Size	KS_ALIAS_KEYSIZE	The strength of the keystore for the KS_ALIAS entry. By default this is set to 128.	
HMAC Alias	KS_HMAC_ALIAS	The HMAC alias used by the Encryption Feature Type of the Oracle Utilities Application Framework. By default, this is set to ouaf.system.hmac.	
Padding	KS_PADDING	The key padding algorithm used for keystore. By default this is set to	
Mode	KS_STOREPASS_FILE	The keystore Password file.	

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6. Installing the Database

Please review the Installation Overview section of this guide and then follow the steps for installing the database as described in the *Oracle Revenue Management and Billing Database Administrator's Guide*.

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7. 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 6.1 or 7.1 Application Server
- Oracle Linux 5.8, 6.2, 6.4, 6.5, 6.6 or 7.0 and Red Hat Enterprise Linux 5.8, 6.2, 6.4 or 6.5 Application Server
- Windows 2008 Application Server

7.1 AIX 6.1 or 7.1 Application Server

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

Supported Application Servers

Operating System	Chipsets	Application Server
AIX 6.1 TL5 (64-bit), AIX 7.1 TL1 (64-bit)	POWER 64-bit	WebSphere 8.5 64-bit version

Web/Application Server Tier

AIX 6.1 TL5 or 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.

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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`.

IBM XL C/C++ Compiler 10.1

Micro Focus COBOL requires that this be installed as a prerequisite to compiling any COBOL code. If you are going to compile your own COBOL objects then this C compiler should be installed. This C compiler is required for COBOL Compiles only. It needs to be installed on those machines that have both Micro Focus Server Express and will have the COBOL compiles performed on them.

This product is available from IBM.

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Oracle Database Client 11.2.0.1 or 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.

Micro Focus Server Express 5.1 WrapPack 7 or WrapPack 8

Server Express is only required for environment where COBOL code will be compiled.

You can download the Micro Focus Server Express 5.1 WrapPack 7 Install or Micro Focus Server Express 5.1 WrapPack 8 Install package from http://www.microfocus.com/

See the "Micro Focus" section in the *Oracle Revenue Management and Billing Quick Installation Guide* for more information on the installation and licensing of this product.

After installing Server Express, make sure that `cissys` user ID shell has the COBDIR and CUSTCOBDIR environment variables set to point to the base location where Server Express has been installed.

Micro Focus Server 5.1 WrapPack 7 or WrapPack 8

Micro Focus Server is required on the tier that will be hosting the application server where Oracle Revenue Management and Billing application code will be deployed.

You can download the Micro Focus Server 5.1 WrapPack 7 Install or Micro Focus Server 5.1 WrapPack 8 Install package from the Oracle Revenue Management and Billing Version 2.4.0.0.0 media pack which is available on Oracle Software Delivery Cloud.

See the "Micro Focus" section in the *Oracle Revenue Management and Billing Quick Installation Guide* for more information on the installation and licensing of this product.

IBM Java Software Development Kit Version 1.6 (6.0) SR10 or 1.7 (7.0) 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.

Note: Oracle Utilities Application Framework Version 4.2.0.0.0 for AIX requires IBM Java Software Development Kit Version 1.6 (6.0) SR10. However, for installing Oracle Utilities Application Framework Version 4.2.0.3.0, you can use IBM Java Software Development Kit Version 1.7 (7.0), if required.

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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. This Web application server will run as a 64-bit application.

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

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7.2 Oracle Linux 5.8, 6.2, 6.4, 6.5, 6.6 or 7.0 and Red Hat Enterprise Linux 5.8, 6.2, 6.4 or 6.5 Application Server

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

Supported Application Servers

Operating System	Chipsets	Application Server
Oracle Linux 5.8, 6.2, 6.4, 6.5, 6.6 and 7.0 (64-bit) Red Hat Enterprise Linux 5.8, 6.2, 6.4 and 6.5 (64-bit)	x86_64	Oracle WebLogic 11gR1 (10.3.6.0.8) 64-bit version Oracle WebLogic 12.1.2 (64-bit)

Web/Application Server Tier

Oracle Linux 5.8, 6.2, 6.4, 6.5, 6.6 or 7.0 or Red Hat Enterprise Linux 5.8, 6.2, 6.4 or 6.5 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
```


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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.

Oracle Database Client 11.2.0.1 or 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.

Micro Focus Server Express 5.1 WrapPack 7 or WrapPack 8

Server Express is only required for environments where COBOL code will be compiled.

You can download the Micro Focus Server Express 5.1 WrapPack 7 Install or Micro Focus Server Express 5.1 WrapPack 8 Install package from http://www.microfocus.com/

See the “Micro Focus” section in the *Oracle Revenue Management and Billing Quick Installation Guide* for more information on the installation and licensing of this product.

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After installing Server Express, make sure that `cissys` user shell has the COBDIR and CUSTCOBDIR environment variables set to point to the base location where Server Express has been installed.

Micro Focus Server 5.1 WrapPack 7 or WrapPack 8

Micro Focus Server is required on the tier that will be hosting the application server where Oracle Revenue Management and Billing application code will be deployed.

You can download the Micro Focus Server 5.1 WrapPack 7 Install or Micro Focus Server 5.1 WrapPack 8 Install package from the Oracle Revenue Management and Billing Version 2.4.0.0.0 media pack which is available on Oracle Software Delivery Cloud.

See the "Micro Focus" section in the *Oracle Revenue Management and Billing Quick Installation Guide* for more information on the installation and licensing of this product.

Oracle Java Development Kit Version 1.6 (6.0) Update 20 or Later or 1.7 (7.0), 64-Bit

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

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

Note:

Oracle Utilities Application Framework Version 4.2.0.0.0 for Linux requires Oracle Java Development Kit Version 1.6 (6.0) Update 20 or later. However, for installing Oracle Utilities Application Framework Version 4.2.0.3.0, you can use Oracle Java Development Kit Version 1.7 (7.0), if required.

If you are using the Exalogic machine and Oracle WebLogic as an application server, we recommend you to use Oracle JRockit 6.0 R28.2.7 Java Development Kit instead of Oracle Java Development Kit Version 1.6 (6.0) Update 20. This version of Java can be downloaded from the Oracle JRockit Downloads page on oracle.com.

When you set the parameters for Third Party Software Configuration during installation, ensure that the Web Java Home Directory points to the JRockit installation. You do not need to create an environment variable for JROCKIT_HOME.

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.

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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 10.3.6.0.8 (64-bit) or 12.1.2 (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 10.3.6.0.8 (64-bit) or 12.1.2 (64-bit), as required.

Note: Oracle WebLogic 12.1.2 (64-bit) requires Oracle Java Development Kit Version 1.7 (7.0) and Oracle Utilities Application Framework Version 4.2.0.0.0 requires Oracle Java Development Kit Version 1.6 (6.0). Therefore, if you want to use WebLogic 12.1.2 (64-bit), you need to install Oracle Java Development Kit Version 1.6 (6.0) Update 20 or later, and Oracle Java Development Kit Version 1.7 (7.0) on the application server.

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7.3 Windows 2008 Application Server

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

Supported Application Servers

Operating System	Chipsets	Application Server
Windows Server 2008 R2 (64-bit)	x86_64	Oracle WebLogic 11gR1 (10.3.6.0.8) 64-bit version Oracle WebLogic 12.1.2 (64-bit)

Web/Application Server Tier

Oracle Database Client 11.2.0.1 or 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.

Micro Focus Net Express 5.1 WrapPack 7 or Wrap Pack 8

This is required only for environments where COBOL code will be compiled. Note that Micro Focus Net Express 5.1 WrapPack 6 is installed before installing WrapPack 7 Update or WrapPack 8 Update.

You can download the Micro Focus Net Express 5.1 WrapPack 6 Install, Micro Focus Net Express 5.1 WrapPack 7 Update and/or Micro Focus Net Express 5.1 WrapPack 8 Update package from http://www.microfocus.com/

See the "Micro Focus" section in the *Oracle Revenue Management and Billing Quick Installation Guide* for more information on the installation and licensing of this product.

After installing Net Express, ensure that the COBDIR and CUSTCOBDIR environment variables are set to point to the directory where Net Express is installed.

Micro Focus Server 5.1 WrapPack 7 or WrapPack 8

This is required for Oracle Revenue Management and Billing runtime environments. Note that Micro Focus Server 5.1 is installed before installing WrapPack 7 Update or WrapPack 8 Update.

You can download the Micro Focus Server 5.1 Install, Micro Focus Server 5.1 WrapPack 7 Update and Micro Focus Server 5.1 WrapPack 8 Update package from the Oracle Revenue Management and Billing Version 2.4.0.0.0 media pack which is available on Oracle Software Delivery Cloud.

See the "Micro Focus" section in the *Oracle Revenue Management and Billing Quick Installation Guide* for more information on the installation and licensing of this product.

After installing Micro Focus Server, ensure that the COBDIR and CUSTCOBDIR environment variables are set to point to the directory where the software is installed.

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Oracle Java Development Kit Version 1.6 (6.0) Update 20 or Later or 1.7 (7.0), 64-Bit

This software is only required for Oracle WebLogic installations. At the time of release, the Oracle Java packages used in the test cycle were downloaded from:

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

Note: Oracle Utilities Application Framework Version 4.2.0.0.0 for Windows requires Oracle Java Development Kit Version 1.6 (6.0) Update 20 or later. However, for installing Oracle Utilities Application Framework Version 4.2.0.3.0, you can use Oracle Java Development Kit Version 1.7 (7.0), if required.

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
   ```

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```
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 10.3.6.0.8 (64-bit) or 12.1.2 (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 10.3.6.0.8 (64-bit) or or 12.1.2 (64-bit).

Note: Oracle WebLogic 12.1.2 (64-bit) requires Oracle Java Development Kit Version 1.7 (7.0) and Oracle Utilities Application Framework Version 4.2.0.0.0 requires Oracle Java Development Kit Version 1.6 (6.0). Therefore, if you want to use WebLogic 12.1.2 (64-bit), you need to install Oracle Java Development Kit Version 1.6 (6.0) Update 20 or later, and Oracle Java Development Kit Version 1.7 (7.0) on the application server.

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8. 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

8.1 Configuring WebSphere Basic

8.1.1 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.

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

8.1.1.1 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 QA cycle we used the User account repository of the Federated repository. The following procedures describe how to apply these security settings.

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

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

8.1.1.2 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.

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8.1.1.3 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.

8.1.1.4 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).
3. Click Create.

8.1.1.5 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.

8.1.1.6 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/WebSphere70/AppServer/bin/wsadmin.sh -host localhost -
port8889 -conntype SOAP
```


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2. Create the server instance:

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

8.1.1.7 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.

8.1.1.8 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.

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8.1.1.9 Creation of Additional Servers in WebSphere - Sample Script

You must also provide the name of servers during the 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> -conntypeSOAP -username<webSphereUserName> -password <webSphereUserPassword>
   ```

Note: Substitute $WAS_HOME, webSphereUserName, SoapConnectorPort, webSphereUserPassword, with values that are appropriate for your installation:

For example: `/ouaf/IBM/WebSphere70/AppServer/bin/wsadmin.sh -host localhost -port8889 -conntype SOAP`

2. Create the server instance:

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

8.1.1.10 Obtaining the Bootstrap Port and WC_defaulthost

You must also provide these port numbers during OUAF installation. Obtain the bootstrap port number and the WC_defaulthost by using the WebSphere administrative console.

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

To view the bootstrap port number and the WC_defaulthost:

1. Log on to the WebSphere administrative console.
2. Select Servers, Server Types, WebSphere application servers, <server_name> and then select Ports under Communications.

   The bootstrap port is displayed as BOOTSTRAP_ADDRESS.

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

8.1.1.11 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 Port Number

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8.1.1.12 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.

8.1.1.13 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 written and execute permissions on the directories in which WebSphere will be installed.

8.1.2 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.

8.1.2.1 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.

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Note: 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.

8.1.2.2 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 1024 for Minimum Heap Size.
8. Enter 1024 for Maximum Heap Size.
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.

8.1.2.3 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.

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Enter the following information:

Name: javax.xml.transform.TransformerFactory

Value: org.apache.xalan.processor.TransformerFactoryImpl

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

8.1.2.4 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.

   Enter the following information:

   - Name: com.ibm.ws.webcontainer.invokefilterscompatibility
   - Value: true
8. Click OK.
9. Click Save to commit the setting.

8.1.2.5 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.

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8.1.2.6 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`

8.1.2.7 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.

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

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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_default_port>/<context_root>/loginPage.jsp

For example, http://oracle.test:9081/ouaf/loginPage.jsp

8.2 Configuring WebSphere Network Deployment

8.2.1 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.

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8.2.1.1 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 QA 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.

8.2.1.2 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.

8.2.1.3 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.

8.2.1.4 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).
3. Click Create.

8.2.1.5 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.

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

8.2.1.6 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.

8.2.1.7 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.

8.2.1.8 Creation of Additional Servers in WebSphere ND

You must also provide the server names during the installation.

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

1. Select Servers, New Servers.

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

2. Select server type from the drop down list: WebSphere application server. Click Next.

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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.

8.2.1.9 Obtaining the Bootstrap Port and WC_defaulthost

You must also provide these port numbers during OUAF installation. Obtain the bootstrap port number and the WC_defaulthost 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 port number.

To view the bootstrap port number and the WC_defaulthost:

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 is displayed as WC_defaulthost.

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

8.2.1.10 Set up a New Virtual Host for your Server

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

8.2.1.11 Obtaining the WebSphere ND Node Name

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

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

To obtain the node name

1. Connect to the WebSphere ND administrative console
2. In the left pane, click Servers.
3. Click Application Servers under Servers.
4. Click the server instance (server_name, default) on the right section.
5. Click the Runtime tab.

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

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

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

8.2.2 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.

8.2.2.1 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:

   Add the following 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.

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8.2.2.2 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 1024 for Minimum Heap Size.
8. Enter 1024 for Maximum Heap Size.
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.

8.2.2.3 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.

   Enter the following information:

   - Name: javax.xml.transform.TransformerFactory
   - Value: org.apache.xalan.processor.TransformerFactoryImpl

9. Click OK.

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10. Click Save to commit the setting.

8.2.2.4 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.

   Enter the following information:

   Name: com.ibm.ws.webcontainer.invokefilterscompatibility

   Value: true
8. Click OK.
9. Click Save to commit the setting.

8.2.2.5 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 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.

8.2.2.6 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

8.2.2.7 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.

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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 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.
    - 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 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):
    - Select the SPLWeb application from Applications, Enterprise Applications.
    - Select Startup behavior.

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- 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 IBM WebSphere ND you will need to configure each application's security before starting the application.

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

For role cisusers:

- Check All Authenticated.
- Check Select and click Look up users:
- Search for `SYSUSER` and add to the selected users list.
- Click OK.

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

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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_default_port>/<context_root>/loginPage.jsp

For example, http://oracle.test-02:9085/ouaf/loginPage.jsp

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9. 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

9.1 Installation Overview

This process replaces any previously delivered and installed version of the Oracle Utilities Application Framework Server. Before you proceed:

1. Make sure that you have installed all the required third-party software as described in the Installing Application Server Prerequisite Software section.
2. Complete the database installation (refer to the *Oracle Revenue Management and Billing Database Administrator’s Guide*)

The installation packages for your Oracle Utilities Application Framework-based application must be downloaded from the Oracle Software Delivery *Cloud*. *A new installation or an upgrade to an existing Oracle Utili*ties Application Framework-based application environment can be performed for this version.

If you plan to upgrade a previously installed application server, note that the installation process replaces the previously installed version of the Oracle Utilities Application Framework Server. Before you proceed with the upgrade of an existing installation, make a backup of the application environment's folders and files.

Before you proceed with the installation process:

1. Make sure that you have installed all the required third-party software as described in the Installing Application Server Prerequisite Software section.
2. Complete the database installation/upgrade process. Refer to the Oracle Revenue Management and Billing Database Administrator's Guide.

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.

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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.

9.2 Preinstallation Tasks

9.2.1 Hardware and Software Version Prerequisites

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

9.2.2 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.

9.2.3 Installation Prerequisites

Section 7: Installing Application Server Prerequisite Software 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.

9.2.4 System Architecture Overview

Oracle Utilities Application Framework V4.2.0.0.0 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 6), 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.

9.2.5 Copying and Decompressing Install Media

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

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

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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 V4.2.0.0.0 Multiplatform package from the Oracle Revenue Management and Billing V2.4.0.0.0 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.V4.2.0.0.0-Multiplatform.jar` file.
5. Copy the `FW.V4.2.0.0.0-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.V4.2.0.0.0-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

A sub-directory named “FW.V4.2.0.0.0” is created.

9.2.6 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.V4.2.0.0.0` directory named `cistab_<SPLENVIRON>.sh`. Run the generated script using the root account before continuing with the installation process. The script initializes the cistab file in `/etc` directory (if it is the first Oracle Utilities 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 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.

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If you are reinstalling an existing environment, only the validation of `/etc/cistab` entry is done by the install utility, no new registration occurs. The install utility interactively instructs you about every step that needs to occur in each specific case.

If you are planning to upgrade an existing environment it is your responsibility to take a backup prior to the installation process. The installation utility does not create a backup of existing environment.

9.3 Installing Oracle Utilities Application Framework Version 4.2.0.0.0

To install Oracle Utilities Application Framework (OUAF) V4.2.0.0.0:

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

Note: On UNIX machine, login using the `cissys` credentials. And, on 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_1.6_Home_Directory>/bin:$PATH
   ```

Note:

The `<Java_1.6_Home_Directory>` folder is the location where you have installed Java 1.6.

The above command is applicable only for UNIX platform.

4. Change to the `<TEMPDIR>/FW.V4.2.0.0.0` directory.

Note: The `<TEMPDIR>` folder is the location where you have extracted the contents of the `FW.V4.2.0.0.0-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):
   ```

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6. Type <ORACLE_CLIENT_HOME>, and then press **Enter**. The following options appear in the command line:
    - 1. Third Party Software Configuration
    - 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 parameters.
8. Specify the required parameter values, and then press **Enter**.

Note:

For more details about these parameters, refer to the Third Party Software Configuration section.

While installing Oracle Utilities Application Framework Version 4.2.0.0.0 on the WebLogic 12.1.2 application server, you must set the value of the Web Java Home Directory parameter to the directory where Java 1.6 is installed and the value of the Web Application Server Home Directory parameter to the directory where WebLogic 12.1.2 is installed.

9. 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 parameters.
10. Specify the required parameter values, 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 parameters, refer to the Environment Installation Options section.

11. 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

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:

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→ 1. Environment Description

→ 2. WebSphere Basic Business Application Server Configuration

→ 3. WebSphere Basic 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. WebSphere ND Business Application Server Configuration

→ 3. WebSphere ND Web Application Server Configuration

→ 4. Database Configuration

→ 5. General Configuration Options

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

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

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

14. 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 parameters.
15. Specify the required parameter values, and then press **Enter**.
16. 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 parameters.
17. Specify the required parameter values, and then press **Enter**.
18. Type **4** to define values for the database configuration, and then press **Enter**. The utility prompts you to enter values for a list of parameters.
19. Specify the required parameter values, and then press **Enter**.

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

20. 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 parameters.
21. Specify the required parameter values, and then press **Enter**.

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

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22. Type **P** to proceed with the installation. The Oracle Utilities Application Framework Version 4.2.0.0.0 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

9.4 Post Installation Tasks

Once you install Oracle Utilities Application Framework V4.2.0.0.0, you need to do the following:

1. Install Oracle Utilities Application Framework Version 4.2.0.3.0
2. Install Rollup Pack for Oracle Utilities Application Framework Version 4.2.0.3.0

9.4.1 Installing Oracle Utilities Application Framework Version 4.2.0.3.0

To install Oracle Utilities Application Framework Version (OUAF) 4.2.0.3.0:

1. Download the RMB V2.4.0.1.0 - <Domain> - <Platform> patch from My Oracle Support using the following patch number:

Domain	Platform	Patch Number
Financial Services	AIX	21447157
	Windows	21447171
	Linux	21447187
Insurance	AIX	21447350
	Windows	21447355
	Linux	21447364

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A zip file is downloaded.

2. Unzip the downloaded file in your local folder. The contents include the following zip files:

Domain	Patch Number	Contents Include
Financial Services	21447187	• FW-V4.2.0.3.0-Multiplatform • RMB-V2.4.0.1.0-Linux • RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.4.0.1.0-Oracle-Database-MultiplatForm
Financial Services	21447157	• FW-V4.2.0.3.0-Multiplatform • RMB-V2.4.0.1.0-AIX • RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.4.0.1.0-Oracle-Database-MultiplatForm
Financial Services	21447171	• FW-V4.2.0.3.0-Multiplatform • RMB-V2.4.0.1.0-Windows • RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.4.0.1.0-Oracle-Database-MultiplatForm
Insurance	21447364	• FW-V4.2.0.3.0-Multiplatform • RMB-V2.4.0.1.0-Linux • RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.4.0.1.0-Oracle-Database-MultiplatForm
Insurance	21447350	• FW-V4.2.0.3.0-Multiplatform • RMB-V2.4.0.1.0-AIX • RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.4.0.1.0-Oracle-Database-MultiplatForm
Insurance	21447355	• FW-V4.2.0.3.0-Multiplatform • RMB-V2.4.0.1.0-Windows • RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform • RMB-V2.4.0.1.0-Oracle-Database-MultiplatForm

3. Unzip the `FW-V4.2.0.3.0-Multiplatform.zip` file in your local folder. The contents include `FW-V4.2.0.3.0-Multiplatform.jar` file.
4. Copy the `FW-V4.2.0.3.0-Multiplatform.jar` file from your local folder to `<TEMPDIR>`.
5. Decompress the file:

   ```
   cd <TEMPDIR>
   jar -xvf FW-V4.2.0.3.0-Multiplatform.jar
   ```

   A sub-directory named "`FW-V4.2.0.3.0-SP3`" is created.

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6. Change to the FW-V4.2.0.3.0-SP3 directory using the following command:

   cd <Destination_Folder>/FW-V4.2.0.3.0-SP3

Note: The <Destination_Folder> folder is the location where you have extracted the contents of the FW-V4.2.0.3.0-Multiplatform.jar file.

7. Install Oracle Utilities Application Framework V4.2.0.3.0 using the following command:

   AIX, Linux:

   ./installSP.sh

   Windows:

   installSP.cmd

9.4.2 Installing Rollup Pack for OUAF Version 4.2.0.3.0

To install the rollup pack for Oracle Utilities Application Framework Version 4.2.0.3.0:

1. Unzip the RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform.zip file from the location where you have extracted the contents of the RMB V2.4.0.1.0 - <Domain> - <Platform> patch. The contents include the FW_V4.2.0.3.0-Rollup directory.
2. Change to the FW_V4.2.0.3.0-Rollup directory using the following command:

   cd <Destination_Folder>/FW_V4.2.0.3.0-Rollup

   The contents include two zip files - Application_Rollup and Database_Rollup.

Note: The <Destination_Folder> folder is the location where you have extracted the contents of the RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform.zip file.

3. Unzip the Application_Rollup.zip file in the <TEMPDIR> directory. The contents include the Application directory.
4. Change to the Application directory using the following command:

   cd <TEMPDIR>/Application

5. Install the rollup pack using the following command:

   AIX, Linux:

   ./installSFgroup.sh

   Windows:

   installSFgroup.cmd

Note: For a list of patches that are included in this rollup, refer to Appendix A: Application Framework Prerequisite Patches.

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10. 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.

10.1 Preinstallation Tasks

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

10.1.1 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.

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2. Unzip the RMB-V2.4.0.1.0-<PLATFORM>.zip file in the <TEMPDIR> directory. The RMB-V2.4.0.1.0-<PLATFORM>.zip file is available at the location where you have extracted the contents of the RMB V2.4.0.1.0 - <Domain> - <Platform> patch.

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 RMB.V2.4.0.1.0.

10.2 Installing the Application

To install Oracle Revenue Management and Billing (ORMB) Version 2.4.0.1.0:

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>
```


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4. Set the ANT_OPTS environment variable using the following command:

   Windows:

   ```
   Set ANT_OPTS= -Xms512m -Xmx1024m -XX:PermSize=256M
   ```

Note: This command helps to process some tasks which require more memory. This command is applicable only for Windows and not for AIX or Linux machine.

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

   AIX, Linux:

   ```
   export PATH=<Java_1.6_Home_Directory>/bin:$PATH
   ```

   OR

   ```
   export PATH=<Java_1.7_Home_Directory>/bin:$PATH
   ```

Note:

Use the latter command in case you are using the Oracle WebLogic 12.1.2 (64-bit) application server.

The <Java_1.6_Home_Directory> folder is the location where you have installed Java 1.6 and the <Java_1.7_Home_Directory> folder is the location where you have installed Java 1.7.

The above command is applicable only for UNIX platform.

6. Change to the RMB.V2.4.0.1.0 folder using the following command:

   AIX, Linux:

   ```
   cd <TEMPDIR>/RMB.V2.4.0.1.0
   ```

   Windows:

   ```
   cd <TEMPDIR>\RMB.V2.4.0.1.0
   ```

7. 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:
   ```

8. Type **Y** and then press **Enter**. The following option appears in the command line:

   ```
   2. Business Application Server Configuration
   ```

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9. Type **2**, and then press **Enter**. The utility prompts you to enter values for the following parameters:

Parameter	Value
JVM Child Process Starting Port Number	<JVM_CHILD_PROCESS_PORT> **Note:** You must specify a unique value for this parameter.
Number of JVM Child Processes	<Number_of_JVM_Child_Processes> For example: 2

10. Specify the required values, and then press **P**. 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:
    ```

11. 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.

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10.3 Post Installation Tasks

Once you install Oracle Revenue Management and Billing V2.4.0.1.0, you need to do the following:

- Install Rollup Pack for Oracle Revenue Management and Billing V2.4.0.1.0
- Update the spl.properties Files

10.3.1 Installing Rollup Pack for ORMB Version 2.4.0.1.0

To install the rollup pack for Oracle Revenue Management and Billing Version 2.4.0.1.0:

1. Download the RMB V2.4.0.1.0 ROLLUP PACK patch (Patch Number: 21619977) from My Oracle Support. A zip file is downloaded.
2. Unzip the downloaded file in your local folder. The contents include two sub-folders - `RMB_V2.4.0.1.0_App_Rollup` and `RMB_V2.4.0.1.0_DB_Rollup`.
3. Change to the `RMB_V2.4.0.1.0_App_Rollup` folder using the following command:

   ```
   cd <DESTINATION_FOLDER>/RMB_V2.4.0.1.0_App_Rollup
   ```

Note: The `<DESTINATION_FOLDER>` folder is the location where you have extracted the contents of the RMB V2.4.0.1.0 ROLLUP PACK patch.

4. Install the rollup pack using the following command:

   AIX, Linux:

   ```
   ./installSFgroup.sh
   ```

   Windows:

   ```
   installSFgroup.cmd
   ```

Note: To view a list of patches that are included in this rollup pack, refer to Appendix B : ORMB V2.4.0.1.0 Post-requisite Patches.

10.3.2 Updating the spl.properties Files

Due a framework single fix, you need to set the following property in the spl.properties files to ensure that the algorithms function appropriately as expected:

```
ouaf.service.maxReplays = 0
```

For more information, refer to the BUG 21389686 - BO ALGORITHM GETTING INVOKED TWICE IF ANY BO ALGO THROWS ERROR.

To update the spl.properties files:

1. Change to the `$SPLEBASE/templates` directory.

Note: $SPLEBASE or %SPLEBASE% is the path where the application environment is installed. Use $SPLEBASE on Linux and AIX platforms and %SPLEBASE% on Windows platform.

2. Add the following property in the `spl.properties.standalone.template` file:

   ```
   ouaf.service.maxReplays = 0
   ```

3. Save the changes made to the file.

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4. Similarly, set the `ouaf.service.maxReplays` property to `0` in the following files:
   - $SPLEBASE/templates/spl.properties.template
   - $SPLEBASE/templates/spl.properties.service.template
   - $SPLEBASE/templates/spl.properties.XAIApp.template
   - $SPLEBASE/templates/spl.properties.iws.template
5. Execute the `initialSetup` utility using the following command:

   AIX, Linux:

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

   Windows:

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

6. 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.

10.4 Installing User Documentation

This section provides instructions for installing the Oracle Revenue Management and Billing online help that is supplied with the system. 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 2.4.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 files are under the applications directory packaged in the file named help.war.

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User documentation is provided in English (ENG). The documentation material is divided 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
- Insurance: Contains Oracle Revenue Management and Billing Insurance Process HTML Files

10.4.1 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.

10.4.1.1 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'`.

10.4.1.2 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"

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.

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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.

10.5 Operating the Application

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

10.6 Installing Framework Service Packs and Patches

Periodically, Oracle Utilities Application Framework 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 Utilities Application Framework 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.

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11. 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
- WebLogic Production Server Considerations
- Setting Up an Application Keystore
- Updating the Hash Column on the User Table

11.1 Customizing Configuration Files

You may wish to modify various configuration files. To do so, you should locate the configuration file you want to customize and edit it manually.

Configuration files are generated from delivered templates in the Oracle Utilities installation and are populated by values entered by the installation utility during the configuration process. In future upgrades of Oracle Utilities application software versions, some templates may be changed to reflect new software version requirements. In this case, the upgrade process will back up your customized configuration file and will regenerate a configuration file based on a new template. You will need to review the new configuration file and apply your customized changes back if still applicable for the new version.

For configuration files that are located in a web application (for example, web.xml, hibernate.properties), of the web application during installation process, you will not be able to edit the configuration files directly.

You will need to follow the procedure:

- Locate the configuration file you want to customize in the directory $SPLEBASE/etc/conf.
- Apply your changes.
- Update application war file with the latest changes by executing the following command:

  AIX, Linux:

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

  Windows:

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

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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.

11.2 Generating the Application Viewer

You may extend application viewer capabilities within an environment by generating additional items. The additional items that can be generated include algorithm type and related algorithm information, maintenance object information and data dictionary information.

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.

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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. Set MaxHeapMemory for AppViewer Generation.

AIX, Linux:

- configureEnv.sh –g
- Select menu option 50 and change the value of the parameter "Enable Batch Edit Funtionality" to "true".
- Run initialSetup.sh
- Run bedit.sh -e THIN
  - This will prompt if you want to create submitbatch.THIN.properties
  - reply Y
- set maxheap 1024m
- Save
- Exit

Windows:

- configureEnv.cmd -g
- Select menu option 50 and change the value of the parameter "Enable Batch Edit Funtionality" to "true".
- Run initialSetup.cmd
- Run bedit.cmd -e THIN
- This will prompt if you want to create submitbatch.THIN.properties
- reply Y
- set maxheap 1024m
- Save
- Exit

4. Execute the following script to generate all information:

AIX, Linux:

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

Windows:

```
%SPLEBASE%\bin\genappvieweritems.cmd
```

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5. Execute the following script to update the configuration files including the WAR files on the system:

   AIX, Linux:

   ```
   ksh ./initialSetup.sh
   ```

   Windows:

   ```
   initialSetup.cmd
   ```

6. Restart your application.

11.3 Building Javadocs Indexes

The following script rebuilds the Javadocs indexes in the application viewer java module. This is necessary after customer modifications (CM) have been applied to an environment. You need to run this script only if the customer modification includes Java code.)

Windows:

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

AIX, Linux:

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

11.4 Configuring the Environment for Batch Processing

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

11.5 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`.

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11.6 WebLogic Production Server Considerations

By default, WebLogic Server is configured with two keystores, to be used for development only. These keystores should not be used in a production environment.

11.6.1 Configuring Identity and Trust

Private keys, digital certificates, and trusted certificate authority certificates establish and verify identity and trust in the WebLogic Server environment. WebLogic Server is configured with a default identity keystore DemoIdentity.jks and a default trust keystore DemoTrust.jks. In addition, WebLogic Server trusts the certificate authorities in the cacerts file in the JDK. This default keystore configuration is appropriate for testing and development purposes. However, these keystores should not be used in a production environment.

To configure identity and trust for a server:

1. Obtain digital certificates, private keys, and trusted CA certificates from the CertGen utility, Sun Microsystem's keytool utility, or a reputable vendor such as Entrust or Verisign. You can also use the digital certificates, private keys, and trusted CA certificates provided by the WebLogic Server kit. The demonstration digital certificates, private keys, and trusted CA certificates should be used in a development environment only.
2. Store the private keys, digital certificates, and trusted CA certificates. Private keys and trusted CA certificates are stored in a keystore.
3. Configure the identity and trust keystores for a WebLogic Server instance on the Configuration: Keystores page.

   By default, WebLogic Server is configured with two keystores, to be used for development only.

   - DemoIdentity.jks: Contains a demonstration private key for WebLogic Server. This keystore establishes an identity for WebLogic Server.
   - DemoTrust.jks: Contains a list of certificate authorities trusted by WebLogic Server. This keystore establishes trust for WebLogic Server.

These keystores are located in the `WL_HOME\server\lib` directory and the `JAVA_HOME\jre\lib\security` directory. For testing and development purposes, the keystore configuration is complete. Use the steps in this section to configure identity and trust keystores for production use.

Refer to the WebLogic documentation to configure identity and trust keystores for production use (Secure servers and resources > Configure identity and trust/Set up SSL)

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.

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11.7 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. The digital signatures feature is only appropriate for Oracle Revenue Management and Billing customers who use document numbers in generating bill signatures. For additional information about document numbers, digital signatures and encryption, see the online help.

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=@SPLEBASE@/.mykeystore
     com.oracle.ouaf.keystore.password=<keystore_password>
     ```

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

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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(SP
LEBASE)@/.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.

11.8 Updating the Hash Column on the User Table

During initial install of the application server, when running install.sh the installer creates both the Oracle Utilities Application Framework system keys and system HMAC keys. In certain situations it is necessary to run the following to update the hashes (the F1_SECURITY_HASH field) on the User table:

Windows:

```
set CLASSPATH=%CLASSPATH%;%SPLEBASE%\splapp\standalone\lib\spl-shared-
4.2.0.3.0.jar;%SPLEBASE%\splapp\standalone\lib\commons-cli-
1.1.jar;%SPLEBASE%\splapp\standalone\lib\log4j-
1.2.17.jar;%SPLEBASE%\splapp\standalone\lib\commons-codec-
1.6.jar:%SPLEBASE%\etc\lib\ojdbc6-11.2.0.3.0.jar
```

```
cd %SPLEBASE%\etc\conf\service
```

AIX, Linux:

```
export CLASSPATH=$CLASSPATH:$SPLEBASE/splapp/standalone/lib/spl-shared-
4.2.0.3.0.jar:$SPLEBASE/splapp/standalone/lib/commons-cli-
1.1.jar:$SPLEBASE/splapp/standalone/lib/log4j-
1.2.17.jar:$SPLEBASE/splapp/standalone/lib/commons-codec-
1.6.jar:$SPLEBASE/etc/lib/ojdbc6-11.2.0.3.0.jar
```

```
cd $SPLEBASE/etc/conf/service
```

Then execute the following:

```
java com.splwg.shared.common.ChangeCryptographyKey -l -h
```

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Please refer to the *Oracle Revenue Management and Billing Security Guide* for more details.

11.9 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.

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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 zip file named RMB-V2.4.0.1.0-FW-PREREQ-MultiPlatform.zip. The BUGLIST.txt file in the `Application` directory lists the bugs for which patches are available in the rollup pack.

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Appendix B : ORMB V2.4.0.1.0 Post-requisite Patches

Once you install Oracle Revenue Management and Billing Version 2.4.0.1.0, you need to install a set of post-requisite patches. These patches are available in the rollup pack named RMB V2.4.0.1.0 ROLLUP PACK. A separate rollup pack is available for each supported platform. The BUGLIST.txt file in the `RMB_V2.4.0.1.0_App_Rollup` folder lists the bugs for which patches are available in the rollup pack.

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Appendix C : ORMB V2.4.0.1.0 Bug Fixes

To view a list of bugs fixed in the current release, refer to *Oracle Revenue Management and Billing Version 2.4.0.1.0 Release Notes*.

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